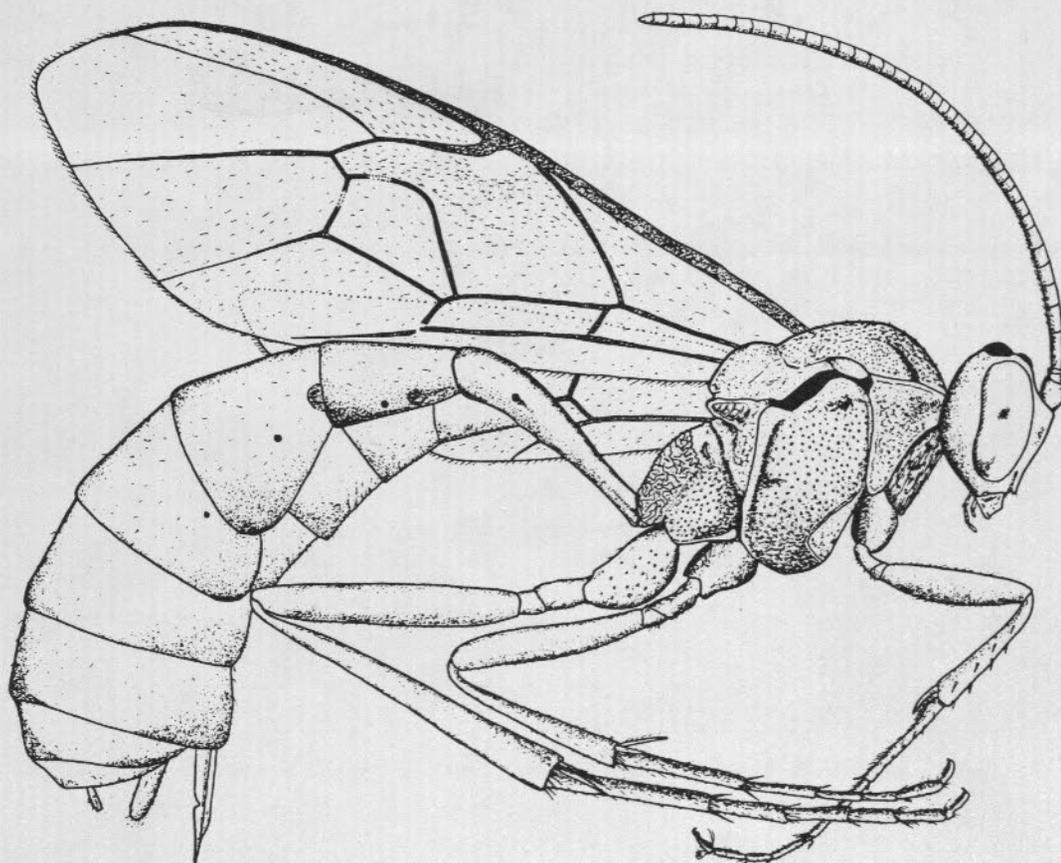


THE TAXONOMY, DISTRIBUTION AND HOST PREFERENCES
OF AFRICAN PARASITIC WASPS OF THE
SUBFAMILY OPHIONINAE

I. D. GAULD and P. A. MITCHELL



COMMONWEALTH INSTITUTE OF ENTOMOLOGY

**THE TAXONOMY, DISTRIBUTION AND HOST PREFERENCES
OF AFRICAN PARASITIC WASPS OF THE
SUBFAMILY OPHIONINAE
(HYMENOPTERA: ICHNEUMONIDAE)**

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OF ATRIA PARVITICULATA OF THE
SUBFAMILY CRYPTINAE
(DIPTERA: CRYPTINIDAE)

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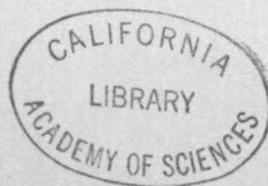
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SYNOPSIS

The Ophioninae (Hymenoptera, Ichneumonidae) of Africa south of the Sahara and its islands are described and keys given to the 11 genera and 190 species. *Stauropoctonus* Brauns is recorded for the first time from this region. A total of 106 new species are described and 6 species are described but not formally named. One genus, *Primophion* Townes and 34 species are reduced to synonymy. A full bibliography of each species, an account of its distribution and, where possible, notes on host and habitat preferences are included. Descriptions of head capsules of 24 final instar larvae are given including that of *Euryophion latipennis* (Kirby); the larval morphology of species of this genus were previously unknown. Illustrations of critical characters of adults and larvae, and distribution maps are included. An introductory section includes historical notes, methods of preparation, zoogeography and discussion of critical characters. A host-parasite index completes the work.

INTRODUCTION

The subfamily Ophioninae is a moderately large group of Ichneumonidae, species of which are commonly encountered in almost all regions of the world. About 37 genera are currently recognized as valid, but authorities are not wholly in agreement about the limits and status of certain small taxa. Two genera, *Ophion* and *Enicospilus* are extremely large. Combined, they contain far more species than all the remaining genera. *Ophion* and *Enicospilus* tend to be mutually exclusive. *Ophion* is abundant, both in diversity and numbers of individuals, in the Holarctic and Neotropical Regions, but is virtually absent from the Old World tropics although small species-groups occur in the extreme south of the Ethiopian Region, southern Australia and New Zealand. *Enicospilus* is represented by rather few species in the Holarctic Region but contains extremely large numbers in the tropics. Species of *Enicospilus* are very strong fliers and have spread not only to continental islands but also to remote oceanic islands. The majority of the remaining genera in this subfamily are quite small and, in many cases, are probably only specialized species-groups of *Ophion* or *Enicospilus*.

The Ophioninae are amongst the most distinctive of Ichneumonidae on account of the characteristic facies of the adults. The position of vein *3rm* in the forewing and the presence of a spurious vein extending from the vannal notch to the tornus are diagnostic characters of the subfamily. The compressed abdomen, usually yellowish or brownish in colour, large ocelli and generally long slender legs and antennae are other useful recognition characters. All species of Ophioninae occurring in the Ethiopian Region have strongly pectinate claws, and the ovipositors are always shorter than the apical abdominal depth. A complete diagnosis of the subfamily together with keys to the majority of genera is included by Townes (1969, 1971).

The majority of species of Ophioninae are crepuscular or nocturnal and large numbers are frequently collected in m.v. light traps. These species have the typical ophionoid facies. The few species that are diurnal have smaller eyes and ocelli, shorter antennae and are darker coloured. The Ophioninae are protelean parasites (Askew, 1971) of medium- or large-sized exposed lepidopterous larvae. The larval parasite lives internally in the host's haemocoel and finally destroys its host during the final larval instar, often after the host has constructed a cocoon. The parasite larva spins a characteristic oval cocoon, which is usually dark brown with a broad pale equatorial band, either within the soil or the host cocoon.

The lepidopterous families Noctuidae, Lymantriidae, Lasiocampidae and Saturniidae are the most common hosts of Ophioninae. Many species of these families are important agricultural pests, and many Ophioninae are probably important factors in the natural control of these pests. It is quite probable that some species may be of use for biological control in the future.

HISTORICAL NOTES

The first Ethiopian ophionine was described from the Cape of Good Hope in 1822 by Thunberg. During the following 70 years only 5 more species were added. The 1890's marked the beginning of an upsurge of interest in African Hymenoptera, and between 1892 and 1903 an additional 32 species were described, mostly from Madagascar and the former German colony of Togo. From 1906 there was a sustained interest in the fauna of the Old World tropics, and during the following 20 years 52 new species were described. Between 1930 and 1965, interest in taxonomy waned and very few species of Ophioninae were proposed from the Ethiopian Region except for those described from East Africa in the important work of Seyrig (1935). Since 1965 authors have added a further 21 names to the list of Ethiopian species.

At present a total of 23 authors have proposed 158 specific names, of which 134 were proposed by 9 authors. Data on these authors are summarized below.

Author	Dates	Number of species proposed	Number considered valid
Thunberg, C.P.	1822	1	1
Brullé, A.	1846	3	3
Holmgren, A.E.	1868	1	1
Taschenberg, E.L.	1875	1	1
Saussure, H.	1892	7	6
Kriechbaumer, J.	1894-1901	9	7
Kirby, W.	1896	1	1
Tosquinet, J.	1896-1903	14	10
Dalla Torre, K.W. von	1901	1	1
Schulz, W.A.	1906	2	2
Szépligeti, G.V.	1906-1908	20	7
Cameron, P.	1906-1912	10	4
Morley, C.	1912-1926	16	4
Enderlein, G.	1914-1921	17	7
Strand, E.	1915	2	1

Bischoff, H.	1915	1	1
Roman, A.	1923-1943	2	0
Wilkinson, D.S.	1928	1	0
Seyrig, A.	1935	26	10
Masi, L.	1939	2	1
Aubert, J.F.	1966	1	1
Townes, H.K.	1971-1973	5	3
Delobel, A.	1974-1976	15	13
TOTALS		158	85

The work of the authors prior to H.K. Townes, when dealing with the Ethiopian Ophioninae, is characterized both by a lack of understanding of the diversity and limits of the species and also of the limits of the genera concerned. Kriechbaumer (1901), Enderlein (1918) and Seyrig (1935) all attempted to divide *Enicospilus* into a number of small genera according to the number of alar sclerites. It is obvious that many of the species without a central sclerite are very closely related to those that have a central sclerite, whilst other species have a range of variation from one to two central sclerites (Cushman, 1947). Any attempt to group species of this large genus should place emphasis on characters such as the shape of the claws and form of the male genitalia as well as the more conspicuous wing characters.

The pre-Townesian authors generally failed to consider the work of their contemporaries and predecessors. The earliest of them described as new any species they received from any part of Africa. As the expeditions became more frequent, so more species were described. Usually these descriptions were poor and overlooked many of the critical characters of the species concerned. Even for a person familiar with the group, it is generally impossible to distinguish, on the basis of the published description, a particular species from almost any other of the genus in which it is placed. Several of the most prolific authors merely compounded the confusion of earlier workers by describing material, usually without reference to their predecessors' work, and almost invariably without illustrating any of the critical characters.

Morley (1912a) was the first author to attempt to provide a key to the species of the region, but not only did he grossly underestimate the size of the group, he also based his work on a large number of misidentifications, several of which are still in common usage. Seyrig (1935) was exceptional in producing a useful work containing keys to species and illustrations of many characters. Unfortunately, he misidentified a number of common species, and also failed to include all previously described species, thereby creating a large number of synonyms.

The work of Townes (1971) in defining the genera and Townes & Townes (1973) in cataloguing the described Ethiopian species provide a sound basis for modern taxonomic work.

Delobel (1974b, 1975, 1976) has produced papers on several genera, notably *Dicamptus*, *Laticoleus* and *Rhopalophion*. Examination of a number of large collections not seen by Delobel has revealed a number of additional new species.

Until the present review it was still impossible, using published work, to identify the majority of Ethiopian Ophioninae, especially species of *Enicospilus*.

NOMENCLATURAL SUMMARY

Townes & Townes (1973) catalogued 11 genera and 93 valid species as occurring in the Ethiopian Region. The genera and species herein treated and the nomenclatural changes made are summarized below.

Genus <i>OPHION</i> Fabricius	<i>nubilicarpus</i> (Tosquinet)	<i>meridionalis</i> (Morley)
	<i>hynnis</i> sp.n.	<i>nigripennis</i> Cameron
Genus <i>RHOPALOPHION</i> Seyrig	<i>discinervus</i> (Morley)	<i>adustus</i> (Townes)
	<i>curvus</i> Seyrig	<i>pisinnus</i> sp. n.
	<i>parallelus</i> Delobel	<i>variegatus</i> sp. n.
	<i>divergens</i> Delobel	Genus <i>RICTOPHION</i> Townes
Genus <i>DICAMPTUS</i> Szépligeti	<i>neavei</i> sp.n.	<i>ikuthana</i> (Kriechbaumer)
	<i>banqui</i> Delobel	<i>nebulifer</i> (Morley)
	<i>tampus</i> sp.n.	<i>pollutus</i> (Seyrig)
	<i>braunsii</i> (Kriechbaumer)	Genus <i>OPHIONOPSIS</i> Tosquinet
	<i>rufus</i> (Kriechbaumer) syn. n.	<i>nigrocyaneus</i> Tosquinet
	<i>kriechbaumeri</i> (Dalla Torre) syn. n.	<i>fulvipes</i> Tosquinet syn. n.
	<i>athi</i> (Morley) syn. n.	<i>magnificus</i> (Morley)
	<i>rufoides</i> (Strand) syn. n.	<i>superbus</i> (Morley) syn. n.
	<i>fortis</i> (Seyrig) syn. n.	<i>saliina</i> (Enderlein) syn. n.
	<i>bantu</i> Delobel	<i>setus</i> sp. n.
	<i>kelnerae</i> Delobel	Genus <i>ORIENTOSPILUS</i> Morley
	<i>crassellus</i> (Morley)	<i>melasma</i> Townes
	<i>xhosa</i> Delobel	<i>capitatus</i> sp. n.
	<i>betsileo</i> Delobel	Genus <i>LATICOLEUS</i> Townes
	<i>pellucidus</i> (Kriechbaumer)	<i>pronotalis</i> sp. n.
	<i>seyrigi</i> Delobel	<i>spilus</i> sp. n.
	<i>townesi</i> Delobel	<i>alaris</i> sp. n.
	<i>pulchellus</i> (Morley)	<i>mobilis</i> Delobel
Genus <i>EURYOPHION</i> Cameron		<i>unicolor</i> (Szépligeti)
<i>EURYCAMPTUS</i> Morley		<i>fractus</i> (Seyrig)
<i>THORACOPHION</i> Roman		<i>bekiliensis</i> Delobel syn. n.
<i>PRIMOPHION</i> Townes syn. n.		<i>infumatus</i> sp. n.
<i>latipennis</i> (Kirby)		<i>longicornis</i> Delobel
<i>ventrator</i> (Roman)		<i>curvatus</i> Delobel
		<i>palpalis</i> sp. n.
		<i>pedalis</i> sp. n.
		<i>sokokei</i> sp. n.

- Genus *LEPISCELUS* Townes
distans (Seyrig)
gracile Townes
- Genus *STAUROPOCTONUS* Brauns
occipitalis sp. n.
- Genus *ENICOSPILUS* Stephens
unidens Seyrig
gonidius sp. n.
amygdalis sp. n.
akainus sp. n.
congoensis (Cameron)
concolor (Szépligeti)
major (Morley)
streblus sp. n.
camboui sp. n.
leucocotis (Tosquinet)
algoensis (Kriechbaumer)
pruinosis (Cameron)
rotundistriatus (Cameron) syn. n.
africanus (Morley)
prolixus sp. n.
cubitalis (Szépligeti)
fatalis sp. n.
pressuratus sp. n.
marjorieae sp. n.
camerunensis Enderlein
nugalis (Schulz)
pseudonugalis sp. n.
equatus sp. n.
junctus sp. n.
angustatus (Brullé)
cohacarus sp. n.
evanescens sp. n.
oweni sp. n.
hyailosus sp. n.
senescens (Tosquinet)
infuscatus (Tosquinet) syn. n.
rapax (Seyrig)
glyphanosus sp. n.
eirmosus sp. n.
mamatus sp. n.
decaryi sp. n.
umbratus sp. n.
plagiatus (Saussure)
talaorus sp. n.
seyrigi sp. n.
diro sp. n.
rehanarius sp. n.
janakus sp. n.
volitius sp. n.
indovus sp. n.
antimena (Saussure)
incongruus (Morley)
cariosus (Enderlein)
damius sp. n.
abessyniensis (Szépligeti)
nigrinervis (Szépligeti)
flavinervis (Szépligeti)
lancasteri sp. n.
microspilus sp. n.
nefarius sp. n.
luebberti (Enderlein)
agrophus sp. n.
apicalis (Szépligeti)
mollis Seyrig syn. n.
drakensbergi sp. n.
justus Seyrig
taxus sp. n.
diaboli sp. n.
mahalonius sp. n.
mauriti (Saussure)
leionotus var. *longicornis* (Morley)
recticarinatus (Enderlein)
sliochus sp. n.
pescator (Seyrig)
- dolosus* (Tosquinet)
hammersteini (Enderlein)
belosus sp. n.
fananus sp. n.
punctipinnis (Saussure)
retsifoius sp. n.
lanafius sp. n.
xandarus sp. n.
vorikus sp. n.
famantrus sp. n.
oswaldi (Saussure)
recavus sp. n.
nubeculatus Seyrig
icterus sp. n.
bantu (Schulz)
sphenus sp. n.
helvolus sp. n.
dubius (Tosquinet)
anceps (Tosquinet)
angustatus (Szépligeti)
gulosus (Seyrig)
brevicornis (Masi)
henryi sp. n.
leionotus (Tosquinet)
herero (Enderlein)
capensis (Szépligeti)
albigeri (Kriechbaumer)
tsigegeus (Seyrig) syn. n.
grandiflavus Townes & Townes
grandis (Morley)
prospiracularis sp. n.
rufus (Brullé)
longescutellatus (Kriechbaumer) syn. n.
lomelaensis Cameron syn. n.
insidiosus (Enderlein) syn. n.
quietus (Seyrig)
babaulti (Seyrig)
polyspilus sp. n.
divisus (Seyrig)
drymosus sp. n.
meledonosus sp. n.
vatius sp. n.
kadiusus sp. n.
ruwenzorius sp. n.
cittus sp. n.
hecastus sp. n.
simandrius sp. n.
drasmosus sp. n.
biimpressus (Brullé)
pallidiceps (Cameron) syn. n.
alienus (Morley) syn. n.
seminiger (Szépligeti)
trimaculatus (Tosquinet)
tosquineti (Morley)
amarus sp. n.
rubens (Tosquinet)
corrugans (Enderlein)
batus sp. n.
ovius sp. n.
reti sp. n.
vontalis sp. n.
anaxeus sp. n.
bebelus sp. n.
cednus sp. n.
daulus sp. n.
furius Seyrig
communis (Szépligeti)
laevis (Seyrig) syn. n.
rupeus (Seyrig) syn. n.
fulvescens (Masi) syn. n.
fetus sp. n.
glarus sp. n.
hoplus sp. n.
expeditus (Tosquinet)
octus sp. n.
nesius sp. n.

- lictus* sp. n.
mnous sp. n.
pacificus (Holmgren)
 sericatus (Tosquinet)
 brevipennis (Szépligeti)
 aethiopicus Seyrig
 lahimierus Seyrig syn. n.
nervellator Aubert
emcedius sp. n.
nops sp. n.
odax sp. n.
pluvius sp. n.
ruidus sp. n.
oculator Seyrig
arduus sp. n.
pallidus (Taschenberg)
 damarensis (Cameron)
 sinicaratus (Enderlein)
 techowi (Enderlein)
 dinteri (Enderlein)
meniscus sp. n.
sesamiae Delobel
bajulus sp. n.
capensis (Thunberg)
 antankarus (Saussure)
 praedator (Enderlein)
 incarinatus (Enderlein)
 euxoae (Wilkinson)
 obnoxius Seyrig syn. n.
ruscus sp. n.
bicoloratus Cameron
- antefurcalis* (Szépligeti)
 obscuriceps (Enderlein) syn. n.
rundiensis Bischoff
 ruandensis Roman syn. n.
ktesus sp. n.
latus sp. n.
fenestralis (Szépligeti)
 grandis (Szépligeti)
 interstitialis var. *nigricauda* Seyrig syn. n.
 melanura Townes & Townes syn. n.
inflexocarinatus (Enderlein)
natalensis (Kriechbaumer)
 interstitialis (Szépligeti) syn. n.
 menamena Seyrig syn. n.
braunsii (Kriechbaumer)
 africanus (Szépligeti) syn. n.
 congestus (Szépligeti) syn. n.
 medius Seyrig syn. n.
krossus sp. n.
hova sp. n.
psammus sp. n.
transvaalensis Cameron
 natalensis (Cameron)
 renovatus (Morley)
 ambositrens Delobel syn. n.
bonaberiensis Strand
betanimenus (Saussure)
 madagascariensis (Szépligeti)
 trinotatus (Szépligeti) syn. n.
vorax Seyrig
finalis sp. n.
addendus sp. n.

Species erroneously recorded from the Ethiopian Region.

Enicospilus repentinus (Holmgren)

This species has been reported from Ethiopia (Magretti, 1884) and Malawi (Pearson & Darling, 1958; Sweeney, 1962) as a parasite of *Plusia orichalcea*. We have examined the lectotype (designated by Townes, Momoi & Townes, 1965), which was collected in Catherineburg, Sweden. This is a Palaearctic species, and we have seen no specimens from the Ethiopian Region. We have not been able to locate any of the specimens upon which the Ethiopian records are based, so the identity of the species parasitizing *Plusia orichalcea* remains in doubt.

Enicospilus vecors (Tosquinet)

This species was described from a single male alleged to have been taken in South Africa. Townes & Townes (1973) examined the holotype and synonymized this species with *E. trilineatus* (Brullé), a Neotropical species. We concur with Townes & Townes. Morley (1912a, 1917) recorded *vecors* from additional African localities. Morley's records are mis-identifications of *E. dubius*.

Enicospilus bipartitus (Tosquinet)

This is a Neotropical species. Morley's (1912a) record of this species is a misidentification of *E. betanimenus*.

ZOOGEOGRAPHY AND DISTRIBUTION

For the purposes of this work the term Ethiopian Region is used in the sense of Sclater (1859) and Wallace (1876). It may be defined as that part of the African continent south of latitude 20°N, together with the islands of Madagascar, São Tomé, Príncipe and Fernando Poo, also the Comores, Seychelles and Mascarene Archipelagos. We have included the southern part of the Arabian peninsula (south of 20°N) and the island of Socotra.

The Ethiopian Region is zoogeographically separated from the Palaearctic Region by the Sahara Desert. The availability of moisture is one of the main factors determining the limits of distribution of most ichneumonids (Townes, 1958), and, as the majority of species are unable to tolerate prolonged periods of drought, few species have managed to cross this barrier. This has also been found to be true for other groups of insects (Whalley, 1971; DeJong, 1976). The northern coast of Africa, together with the Middle East and Mediterranean basin, has a very distinctive ophionine fauna with large numbers of species of *Ophion* and species of the genera *Clistorapha* Cushman, *Helwigiella* Szépligeti, *Boethoneura* Cushman, *Apatophion* Shestakov and *Barytatocephalus* Schulz. The countries bordering the southern edge of the Sahara have a number of species of *Enicospilus*, *Dicamptus* and *Euryophion* but no species of the above mentioned genera.

The separation of the Ethiopian and Palaearctic Regions starts to break down in the north-eastern corner of Africa, where the Nile Valley and Red Sea possibly provide a migration route from one region to the other. We have, for example, seen a single specimen of *Ophion obscuratus* (Fab.) collected in Aden. This common Palaearctic species is not otherwise recorded from the Ethiopian Region. We have made no allowances in this work for such isolated specimens of species from other regions.

A number of species of *Enicospilus* have been recorded from Morocco, Madeira and the Canary Islands (Roman, 1938). None of these have ever been recorded from the Ethiopian Region, but the possibility of their occurrence along the coast of the extreme north-west of the region cannot be discounted as there is very little material in collections from the coast of Africa between Morocco and Sierra Leone.

Within the Ethiopian Region there are, for Ophioninae, a relatively few broad distributional patterns, which, to some extent, follow the faunistic divisions proposed for Rhopalocera by Carcasson (1964). In the present study 7 main patterns are recognized and discussed.

1. The Savannah.

This extends from Guinea throughout western Africa, through Zaire, northern Angola, the Central African Republic, and East Africa from Kenya to about as far south as Grahamstown, South Africa (Map 2). This roughly corresponds with that part of Africa having vegetation types 9 (steppe) and 10 (savannah) (Bartholomew, 1972) and receiving between 750 and 1500 mm of precipitation annually (Map 1). Savannah species also occur in the cleared areas in lowland wet forests. Species with this distribution frequently also occur in Madagascar. Examples of Ophioninae with this distribution are *Enicospilus dubius*, *E. nugalis* and *Rhopalophion discinervus* (Maps 6, 29, 53). Similar distribution patterns have been observed for Lepidoptera (Whalley, 1971 : 191) and Pompilidae (Day, 1974 : 393).

2. The Lowland Forest Division.

This includes the wet equatorial forest areas, vegetation type 11 (Bartholomew, 1972), occurring between 10°N and 10°S and extending from Kenya to Sierra Leone (Map 2). A few species with this distribution also occur in eastern Madagascar. The various zones of this division recognized by Carcasson (1964) have no obvious importance for Ophioninae. Examples of Ophioninae with this distribution are *Enicospilus equatus*, *E. babaulti* and *Dicamptus bantu* (Maps 9, 31, 63). A similar distribution pattern has been observed amongst Lepidoptera, for the Drepanidae (Watson, 1965 : 173) and the Thyrididae (Whalley, 1971 : 190, maps 62-69) and amongst the Hymenoptera, for Pompilidae (Day, 1974 : 399).

3. The Highland Forest Division.

This includes the riverine forests and drier woodlands of East Africa, from the Ethiopian highlands (or rarely the south of the Arabian peninsula) south to about Grahamstown, South Africa. Two outlying mountainous regions, in Cameroun and Angola also belong in this division. Carcasson (1964) recognized 7 zones, the Cameroons zone, the Kivu-Ruwenzori zone, the Ethiopia zone, the Kenya zone, the Tanganyika-Nyasa zone, the Angolan zone and the South African zone. The majority of Ophioninae occurring in this division are not confined to any one zone, but extend throughout most of the East African zones of the division. Examples of such a distribution are *Enicospilus rundiensis* and *Rictophion ikuthana* (Maps 19, 93). A similar distributional pattern has been observed for Lepidoptera, Thyrididae (Whalley, 1971 : 188, map 48) and Hymenoptera, Pompilidae (Day, 1974 : 399).

A few species of Ophioninae are restricted to certain zones. *Enicospilus bonaberiensis* is known only from the Cameroons zone, but is very closely related to a widely distributed East African highland forest species, *E. vorax*.

The Kivu-Ruwenzori zone contains a number of unique species. Many of these, which are restricted to the very highest mountains, are slender, weakly sculptured and blackish coloured (presumably to absorb heat more effectively). Examples of Ophioninae with such a distribution are *Enicospilus diabolicus* and *E. ruwenzorius* (Maps 46, 67).

The Ethiopian, Kenyan and Tanganyika-Nyasan zones appear to have a number of species in common. Of these, the former appears to have a poorer fauna than the latter two. Carcasson (1964) observed that the Ethiopian zone is relatively poor in Rhopalocera. Occasionally species occurring in these zones occur also in the Cameroons zone. Examples of Ophioninae with these types of distribution are *Enicospilus furius* and *E. justus* (Maps 44, 79).

We have seen too few specimens from Angola to be able to comment on the Angolan zone.

The South African zone includes the forests extending from the Drakensberg to the Moçambique border. Examples of Ophioninae having this distribution are *Enicospilus marjorieae* and *E. drakensbergi*. (Maps 27, 43).

4. The Madagascar region. (corresponds to the Malagasy sub region of Carcasson, 1964).

This region has a large number of endemic species and species-groups, several of which are very aberrant morphologically and not at all closely related to the species occurring in other areas. Several of the endemic species of Madagascar have spread to the neighbouring islands (such as the Mascarene and Comores archipelagos) (e.g. *Enicospilus mauritii*). All the species so far recorded from the smaller islands in this region also occur on Madagascar, and a number of the most widely distributed occur also on the mainland.

Some Madagascan species have clear affinities with Oriental species, particularly those occurring in southern India and Sri Lanka. A striking example of affinity between the Ethiopian and Oriental Regions via Madagascar, is the distribution of species of the genus *Orientospilus*, which contains 3 closely inter-related species, one in south-east Africa, one in Madagascar and the third in south-west India.

The distribution of the endemic Madagascan species is not discussed further, but the works of Seyrig (1932) and Paulian (1961) give a detailed account of the zoogeography of the region.

5. The Cape sub-region.

Carcasson (1964) subdivides this region into 4 zones, the Cape zone, the Karroo zone, the Cape Grassland zone and the Namib zone. We have not seen sufficient material from this area to allow us to ascribe any of the Cape species to any particular one of these zones, with the exception of a very few species which appear to be restricted to the Cape zone (Map 2). Several species of Ophioninae are restricted to the Cape region, examples of which are *Ophion nubilicarpus* and *Enicospilus herero* (Maps 5, 55).

6. The Kalahari zone.

This zone is treated as part of the southern division of the region of open formations by Carcasson (1964). We have seen too little material from the other two zones in this division to discuss them separately. This region includes the drier areas of South Africa, South-West Africa and Botswana (Map 2). A very few species occurring in this area also occur in the drier areas to the north, particularly those areas with vegetation types 9, 15 and 16 (Bartholomew, 1972). One of these species, *Enicospilus capensis* (Map 88) extends as far north as Socotra and southern Arabia. [This species has been recorded, under the name *E. antankarus*, several times from parts of India (Chatterjee & Misra, 1974). Whether the Oriental species is indeed conspecific with the Ethiopian one we cannot be sure as yet, but some species of Pompilidae have a range of distribution from southern Africa through the drier region of the Upper Luangwa Valley, Zambia, to north-east Africa, and thence eastwards to the drier areas of the Indian sub-continent (M.C. Day, personal communication).]

A few species occurring in the Kalahari zone also occur in south-west Madagascar. Examples of the Kalahari distribution are *Enicospilus quietus* and *E. grandiflavus* (Maps 57, 62).

7. The Nubian Zone.

This region extends from eastern Sudan to the Arabian peninsula. It corresponds to the Arabian and eastern Sudanese zones of Carcasson (1964). This author shows the Sudanese zone as extending west to the Atlantic coast. We have seen virtually no Ophioninae from the southern border of the Sahara and so are unable to comment on the western extent of this area. Only a very few eremitic Ophioninae are restricted to this region, an example of which is *Enicospilus psammus* (Map. 92).

MATERIAL EXAMINED

The majority of the 4,000 plus specimens studied were from the collections of the British Museum (Natural History) the Townes collection, the Musée Royal de l'Afrique Centrale and the Museum National d'Histoire Naturelle.

Parts of the Ethiopian Region are better represented in these collections than are others. This discrepancy in collecting will be obvious in some distribution maps. To counterbalance this anomaly, a distribution of all collecting localities that have yielded Ophioninae is shown in Map 3.

Certain areas have been relatively well collected by a comparatively few dedicated collectors. The most notable these are:—

Messrs H. J. Brédo, J. Ghesquière and C. Seydel (Zaire); Messrs C. M. Courtois and B. Moutia (Mauritius); Dr J. Decelle (Ivory Coast); Drs H. & M. Townes, Messrs F. Gess and R. E. Turner (South Africa); Messrs C. C. Gowdey and S. A. Neave (East Africa); Mr E. Hargreaves (Sierra Leone); Mr G. Heinrich (East Africa and Angola); Dr G. A. Lancaster (Uganda); Prof. D. Owen (Sierra Leone and Uganda) and Monsieur A. Seyrig (Madagascar).

Virtually no material has been seen from Mali, Upper Volta, Niger, Chad, Somali Republic and Equatorial Guinea.

Because of the often lengthy lists of material examined we have used abbreviations for depositories. These are:—

AC	Aubert Collection, Paris, France.
BMNH	British Museum (Natural History), London, England.
DEI	Deutsches Entomologisches Institut, Eberswalde, East Germany.
FZLU	Fachbereich Zoologie, Luther-Universität, Halle, East Germany.
IRSNB	Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium.
IZPAN	Instytut Zoologiczny Polska Akademia Nauk, Warszawa, Poland.
MCSN	Museo Civico di Storia Naturale, Genova, Italy.
MNHN	Museum National d'Histoire Naturelle, Paris, France.
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin, East Germany.
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium.
NR	Naturhistoriska Riksmuseet, Stockholm, Sweden.
SAM	South African Museum, Capetown, South Africa.
TC	Townes Collection, Ann Arbor, Michigan, U.S.A.
TMB	Természettudományi Múzeum, Budapest, Hungary.
TMP	Transvaal Museum, Pretoria, South Africa.
USNM	United States National Museum, Washington, D.C., U.S.A.
WAU	Wageningen Agricultural University, Wageningen, Netherlands.
ZC	Zwart Collection, Wageningen, Netherlands.
ZIUU	Zoological Institute, University of Uppsala, Uppsala, Sweden.
ZMA	Zoölogisch Museum, Amsterdam, Netherlands.
ZSBS	Zoologisches Sammlng des Bayerischen Staates, München, West Germany.

PREPARATION OF MATERIAL

Almost every entomologist has his own particular way of preparing specimens for examination. During the course of this work, the authors examined a very large number of specimens and many were found to be difficult or impossible to determine because of bad preparation. We have found the best preparatory method is as follows. Specimens collected in the field by net or Malaise trap should be killed in 90% alcohol. Specimens collected in m.v. light traps should be transferred to alcohol after rinsing in a weak solution of mild detergent to remove Lepidoptera scales. Specimens reared in the laboratory should be allowed to harden after emergence from the cocoon and then killed by immersion in 90% alcohol. Specimens should be stored in 90% alcohol, but they keep better if the alcohol is completely changed after the first two weeks. For mounting, specimens should be transferred to fresh 95% alcohol, from which they should be taken and partially dried by laying on their sides on absorbent paper (the paper should be free from loose surface fibres; chemist's filter papers are excellent for this purpose).

When the surface alcohol has evaporated, the specimen should be pinned by having a number 1 or 2 stainless steel pin pushed through the mesoscutum slightly in front of the scuto-scutellar groove and slightly to one side of the midline, and out through the mesosternum behind the epicnemial carina. Antennae and legs should be straightened and wings parted so that the scutellum is visible from the dorsal aspect. Palpi should, as far as possible, be exposed. Care should be taken to avoid breaking off tarsal claws and tips of antennae.

Host remains and cocoons should, when present, either be pinned on the same pin as the specimen or, if pinned separately, they should be cross referred to the specimen.

The method of genitalia preparation is particularly important as excessive maceration with caustic potash (KOH) causes undue distortion of the aedeagus. The genital capsule is detached from a relaxed male and immersed in 5% potassium hydroxide solution containing 2% ethanol for 10-15 minutes at 80°C in a constant temperature water bath. After maceration, the genitalia are dissected in distilled water. The parts are then placed in glycerol, and after soaking for 30 minutes, transferred to fresh glycerol in a cavity slide. It is then possible to arrange the parts of the genitalia for drawing or study. After this the genital parts should be washed, dehydrated, cleared and mounted in Canada Balsam on a cavity slide. A permanent mount is not prepared directly because of the importance of studying the genitalia of the various species orientated in the same way. Slight differences in orientation can give a totally false impression of difference.

Larval head capsules may be prepared for examination as follows. The cocoon is opened by a longitudinal cut from the exit hole. The contents are placed in 5% KOH solution for 10 minutes at 80°C in a constant temperature water bath. After maceration the larval skin is washed and examined in water under the microscope. The cephalic capsule may then be cut free from the larval skin. The capsule is then stained in acid fuchsin, dehydrated, cleared and mounted on a cavity slide in Canada Balsam.

FORMAT ADOPTED

First a key is provided to genera. Under each genus is a synonymic list of generic names and a brief generic diagnosis. This is followed by a discussion of the number of species and their phylogeny. After this a key to species is provided. For each species a standardized format has, as far as possible, been used. Immediately beneath each specific name

is a list of bibliographic references, which includes details of types and their depositories, lists of synonyms and references to papers dealing with the biology of the species. Whenever possible, the specimens upon which biological data are published were examined. Often these specimens were misidentified. In such cases, references are included under the correct species name but listed in square brackets with the incorrect name cited. Parasitic Hymenoptera are notoriously difficult to identify, and determinations made by the most careful of workers may frequently be incorrect in any but the particular genus or group of genera on which the systematist in question is currently researching. These misdeterminations are only revealed when a taxonomist subsequently revises a particular genus. Far too often non-taxonomist entomologists, having investigated and published data on the biological features of a particular insect, either fail to deposit a sample of their material in a national museum or omit to mention in their work the museum in which they deposited material. Consequently, it is difficult or impossible for subsequent workers to establish to which of a group of species a particular piece of biological information pertains.

Following the bibliography is a description of the adults of each species, which is based on all available conspecific material. Whenever there is marked variation (other than variation in the indices), mention of this is made in a separate paragraph entitled variation. Following variation are remarks about the species in which the diagnostic characters are emphasized and the species is compared with its closest relatives.

The next two sections are not always present. Where possible, brief descriptions of the cephalic capsule of the final instar larva and shape of cocoon are given. These are followed by a list of recorded hosts. Records that have not been confirmed by examination of the ichneumonid concerned are indicated by an asterisk. Such records need verification.

In the last paragraph habitat preference is discussed and usually included is reference to the distribution map of the species. This is followed by a list of all specimens examined. These are listed in alphabetical order of countries, in alphabetical order of localities within countries and in chronological order within a locality. Distances and elevation are expressed in kilometres and metres, respectively.

TERMINOLOGY

The morphological terminology throughout this work follows that proposed by Richards (1956). The definitive insect thorax is composed of three segments. In the Parasitica the 1st abdominal segment is immutably joined to the metathorax. The thorax together with the first abdominal segment or propodeum are called the *alitrunk* in this work. The remainder of the abdomen from segment 2 onwards is called the *gaster*. The numbering of the gastral tergites commences with the petiolar segment (abdominal segment 2) being called tergite 1. The names employed for the sclerites of the alitrunk and gaster are shown in Fig. 5. It should be pointed out here that this system of terminology, whilst broadly compatible with that used by many hymenopterists (Townes, 1969; Jonathan & Gupta 1973), differs in the naming of two important mesothoracic carinae. In the present work, *epicnemial carina* is used in place of prepectal carina and *posterior transverse carina of the mesosternum* in place of the postpectal carina. *Anterior transcarina of the propodeum* and *posterior transcarina of the propodeum* are used in place of basal transverse carina and apical transverse carina.

In this work, the naming of the veins and cells of the wing follows Richards' interpretation of the Comstock-Needham system as shown in Fig. 1.

Certain specialist terminology used in this work needs further definition. The *lower face* is that part of the face below the insertion of the antennae and includes the clypeus but excludes the labrum. The width is taken as the minimum distance between the inner orbits and the length as the distance from the mid-apical margin of the clypeus to the level of the antennal insertion. The *flagellum* is that part of the antenna distal to the annellus. The breadth of a flagellar segment is its median breadth excluding hairs. The *malar space* is the shortest distance between the orbit and the base of the mandible.

The *scutellar length* and *breadth* are defined as the length from the posterior margin of the scuto-scutellar groove to the posterior margin of the scutellum and the greatest distance between the lateral longitudinal carinae, respectively. The *length of the hind trochantellus* is measured medio-dorsally from the distal margin of the trochanter to the proximal margin of the femur. The *length and depth of the hind coxae* are measured in profile. Certain indices are extensively used throughout this work, these are defined as:—

AI	Alar index of forewing=	$\frac{\text{length of } 1m\text{-}cu \text{ between } 2m\text{-}cu \text{ and distal margin of bulla}}{\text{length of } 3rm}$
CI	Cubital index of forewing=	$\frac{\text{length of } Cu_1 \text{ between } 1m\text{-}cu \text{ and } Cu_{1a}}{\text{length of } Cu_{1b}}$
DI	Discoidal index of forewing=	$\frac{\text{greatest distance between } Cu_{1a} \text{ and } 1m\text{-}cu \text{ measured at } 90^\circ \text{ to } Cu_{1a}}{\text{length of } Cu_{1a} \text{ between } Cu_1 \text{ and } 1m\text{-}cu}$
FI	Frontal index of head=	$\frac{\text{maximum diameter of median ocellus}}{\text{distance between eyes through maximum diameter of median ocellus}}$
ICI	Inter-cubital index of forewing=	$\frac{\text{length of } 3rm}{\text{length of } M \text{ between } 3rm \text{ and } 2m\text{-}cu}$
NI	Nervellar index of hindwing=	$\frac{\text{length of } Cu_1 \text{ between } cu\text{-}a \text{ and } M}{\text{length of } cu\text{-}a}$
SDI	Second discoidal index of forewing=	$\frac{\text{length of 1st abscissa of } Cu_{1a}}{\text{length of } Cu_1 \text{ between } Rs+M \text{ and } 1m\text{-}cu}$

The naming of genitalia structures follows the terminology proposed by Peck (1937) (Fig. 4). The naming of micro-sculpture follows the system outlined by Eady (1968) and the larval terminology follows that of Short (1959) (Fig. 6).

Changes in borders and geographical names have and still are occurring in the African continent. In this work all locality data have been standardized in accordance with the names used in the 1972 edition of the *Times Atlas of the World*. Hence, Moçambique and Fernando Poo are used in place of the more usual English renditions, Mozambique and Fernando Po.

A number of localities in Madagascar where Seyrig collected are not shown in the Times Atlas. Seyrig (1932) includes a map showing these localities and also an interesting discussion about the floristic and faunistic nature of the habitats collected in.

SPECIES CRITERIA AND CRITICAL CHARACTERS

The Ophioninae show a very limited number of taxonomically useful characters, and at the same time often appear to exhibit a considerable range of variation. Sympatric synchronous species populations are relatively easy to segregate, and within a limited geographical range, the range of intraspecific variation is small compared with the range of inter-specific variation.

Over a broad geographical range more difficulty is encountered in delimiting species. Frequently a decision has to be made as to whether small samples of two widely separated populations are different species, or whether the differences between them are the result of genetically or environmentally produced geographical intraspecific variation. Virtually no information is available concerning the effect on the adult phenotype of development in different hosts, or of differences in humidity or temperature during larval and pupal instars. Work on other groups of insects has shown that climatic differences during the pupal instar can induce differences in the pigmentation and patterning of the adult (Kettlewell, 1944; 1963; Myers, 1977). In addition to the direct effect of the environment on the phenotype, over a large geographical range slight differences in the environment will alter selection pressures on the various genotypes, thus changing the frequency of the genes within a local population (as in the oft quoted case of industrial melanism in *Biston betularia*). Unfortunately no studies have been made on the genetic variability and factors effecting natural selection in Ophioninae.

Many authors utilize subspecies for geographical variants, but we have avoided using this category. Our reason for this is that to try to define a geographical phenomenon in morphological terms (which is what is attempted conventionally) cannot be wholly satisfactory. Consider for example the following hypothetical case. A small sample of a population from one area A (and for Ophioninae most available samples are extremely small!) differs from a similarly small sample of the species in area B in having the mesoscutum pale striped rather than uniformly red. By adopting conventional sub-specific criteria one may postulate two geographical subspecies, A-ensis and B-ensis, and construct the couplet:

—mesoscutum unicolorous red B-ensis
—mesoscutum with a pair of longitudinal whitish stripes A-ensis

Were a much larger sample of the populations to be taken, it is likely that a few specimens would be found in area A without the mesoscutal stripes and a few specimens found in area B with these stripes. [It appears that such striped individuals occur most often in arid areas; even in more humid regions pale striped individuals occur within an otherwise unstriped population during exceptionally dry spells.] Would the few individuals from A with unicolorous mesoscuta be subspecies B-ensis (which is where they would run in a key) even though they occur amongst and freely interbreed with a population of A-ensis? To further complicate the situation a sample of the species from an intermediate area will contain specimens with intermediate characters. One can therefore postulate the existence of a clinal variation in the frequency of a particular character with a higher incidence of intermediates between the two characters in intermediately placed geographical populations.

The real impracticability of naming such forms is demonstrated for some Anomaloninae (Gauld, 1976) and amongst other Hymenoptera for Scoliidae (Betrem & Bradley, 1972). [It is perhaps noteworthy that although the latter two authors used subspecies they found difficulty in delimiting them because of the existence of intergrades and in some cases actually found that the ranges of distribution of the two sexes coincided only in part (op. cit. p. 11-12).] Although clinal variation cannot be demonstrated conclusively for African Ophioninae, it is interesting to observe that larger samples, collected recently over longer periods in malaise traps, have shown that a number of species (e.g. *Ophion nubilicarpus* and *Enicospilus dubius*) have a much larger range of intraspecific variation than was supposed, and in the case of the latter, the frequency of the conditions of some character states varies markedly between widely geographically separated populations (p. 101).

The dearth of information about variation and the all too numerous wide gaps between collecting sites means that in many cases the decision as to whether or not two populations constitute distinct species is fairly arbitrary. In cases where individuals of two geographically separated populations differ in a small number of characters, [particularly 'weak characters' such as intensity of pigmentation, shape of the central sclerite, degree of sinuousness of *Im-cu* etc. (see discussion of characters)] we have treated the populations as being conspecific. New species have only been described when a specimen or more usually a group of specimens, has been found to differ from other recognized species in a number of important characters.

It may be helpful to discuss the relative taxonomic usefulness of certain characters, many of which have been used extensively by previous authors. Although the morphological characteristics of the Ophioninae were discussed at length by Gauld (1977) for the Australian fauna, additional discussion is necessary because of the very much larger number of Ethiopian species which exhibit a variety of characters either not found or of little taxonomic importance in the Australian Ophioninae.

Head characters

The shape of the clypeus is often characteristic of a species. In most species, it is separated from the face by a weak impression, but in many species of *Enicospilus* it is flat and virtually confluent with the face. The shape of the mandibles is variable and almost always very characteristic of a species. The mandibles are used primarily, if not solely, by the adult in escaping from its cocoon. Striking examples of convergence may be observed and one often finds that species in a particular habitat have similarly modified mandibles. Species inhabiting dry areas have to bite through a hard pupal cell and in consequence have pick-like mandibles with a long stout upper tooth, such as is found in *Enicospilus capensis*, *E. herero* and *Lepiscelus distans* (Figs 215, 282). Species having thick silky cocoons tend to have the upper mandibular tooth flattened dorso-ventrally, as in *Enicospilus nugalis* and *E. betanimenus* (Fig. 133). One species-group of *Enicospilus*, the *E. unidens* group, are unusual amongst Ophioninae in having the upper mandibular tooth very much shorter than

the lower tooth (Fig. 119). Species of the genera *Euryophion* and *Ophionopsis* have very large, weakly tapered mandibles (Fig. 15). Many species, especially in the genus *Laticoleus*, have dense brushes of long hair on the outer mandibular surface (Fig. 102). The function of such brushes is not clearly understood.

The number of palpal segments is usually very constant within the subfamily although important specific differences are found in *Euryophion* species.

The gross head shape offers a number of characters, but in general, these are difficult to define. Males of many species tend to have the genae more buccate and the malar space slightly longer than the corresponding females. The position of the ocelli in relation to the eyes is important. Diurnal species such as *Orientospilus melasma* have much smaller ocelli than their nocturnal relatives.

The antennae of most species are of similar relative length, but the shapes of the individual flagellar segments were found to be of taxonomic importance. Species living in dry open areas often have shorter stouter antennae than their forest-living relatives. The number of flagellar segments was observed to be variable within any one particular species, but the measurement of large numbers of individuals has revealed that each species has a definite range of variation, which often has only a narrow area of overlap with that of a closely related species.

Alitrunk characters

The propodeum of a few species belonging to different genera is modified by having the anterior rim upturned and folded back, often also having a strongly developed transverse ridge (such as that found in *Orientospilus* species, *Enicospilus junctus* and *Laticoleus pronotalis* (Figs. 16, 129). This modification is most usually found in Madagascan species. Species with such a modification have the occiput strongly concave and often with the occipital carina extended into a flange. This modification appears to offer the Ichneumonid protection against predators, particularly Asilidae, which frequently sever the neck membranes of their prey. It is not clear why such an apparently useful adaptation should be virtually restricted to a few rare Madagascan species.

The shape of the mesoscutum and propodeum in profile is generally characteristic of a species. The meso- and meta-pleural sculpture are usually constant for a particular species, although in some species of *Enicospilus* there is variation from punctate to striate. The shape of the scutellum and submeta-pleural carina also offer useful taxonomic characters. The sculpture of the propodeum is less useful as smaller individuals often have disproportionately less strongly developed carinae or microsculpture than larger conspecific individuals.

Wing characters

In species of the genera *Enicospilus* and *Dicamptus* and to a lesser extent *Laticoleus* and *Ophion*, the discosubmarginal cell often bears an obvious fenestra behind *Rs+2r*. In the membrane of this fenestra are often 1 or more detached sclerites. (Figs 326-461). Although generally providing good specific characters, some care is needed in interpreting the taxonomic significance of these sclerites. Generally the shape of the proximal sclerite is rather constant within a particular species, but variation in the size, shape and even the number of central and distal sclerites may occur within some species (see *Enicospilus biimpressus* p. 119).

During the past century many authors have attempted to divide *Enicospilus* into several genera on the number of alar sclerites (e.g. *Allocomptus* - no sclerites; *Amesospilus* - no central sclerite; *Schizospilus* - 2 or more central sclerites). Cushman (1947: pp.466-473) offers some interesting comments on this subdivision. Such subdivisions are useful only for purposes of keying species and are not of any phylogenetic significance. For example, *E. unidens* is very closely related to *E. akainus*, but they would be placed in separate genera if classified on alar sclerite number. Similarly, in the species *E. cohacarus* a weak alar sclerite is usually present, but individuals exist in which the sclerite is absent.

There are a very large number of additional characters in the wings, particularly in the relative lengths of veins, position of the bullae and hairiness of the discosubmarginal cell. The shape of the distal hamuli and vein *Rs* in the hindwing are important in the genus *Laticoleus*.

Leg characters

The hind tarsal claws are often characteristic of the various species. They are often strongly sexually dimorphic. The extent and type of sexual dimorphism varies from species to species and is thought to be of phylogenetic significance (Gauld, 1977). In many species, slight differences exist between the pectinae of the inner and outer hind tarsal claws, and in a few forest-dwelling *Enicospilus* species the claws are very strongly asymmetrical (Figs 606-9). Unless otherwise stated, all references are to the outer hind tarsal claw.

The tibial spurs offer useful characters. The length of the fore tibial spur is important in separating species of *Dicamptus* and the presence of a membranous flange behind the macrotrichial comb is important in generic classification (Gauld, 1977). Some species living in arid areas have large numerous spines on the outer fore tibial surface. This is an important specific character in *Dicamptus* and *Enicospilus*. The shape of the hind tibial spurs is also of limited taxonomic importance in certain genera. Species of *Euryophion* and *Ophionopsis* generally have the inner hind tibial spur cylindrical, quite unlike that of species of *Enicospilus*.

The hind trochanteral segments offer a number of characters. The trochantelli have the distal margin produced into an acute tooth in *Stauropogon* and one species of *Enicospilus*. In some species of *Enicospilus* the trochantelli are extremely long.

Gaster characters

Relatively few specific characters are found in the gaster. In some species of *Euryophion*, the position of the epipleuron of tergite 2 (whether upturned or pendant) is important. This character is also important for some South American species of *Enicospilus*, but all Old World species of *Enicospilus* examined have the epipleuron upturned. The genera *Euryophion* and *Ophionopsis* tend to have stouter gasters than species of other genera (Figs 7-10). The position and shape of the thyridia is often constant for a particular species.

The female genitalia are poor in specific characters. Amongst the Ichneumonidae generally, groups of species that are external parasites, often have specifically distinct ovipositor tips whilst internal parasites have few distinguishing characters in the ovipositor. A particularly good example of this may be observed in the Pimplinae, where good specific characters exist in the ovipositors of species of most tribes, except for the species of the one tribe that is endoparasitic (Townes & Townes, 1960). In some species of *Laticoleus*, the shape and hairiness of valvulae 3 are of limited specific significance.

The male terminalia offer more characters. The distribution and type of pubescence found on sternites 6-8 are often of specific significance. The shape of the male subgenital plate is extremely variable and, in the Ethiopian species, of no

specific significance. The shape of the claspers and the form of the aedeagus are sometimes characteristic of a particular species, but these characters are often of limited taxonomic use. Generally, closely related species have very similar male genitalia, whereas unusual and distinctive species often have aberrant genitalia characteristics. There are a few exceptions within the genus *Enicospilus*.

Colour characters

The colour patterns of the insects are of some taxonomic use although many species have a large range of colour variation (Figs 234-235). Certain colour patterns have an environmental significance, such as the black colour of species living at high altitude and the mottled patterning of forest species. Species occurring in arid regions have profuse ivory markings, particularly on the mesothorax. This is a common colour pattern of eremitic species. Whether it is of cryptic significance or physiological importance is not clear.

Some species have the inter-ocellar area black. This seems to be a constant feature of many species and is of taxonomic importance. A few specimens of *Enicospilus* sometimes have the inter-ocellar area slightly infuscate close to the margins of the ocelli, but no species is known to be dimorphic and have individuals with the inter-ocellar area black and other individuals with the inter-ocellar area orange.

Immature stage characters

The shape of the cocoon may well be characteristic of a particular species. At present, only a few cocoons have been examined and it is not possible to ascertain whether the observed differences between cocoons of the several species are reliable specific differences, or merely differences due to utilization of a different host.

The only part of the larvae studied was the cephalic capsule of the final instar larva. A number of species were examined, mostly from the genus *Enicospilus*, a number of satisfactory specific characters were identified. The material seen invalidates the differences used as generic characters by Short (1959). The authors have examined the cephalic capsules of many species of Ophioninae and have not been able to find reliable characters to permit separation at generic level.

BIOLOGY

The biology of very few species has been investigated. Of those studied, *Enicospilus [sesamiae]* as investigated by Moutia & Courtois (1952) serves as a typical example of Ophioninae. These authors observed *Enicospilus* laid a single, cylindrical, slightly curved, pale-coloured egg in the body cavity of the lepidopterous larva. In the case studied (*Sesamia vuteria* larvae) the 4th or 5th instar were those most generally selected as prospective host. No sign of paralysis was observed in the parasitized host. The ichneumonid egg was found to take 2-3 days to hatch. Larva underwent 3 instars in the host, lasting, in total, between 25 and 35 days (depending upon temperature). The third-instar larva was observed to emerge from the host at about the time of the host's death. The ichneumonid larva then took 24-36 hours to spin a cocoon. The prepupal stage and pupal instar together lasted 28-42 days.

Some other species of Ophioninae have larvae which wait until the host has spun a cocoon before they emerge. They then spin their cocoon within the host cocoon (Gauld, 1977 : fig 223). We have not found any ophionine cocoon within the host pupa, which is the usual place where (? related) Anomaloninae pupate.

Palaeartic Ophioninae (e.g. *Ophion scutellaris* Thomson) frequently remain as adults within the cocoon for several months before emerging (Morley, 1915 : 271). Moutia & Courtois found that the adults of *Enicospilus sesamiae* were common for about one month and rare for the remaining eleven. It is possible that, as the developmental stages (from egg to imago) require at a maximum about two months, the remaining nine months could be passed as an adult in the cocoon.

The available evidence seems to indicate that the Ophioninae are not very host specific, and will oviposit in a range of host species. Some species (e.g. the Nearctic *E. americanus* Christ) oviposit in very early instar larvae, whilst others (e.g. the Palaeartic *E. tristrigatus* Enderlein) oviposit in much larger larvae (Price, 1975). Species attacking earlier stage larvae tend to have a larger number of ovarioles per ovary, in the case cited above 24 for *E. americanus* against 13 for *E. tristrigatus*. Moutia & Courtois (1952) found it very difficult to persuade *Enicospilus* to oviposit under laboratory conditions. We have experienced similar difficulties and even though a suitable host in the correct instar be placed before a gravid female, she generally ignores it, or shows no interest after a cursory examination. We suggest one reason for this lack of interest may be that the Ophioninae are habitat specific and that a particular set of environmental prerequisites must be satisfied before the female commences host searching behaviour. Pruett (1974 : unpublished data) whilst investigating the parasitism of *Achaea janata* L. by *Echthromorpha agrestoria* (Swederus), observed that although the host population density was uniform throughout a *Ricinus* (castor oil) plantation, the percentage parasitism was not. The percentage parasitism seemed to be correlated with weed growth, for in that part of the plantation with 4 week old weed growth parasitism was 0.4%, but with a 22 week weed growth it increased to 12.2%. Pruett's data suggest that, at least for some ichneumonids, the habitat prerequisites are of major importance.

Almost without exception the cocoons of Ophioninae are in soil surface litter, or within the ground itself. This is unlike the closely related subfamily Campopleginae which generally have cocoons suspended from the plant.

There are few records of hyperparasitism on Ophioninae, none of which are from the Ethiopian region. Barron (1976) working in North America recorded a species of *Euceros* (Hymenoptera: Ichneumonidae) parasitizing the larva of an unidentified ophionine, whilst Riek (1962) working in Australia recorded a species of *Taeniogonalos* (Hymenoptera: Trigonalidae) parasitizing the larva of an *Enicospilus* species.

Subfamily OPHIONINAE Shuckard, 1840

The limits of this subfamily have been altered considerable since it was first proposed. Originally the Ophioninae contained all Ichneumonidae with laterally compressed gasters and slender petioles with the spiracles at or posterior to the middle (and in a few cases those with spiracles anterior to the middle). Schmiedeknecht (1908) included 14 tribes, Helwigiini, Ophionini, Nototrachini, Anomalonini, Campoplegini, Paniscini, Banchini, Mesochorini, Pristomerini, Cremastini, Porizonini, Plectiscini, Xiphosomini and Pharsaliini. This classificatory system was generally used until the advent of Townes' (1944, 1945) reclassification of the Nearctic Ichneumonidae. Townes removed several tribes, either to other subfamilies, or elevated their status to that of separate subfamilies, restricting the Ophioninae to 5 tribes, the Campoplegini, Cremastini, Tersilochini, Anomalini and Ophionini. Short (1959) elevated the Anomalini to the status of a separate subfamily. Townes *et al* (1961) elevated the remaining tribes to subfamily status thus restricting the Ophioninae to what

was originally the tribe Ophionini. This interpretation is accepted by most Ichneumonologists and in this work Ophioninae is used in the narrow Townesian sense.

The Ophioninae may be distinguished from other Ichneumonidae by the presence of a spurious vein between the vannal notch and the tornus and in having the intercubital vein (*3rm*) distal to *2m-cu*. (Whether or not the intercubital vein is *3rm* is not clear; in most Ichneumonidae *3rm* has a bulla but this is absent in Ophioninae. The vein may be *2rm* or *2+3rm* but in this work we have, for convenience used the most usual notation, *3rm*). In the Ethiopian region a genus of Anomaloninae, *Pseudanomalon* Szépligeti, has similar venation to the Ophioninae. *Pseudanomalon* species may be distinguished from all Ophioninae in having a large medio-apical clypeal tooth (Gauld & Mitchell, 1976 : fig. 3).

Cushman (1947) divided the Ophioninae into three groups of genera, the *Thyreodon*, *Ophion* and *Enicospilus* genus-groups. Townes (1971) formally proposed for the combined *Thyreodon* and *Enicospilus* genus-groups a new tribe, the *Enicospilini*. Both systems have merits but are oversimplifications of the complex phylogeny of the group. An example of this oversimplification is that in both systems *Dicamptus* is placed close to *Enicospilus*. Morphological study has subsequently shown that it is unlikely that the two genera are as closely related as previously thought. The least specialized Ophionine genera have well developed membranous flanges on the fore tibial spurs. Such flanges are entirely absent in the more specialized *Enicospilus* and even the least specialized species of this genus have no trace of this flange. On the other hand, *Dicamptus* species do have traces of this flange. The least specialized species have the flange present at the extreme base of the spur, although the flange is absent in more specialized individuals there is a clearly visible scar in the same position. It is interesting to note that two Australian species of *Ophion* also have reduced flanges on the fore tibial spurs thus indicating that the tendency to loss of this flange has happened in more than one evolutionary line.

Undoubtedly the *Enicospilus* evolutionary line is quite ancient (study of the Pacific Fauna indicates that numerous radiations have occurred to give rise to highly specialized species groups in Hawaii) (Gauld, unpublished data) and several genera, notably *Pycnophion* Ashmead, *Abanchogastra* Perkins, *Banchogastra* Ashmead and *Barytatocephalus* Schulz are little more than highly specialized species-groups of *Enicospilus*. The *Ophion* evolutionary line with its disjunct distribution and numerous unspecialized morphological features is almost certainly older than the *Enicospilus* line. The evidence available seems to indicate that the *Enicospilus* and *Ophion* evolutionary lines diverged a very long time ago but the *Dicamptus* line did not diverge from the main *Ophion* line until much more recently. The presence of alar sclerites, a character previously used for justifying the close relationship of *Enicospilus* to *Dicamptus*, has now been observed in several other genera including *Ophion* so it can no longer be considered to be of very great phylogenetic significance.

For the above reasons the two tribes utilized by Townes (1971) are not used in the present work. A key is given directly to the genera.

KEY TO GENERA OCCURRING IN ETHIOPIAN REGION

- | | | |
|------|---|--------------------------------------|
| 1 | Posterior transverse carina of mesosternum more or less complete | 2 |
| - | Posterior transverse carina of mesosternum absent in front of mid coxae | 6 |
| 2(1) | Distal margin of mid and hind trochantelli with a sharp, decurved tooth on anterior side (Fig. 10); forewing without detached sclerites; mandibles twisted about 85° | <i>STAUROPOCTONUS</i> Brauns (p. 37) |
| - | Distal margin of mid and hind trochantelli without a sharp tooth, very rarely (in one species of <i>Enicospilus</i>) with a sharp decurved tooth, but in such a case the forewing bears detached sclerites (Fig. 418); forewing otherwise with or without sclerites; mandible from flat to twisted about 80° | 3 |
| 3(2) | Occipital carina absent except for traces laterally; apices of mid and hind trochantelli flattened and projecting over proximal ends of the femora (Fig. 14) | <i>LEPISCELUS</i> Townes (p. 37) |
| - | Occipital carina complete or narrowly obsolescent mediodorsally; apices of trochantelli usually simple, never overlapping ends of femora | 4 |
| 4(3) | Dorsal 0.4 of inner orbits paralleled by a sharp raised carina on frons which is dorsally curved towards the lateral ocellus (Fig. 11); inner hind tibial spur cylindrical; posterior margin of metanotum produced opposite propodeal spiracle (Fig. 9) | <i>OPHIONOPSIS</i> Tosquinet (p. 28) |
| - | Dorsal 0.4 of inner orbits without a carina (Fig. 12); inner hind tibial spur flattened internally; posterior margin of metanotum not produced (Fig. 8) | 5 |
| 5(4) | Mandible somewhat twisted, conspicuously narrowed from base to apex, or if (in one species) with mandible very weakly narrowed, then with lower tooth the longer; mandibular teeth otherwise various, the lower tooth longer than, equal to or shorter than the upper (Figs 277-284); fore tibial spur without a trace of a membranous flange behind the macrotrichial comb (Fig. 18) | <i>ENICOSPILUS</i> Stephens (p. 38) |
| - | Mandible not twisted, very weakly narrowed from base to apex, with apical teeth subequal (Figs 35, 36); fore tibial spur either with a vestigial membranous flange behind the macrotrichial comb, or with a scar indicating the position flange would occupy if present (Fig. 17) | <i>DICAMPTUS</i> Szépligeti (p. 15) |
| 6(1) | Fore tibial spur with a membranous flange behind the macrotrichial comb, and extending at least 0.4 of the length of the tibial spur (Figs 19, 20); forewing with <i>1m-cu</i> usually with a discernible ramellus | 7 |
| - | Fore tibial spur either without a membranous flange, or with a minute flange behind macrotrichial comb that does not extend 0.1 of the length of the tibial spur (Fig. 21); forewing without a ramellus | 8 |
| 7(6) | Ramellus very long, reaching 0.7 of distance to <i>Rs&M</i> (Figs 42-44); notaulus absent; fore tibial spur more than 2.5 times as long as apical tibial breadth (Fig. 20) | <i>RHOPALOPHION</i> Seyrig (p. 13) |
| - | Ramellus shorter, not reaching 0.5 of distance to <i>Rs&M</i> (Figs 22, 23); notaulus present on anterior 0.4 of mesoscutum; fore tibial spur less than 2.0 times as long as apical tibial breadth (Fig. 19) | <i>OPHION</i> Fabricius (p. 12) |
| 8(6) | Mandibles apically strongly narrowed, with upper tooth distinctly the longer (Fig. 13); pronotum mediodorsally with a raised transverse keel (Fig. 16) | <i>ORIENTOSPILUS</i> Morley (p. 30) |
| - | Mandibles very weakly apically narrowed, subequally bidentate (Fig. 15); pronotum usually without a raised transverse keel | 9 |
| 9(8) | Gaster slender, tergite 2 in profile more than 3.5 times as long as deep posteriorly and with anterior margin of sternite 2 posterior to the spiracle of tergite 1 (Fig. 7); clypeus, in profile, convex, with apical margin impressed | <i>LATICOLEUS</i> Townes (p. 31) |
| - | Gaster rather stout, tergite 2 in profile less than 3.0 times as long as deep posteriorly and with anterior margin of sternite 2 anterior to spiracle of tergite 1 (Fig. 8); clypeus, in profile, flat, apical margin flat to out-turned | 10 |

- 10(9) Tergite 2 of gaster without thyridia (Fig. 97); maxillary palpi 3-segmented *RICTOPHION* Townes (p. 27)
 — Tergite 2 of gaster with thyridia distinct (Figs 95, 96); maxillary palpi 4- or 5-segmented
 *EURYOPHION* Cameron (p. 23)

Genus *OPHION* Fabricius

- Ophion* Fabricius, 1798 : 235. Type-species: *Ichneumon luteus* L., by subsequent designation (Curtis, 1835 : 600).
Paniscus Schrank, 1802 : 316. Type-species: *Ichneumon luteus* L., by monotypy.
Stenophthalmus Szépligeti, 1905 : 23. Type-species: *Stenophthalmus algiricus* Szépligeti, by subsequent designation (Viereck, 1914 : 137). [Homonym of *Stenophthalmus* Becker, 1903]
Pachyprotoma Kohl, 1906 : 223. Type-species: *Ophion peregrinus* Smith, by monotypy.
Australophion Morley, 1912a : 4. Type-species: *Ophion peregrinus* Smith, by monotypy.
Neophion Morley, 1912a : 4. Type-species: *Neophion crassus* Morley, by subsequent designation (Viereck, 1914 : 100).
Potophion Cushman, 1947 : 442. Type-species: *Potophion caudatus* Cushman, by original designation.

[It should be noted that *Psylonychia* Szépligeti is a nomen nudum (Gauld, 1977) and *Psylonychia* Cushman was proposed in synonymy and is not therefore an available name. For these reasons *Psylonychia* does not appear in the above synonymic list.]

Generic diagnosis. Mandibles not twisted, weakly narrowed, apically equally bidentate; maxillary palp 5-segmented, labial palp 4-segmented. Clypeus in profile flat. Occipital carina complete; frons laterally not carinate; antennae elongate, at least as long as forewing.

Mesoscutum with notauli strongly impressed, at least on anterior 0.2; scutellum convex, without lateral longitudinal carinae; posterior transverse carina of mesosternum absent except for lateral vestiges. Propodeum varying from without carinae to with vestiges of anterior transcarina and latero-median longitudinal carinae present; posterior margin of metanotum not swollen opposite propodeal spiracle.

Forewing with *cu-a* opposite or slightly proximal to *Rs&M*; discosubmarginal cell evenly hirsute except for a glabrous area in extreme anterior corner, or with a large glabrous area bearing a single sclerite. *1m-cu* centrally abruptly angled, ramellus present or absent, when present then obviously shorter than *M* between *2m-cu* and *3rm*; *Rs+2r* slightly bowed, evenly expanded to join a stout pterostigma.

CI = 0.40-0.50; DI = 0.45-0.55. Hindwing with *Rs* straight or angled slightly proximally; marginal cell rather evenly hirsute; NI = 0.50-0.60.

Fore tibial spur with membrane reaching 0.9 of its length; mid and hind trochantelli unspecialized; inner hind tibial spur flattened.

Gaster elongate and slender; tergite 2 with anterior margin behind the petiolar spiracle; thyridia ellipsoidal close to anterior margin of tergite 2; tergite 2 in profile (in Ethiopian species) more than 4 times as long as deep posteriorly with its epipleuron turned under.

♂ genitalia with gonosquamae large and shaped not unlike a plough-share (Fig. 24).

General body colour red-brown; wings more or less hyaline.

This is a very large genus of worldwide distribution. The majority of species occur in the holarctic region where it is the dominant ophionine genus. In the Old World tropics *Ophion* species are virtually absent. In the southern temperate region several compact species-groups exist, notably the *O. peregrinus* Smith species-group in New Zealand and the *O. xylus* Gauld species-group in Australia.

Townes & Townes (1973) catalogue a single species, *O. nubilicarpus* as occurring in the Ethiopian region. A second and related species is described below. These species are distinct from other *Ophion* in the form of the male genitalia.

A few specimens of Palaearctic species have been taken in the southern part of the Arabian peninsula. As these are not true Ethiopian species they are not included in the following key. The taxonomy of the southern Palaearctic species of *Ophion* is in a very confused state and at present it is not possible to determine species.

KEY TO SPECIES OF THE GENUS *OPHION* OCCURRING IN THE ETHIOPIAN REGION

- Discosubmarginal cell without a sclerite; ICI = 0.55-0.85; bulla of *1m-cu* shorter than length of *1m-cu* distal to the bulla (Fig. 22) *NUBILICARPUS* Tosquinet (p. 12)
 — Discosubmarginal cell with a sclerite; ICI = 0.40-0.50; bulla of *1m-cu* much longer than length of *1m-cu* distal to the bulla (Fig. 23) *HYNNIS* sp. n. (p. 13)

OPHION NUBILICARPUS Tosquinet

(Figs 19, 22, 24)

Ophion nubilicarpus Tosquinet, 1896 : 370. Holotype ♀, SOUTH AFRICA (MNHU) [examined].

Eremotylus nubilicarpus (Tosquinet) Kriechbaumer, 1901 : 156.

Ophion nubilicarpus Tosquinet; Morley, 1912a : 61.

Ophion nubilicarpus Tosquinet; Townes & Townes, 1973 : 168.

Description. Lower face elongate, 0.75-0.90 times as broad as long. Flagellum of moderate length with 58-62 segments. Basal flagellar segment of ♂ with apical 0.5 bearing placoid sensillae, of ♀ with sensillae only on apical margin.

Mesopleuron more or less matt, closely punctate; epicnemial carina not reaching anterior margin of mesopleuron; metapleuron punctostriate. Propodeum varying from more or less without carinae to with area superomedia bounded on all sides except posteriorly.

Forewing length 12-16mm; forewing without a sclerite; ICI = 0.55-0.85; *1m-cu* with bulla shorter than length of *1m-cu* between bulla and *2m-cu*. Hindwing with NI = 0.50-0.60; vein *Rs* straight or angled anteriorly; *R*₁ with 7-9 hamuli.

Hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.5-0.7 times as long as broad; outer hind tarsal claw of ♀ with 8-10 long stout pectinae, distal 6-8 of similar length; ♂ with similar number of shorter stouter pectinae.

Gaster elongate; posterior margin of sternite 2 opposite spiracle of tergite 2; tergite 2 in profile 4-6 times as long as deep posteriorly. ♂ genitalia as in Fig. 24.

Uniformly brownish-red species with genae from narrowly to almost entirely ivory; inter-ocellar area brown to badious; flagellum orange-brown.

Variation. The majority of specimens have a distinct ramellus but it is absent in a few individuals. The head colour was observed to be variable. In the majority of individuals the genae are entirely whitish and the inter-ocellar area is brown. In a few specimens the genae are brownish except for narrow orbital white band and the inter-ocellar area is blackish. Intermediates exist between these two extremes so it is suggested all specimens should be included as a single species.

Discussion. This species is morphologically closely related to the next. The two species together form a very distinctive species-group with few obvious affinities to other species-groups of *Ophion*. Both are restricted to extreme southern South Africa. *O. nubilicarpus* may, where it occurs (Map 5), be very numerous. Its hosts are at present unknown.

Material examined. Holotype ♀, SOUTH AFRICA: Cape of Good Hope (MNHU).

Non-type material. SOUTH AFRICA: 1♂, Cape Province, Betty's Bay, ix.70 (*H. & M. Townes*) (TC); 2♂, Cape Province, Ganes, ix.70 (*H. & M. Townes*) (TC); 1♀, Cape Province, Katberg, xi.32 (*Turner*) (BMNH); 2♀, Cape Town, Kirstenbosch, ix.70 (*H. & M. Townes*) (TC); 1♀, Grahamstown, vii.71 (*Gess*) (TC); 10♀, 9♂, Grahamstown, v-viii.72 (*Gess*) (TC); 11♂, 72♀, Jonkershoek, near Stellenbosch, ix-x.70 (*H. & M. Townes*) (TC); 4♀, Jonkershoek, near Stellenbosch, x-xii.70 (*Whitehead*) (TC).

OPHION HYNINIS sp. n.

(Fig. 23)

Description. Lower face elongate, 0.75-0.85 times as broad as long. Flagellum of moderate length with 59-62 segments. Basal flagellar segment of ♀ bearing placoid sensillae on most of its length, of ♂ with placoid sensillae only on apical 0.5.

Mesopleuron polished, punctate, with area between punctures finely alutaceous; metapleuron coriaceous. Propodeum with anterior transcarina discernible.

Forewing length 13-15mm; forewing with a detached sclerite in discosubmarginal cell; ICI = 0.40-0.50; 1*m-cu* with bulla longer than length of 1*m-cu* between bulla and 2*m-cu*. Hindwing with NI = 0.50-0.60; vein *Rs* evenly curved; *R*₁ with 7-9 hamuli.

Hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; outer hind tarsal claw with 8-10 moderately long stout pectinae, distal 6-8 of which are of similar length; ♂ with 16-18 short closely packed pectinae.

Gaster elongate; posterior margin of sternite 2 opposite spiracle of tergite 2; tergite 2 in profile 4-6 times as long as deep posteriorly.

Uniformly yellow-brown species with genae paler yellowish; inter-ocellar area yellowish; flagellum orange-brown.

Discussion. This is the only known species of *Ophion* with an alar sclerite. Apart from this feature the species is otherwise rather similar to *O. nubilicarpus*. In the genus-group with a fully developed membranous flange on the fore tibial spur only one other genus, *Riekophion* Gauld, is known to contain species with alar sclerites. *Riekophion* species differ from *O. hyninis* in having a complete posterior mesosternal carina, a strongly sinuate *Rs+2r* and 1*m-cu* evenly curved.

Material examined. Holotype ♀, SOUTH AFRICA: Karkloof near Howick (*H. & M. Townes*) (TC). Paratypes 1♀, 1♂, same data as holotype; 1♀, Pietermaritzburg, xi.70 (*H. & M. Townes*) (TC).

Genus RHOPALOPHION Seyrig

Rhopalophion Seyrig, 1935 : 49. Type-species: (*Rhopalophion curvus* Seyrig) = *Ophion discinervus* Morley, by original designation.

Generic diagnosis. Mandibles not twisted, weakly narrowed apically, more or less equally bidentate; maxillary palp 5-segmented, labial palp 4-segmented. Clypeus in profile very weakly convex. Occipital carina complete; frons not laterally carinate. Antennae moderately long, at least as long as forewing.

Mesoscutum without notauli; scutellum weakly to moderately convex, usually laterally longitudinally carinate for entire length; posterior transverse carina of mesosternum absent except lateral extremities. Propodeum usually with an anterior and posterior transcarina, sometimes with these weak, rarely with the anterior one entirely absent; posterior margin of metanotum not swollen opposite propodeal spiracle.

Forewing with *cu-a* opposite or proximal to *Rs&M*; discosubmarginal cell broadly glabrous centrally. 1*m-cu* very abruptly angled centrally with a very long curved ramellus (which is often longer than *M* between 2*m-cu* and 3*rm*) present. *Rs+2r* almost straight, not expanded on reaching pterostigma.

CI = 0.17-0.44; DI = 0.50-0.95. Hindwing with *Rs* almost straight or slightly turned at proximal end; marginal cell narrowly glabrous proximally. NI = 1.50-2.00.

Fore tibial spur with membrane reaching 0.7 of its length; mid and hind trochantelli unspecialized; inner hind tibial spur flattened.

Gaster moderately long and slender; sternite 2 with anterior margin behind the petiolar spiracle; thyridia ovate, large, very close to anterior margin of tergite 2; tergite 2 in profile more than 5 times as long as deep posteriorly with its epipleuron turned under.

♂ genitalia with gonosquamae of moderate size.

General body colour orange-brown, wings hyaline.

This is a small genus related to *Ophion* which occurs only in the Ethiopian region. Townes & Townes (1973) catalogued a single species, *R. discinervus*. Delobel (1975) described two additional species from Madagascar.

KEY TO SPECIES OF RHOPALOPHION

- 1 Ocelli large, separated from eyes by less than 0.2 times their maximum diameter (Fig. 60); 1*m-cu* between *Cu*₁ and ramellus curved (Fig. 42); African mainland *DISCINERVUS* (Morley) (p. 14)

- Ocelli small, separated from eyes by more than 0.2 times their maximum diameter (Fig. 61); *1m-cu* between *Cu*₁ and ramellus straight (Figs 43, 44); Madagascar species 2
- 2(1) Ramellus 1.1 times as long as *1m-cu* between ramellus and *Cu*₁; AI = 1.00 (Fig. 43); face with fine, rather scattered puncturation *DIVERGENS* Delobel (p. 14)
- Ramellus about 0.6 times as long as *1m-cu* between ramellus and *Cu*₁; AI = 1.50 (Fig. 44); face with coarse dense puncturation *PARALLELUS* Delobel (p. 15)

RHOPALOPHION DISCINERVUS (Morley)

(Figs. 20, 25, 42, 60)

Ophion discinervus Morley, 1926 : 479. Holotype ♂, SOUTH AFRICA (SAM) [examined].

Rhopalophion curvus Seyrig, 1935 : 49. Holotype ♀, TANZANIA (MNHN) [examined]. [Synonymized by Townes & Townes, 1973 : 168.]

Rhopalophion discinervus (Morley) Townes, 1971 : 59.

Rhopalophion discinervus (Morley); Townes & Townes, 1973 : 168.

Rhopalophion discinervus (Morley); Delobel, 1975 : 44.

Description. Malar space 0.1-0.2 times as long as basal mandibular width; lower face 0.8-0.9 times as broad as long, coarsely and closely punctate. Ocelli large, posterior ocelli virtually touching eyes; FI = 50-55%. Flagellum with 49-52 segments.

Mesopleuron with fine, close punctures. Scutellum weakly convex, punctate dorsally. Metapleuron finely and closely punctate. Propodeum with posterior transcarina complete; anterior transcarina present or absent.

Forewing length 9-14mm; venation as in Fig. 42; *1m-cu* between ramellus and *Cu*₁ curved; ramellus long, 0.8-1.1 of length of *1m-cu* between ramellus and *Cu*₁. AI = 2.30-3.00; CI = 0.17-0.23; ICI = 0.58-0.68; SDI = 0.90-0.95; *cu-a* opposite or proximal to *Rs&M*.

Hind coxa in profile 1.7-1.8 times as long as deep.

Ovipositor moderately long, apically rather shortly acute; gonosquama long, distally evenly rounded.

Brownish-orange species with genae paler yellowish; inter-ocellar area black; flagellum infusate.

Variation. This species exhibits a confusing range of variation and may in fact be a complex of sibling species.

Most large specimens are medium brownish-orange in general body colour but small specimens are very pale brownish-orange. Isolated large specimens also have a similar pale colour. In all specimens the genae are paler but some individuals have extensively ivory marked genae. A very few large individuals have pale stripes on the mesoscutum. Sculpture is also variable. The punctures of the pleurae are larger and closer in large specimens. Small specimens generally lack the anterior propodeal carina which is usually present in larger individuals. Some larger specimens do however have the anterior transcarina weak and one specimen has only the left half of the carina discernible.

The shape and length of the ramellus is variable. In some South African specimens the ramellus is shorter (0.8 times as long as *1m-cu* between ramellus and *Cu*₁) fairly strongly curved and terminally simple. The majority of specimens have the ramellus slightly longer (0.9-1.0 times as long as *1m-cu* between ramellus and *Cu*₁) weakly curved and terminally expanded. A few specimens from Uganda have the ramellus longer (1.1 times as long as *1m-cu* between ramellus and *Cu*₁) very weakly curved and terminally upturned.

Remarks. Despite the great variation it is not possible to separate any one group of individuals from the others as various intergrades exist. More material needs to be examined before further judgement can be made concerning the status of some of the extreme variants.

Distribution. This species is widely distributed throughout Africa. It is rather uncommon in general collections (Map 6).

Material examined. *Ophion discinervus*, holotype ♂, SOUTH AFRICA: Natal, Durban (SAM). *Rhopalophion curvus*, holotype ♀, TANZANIA: Kilimanjaro, Moshi (MNHN).

Non-type material, ANGOLA: 1♀, Dundo, Luanda, iv.58 (*Heinrich*) (TC); 1♂, Mt. Moço, no further data (TC); 1♀, 30km N of Quiçulungo, x.57 (*Heinrich*) (TC). IVORY COAST: 1♂, Bingerville, iii.62 (*Decelle*) (MRAC). KENYA: 1♀, Mombasa, Kwali Forest, vi.48 (BMNH). MALAWI: 1♀, Mt. Mlanje, xi.12 (*Neave*) (BMNH). RHODESIA: 1♀, Marandellas, x.72 (*Ginn*) (TC). SIERRA LEONE: 1♀, Sembahun, xi.24 (*Hargreaves*) (BMNH). SOUTH AFRICA: 2♀, 1♂, Magoebaskloof near Tzaneen, ii.71 (*H. & M. Townes*) (TC); 1♂, Ngome Forest, Natal, xi.70 (*H. & M. Townes*) (TC); 2♀, Port St. John, x.23 (*Turner*) (BMNH); 1♀, St. Lucia Estuary, xi.70 (*H. & M. Townes*) (TC). UGANDA: 1♀, Kitoba, 1911 (*Rovere*) (MRAC); 1♀, Mabira Forest, 1964 (*Owen*) (TC); 2♀, Mengo, Zika Forest, 11km N of Entebbe, vi.61 (*Corbet*) (BMNH); 3♀, 2♂, Mengo, Zika Forest, xi.63 (*Lancaster*) (TC). ZAIRE: 1♀, Haut-Uelé, Paulis, xii.47 (*Benoit*) (MRAC); 1♀, Kabongo, xi.53 (*Seydel*) (TC); 1♀, Lac Kivu, Rwanki, xi.47 (*Leroy*) (MRAC); 1♀, Lubumbashi, iii.35 (*Seydel*) (MRAC); 1♀, Mamiema, Kasongo, ix.59 (*Benoit*) (MRAC); 2♀, Mayumbe (*Deleval*) (MRAC).

RHOPALOPHION DIVERGENS Delobel

(Fig. 43)

Rhopalophion divergens Delobel, 1975 : 44. Holotype ♀, MADAGASCAR (MNHN) [examined].

Description. Malar space about 0.5 times basal mandibular width; lower face more or less quadrate, finely and rather sparsely punctate below antennal insertion. Ocelli small, posterior ocelli separated from eye by 0.4 times their maximum diameter; FI = 30%. Flagellum with 56-57 segments.

Mesopleuron finely punctate. Scutellum convex in profile, dorsally punctate. Metapleuron obsoletely punctate. Propodeum with anterior and posterior transcarinae strongly developed.

Forewing length 12mm; venation as in Fig.43; *1m-cu* between ramellus and Cu_1 straight; ramellus very long, 1.1 times as long as *1m-cu* between ramellus and Cu_1 ; AI = 1.30; CI = 0.30; ICI = 0.90; SDI = 0.90; *cu-a* subopposite *Rs&M*.

Hind coxa in profile 1.8 times as long as deep.

Ovipositor apically short; gonosquama evenly rounded distally.

Yellow-brown species, lower face whitish; inter-ocellar area black; antennae infusate; wings hyaline.

Distribution. This species is only known from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Rogez, xii. 30 (*Seyrig*) (MNHN).

Non-type material. 1? sex, same locality and collector, 1935 (MNHN). 3♀, 2♂, Sandrangato (*Inst. Res. Mad.*) (MRAC).

RHOPALOPHION PARALLELUS Delobel

(Figs 44, 61)

Rhopalophion parallelus Delobel, 1975 : 46. Holotype ♀, MADAGASCAR (MNHN) [examined].

Description. Malar space 0.3 times basal mandibular width; lower face 0.90-0.95 times as broad as long, coarsely and closely punctate below antennal insertion. Ocelli small, posterior ocelli separated from eye by 0.75 their maximum diameter; FI = 20%. Flagellum with 47-48 segments.

Mesopleuron finely punctate, almost smooth. Scutellum weakly convex, virtually impunctate, slightly alutaceous. Metapleuron finely punctate. Propodeum with transcarinae weakly represented, the anterior one present as a central vestige, the posterior one very faint.

Forewing length 11mm; venation as in Fig.44; *1m-cu* between ramellus and Cu_1 straight; ramellus rather short 0.6 times as long as *1m-cu* between ramellus and Cu_1 . AI = 2.70; CI = 0.44; ICI = 0.70; SDI = 0.90; *cu-a* opposite to *Rs&M*.

Hind coxa in profile 1.7 times as long as deep.

Male unknown.

Yellowish-orange species, face yellow; inter-ocellar area black; antennae yellowish; wings hyaline.

Remarks. This species is similar to *R. divergens* from which it differs principally in venation, facial puncturation, number of flagellar segments and size of eyes.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Rogez, x.36 (*Seyrig*) (MNHN).

Non-type material. MADAGASCAR: 1♀, Ambositra, ii.34 (*Seyrig*) (MNHN).

Genus DICAMPTUS Szépligeti

Dicamptus Szépligeti, 1905 : 21. Type-species; *Dicamptus giganteus* Szépligeti, by monotypy.

Generic diagnosis. Mandibles not or only very slightly twisted, weakly narrowed, apically subequally bidentate; maxillary palp 5-segmented, labial palp 4-segmented. Clypeus in profile flat to convex. Occipital carina complete; frons not strongly laterally carinate. Antennae usually as long as forewing.

Mesoscutum with notauli vestigial or absent; scutellum moderately convex with lateral longitudinal carinae; posterior transverse carina of mesosternum complete. Propodeum usually with anterior transverse carina complete; posterior margin of metanotum not swollen opposite propodeal spiracle.

Forewing with *cu-a* opposite or proximal to *Rs&M*; discosubmarginal cell with a glabrous fenestra bearing one or more sclerites. *1m-cu* sinuous or evenly rounded, without a ramellus; *Rs+2r* usually sinuous. Hindwing with *Rs* more or less straight; marginal cell rather evenly hirsute; NI = 2.50+.

Fore tibial spur with membrane at extreme proximal end, or if membrane absent a scar is present in the position it occupied; mid and hind trochantelli unspecialized; inner hind tibial spur flattened.

Gaster unusually long and slender with anterior margin of sternite 2 behind the petiolar spiracle, or in one species with gaster stout and anterior margin of sternite 2 level with petiolar spiracle; thyridia ellipsoidal, separated from anterior margin of tergite 2 by more than its own length; tergite 2 in profile more than 3.0 times as long as deep with epipleuron turned under.

♂ genitalia not specialized.

General body colour reddish-orange to blackish.

Discussion. This is a moderately large palaeotropical genus with species occurring less frequently in the Eastern Palaearctic and Australian regions. *Dicamptus* has been synonymized by some authors (Morley, 1912a; Cushman, 1947) with *Enicospilus*. It is quite distinct from *Enicospilus* in the form of the mandibles, the type of alar sclerite and the form of the fore tibial spur. This genus is probably closely related to *Riekophion* Gauld, from which it differs in the form of the propodeum, form of the alar sclerite and in having only a vestige of membrane present on the fore tibial spur.

The Ethiopian species were recently revised by Delobel (1976) who recognized 11 species. In the present work two additional species are described, one new combination is made and a number of new characters are used in the key to species. More information is given about the distribution of the species.

KEY TO SPECIES OF THE GENUS DICAMPTUS OCCURRING IN ETHIOPIAN REGION

1. Foreleg with 4th tarsal segment quadrate, as broad as long; gaster in profile with tergite 3 subquadrate (Fig. 33)
..... NEAVEI sp. n. (p. 16)

- Foreleg with 4th tarsal segment elongate, at least 2.0 times as long as broad; gaster in profile with tergite 3 elongate (Fig. 32) 2
- 2(1) Forewing with *3rm* extremely short, about as long as thickness of *Rs+2r* (Fig. 46); *M* between *2m-cu* and *3rm* arcuate *BANQUI* Delobel (p. 17)
- Forewing with *3rm* longer, at least 4.0 times as long as thickness of *Rs+2r* (Figs 47-56); *M* between *2m-cu* and *3rm* straight 3
- 3(2) Forewing with *CI* greater than 0.40; *ICI* more than 0.40 (Figs 47-49) 4
- Forewing with *CI* less than 0.40; *ICI* less than 0.40 (Figs 50-56) 7
- 4(3) Malar space about 1.25 times basal mandibular width; OOD about 0.8 times as long as maximum ocellar diameter. Mandible without a groove; metapleuron finely coriaceous; fore tibia with long scattered spines *TAMPUS* sp. n. (p. 17)
- Malar space less than 0.70 times basal mandibular width; OOD 0.6 or less time as long as maximum ocellar diameter (Fig. 28) 5
- 5(4) Malar space 0.50-0.60 times basal mandibular width; mandible with a groove extending from upper proximal corner to centre, this groove generally bearing long pubescence (Fig. 35) *BRAUNSI* (Kriechbaumer) (p. 17)
- Malar space less than 0.40 times basal mandibular width; mandible without a diagonal groove, with scattered pubescence (Fig. 36) 6
- 6(5) Propodeum with posterior area finely reticulate (Fig. 58); mesopleuron closely and evenly punctate; anterior transverse carina of propodeum vestigial *BANTU* Delobel (p. 18)
- Propodeum with posterior area coarsely wrinkled (Fig. 59); mesopleuron puncto-alutaceous, ventrally grading to punctostriate; anterior propodeal transcarina usually complete *KELNERAE* Delobel (p. 19)
- 7(3) Lower face 1.0 or more times as broad as high (Fig. 67); fore tibia with numerous long stout spines on outer surface (Fig. 40) *CRASSELLUS* (Morley) (p. 19)
- Lower face 0.95 or less times as broad as high (Fig. 66); fore tibia unarmed or with few scattered spines (Fig. 39) 8
- 8(7) Antero-distal and postero-distal sides of proximal sclerite concave so that distal angle is acute (Fig. 54); distal sclerite absent; *1m-cu* proximally straight, distally abruptly curved. Mesothorax ventrally black *XHOSA* Delobel (p. 20)
- Either with antero-distal and postero-distal sides of proximal sclerite not concave so that distal angle is about 90°, or if rarely with the sides somewhat discernibly concave then distal sclerite is present; distal sclerite otherwise present or absent (Figs 55, 56); *1m-cu* proximally rather evenly arcuate 8
- 8(7) Proximal sclerite large, subovate, with anterior margin parallel to *Rs+2r* and distal angle directed along axis of the wing (Fig. 53) *BETSILEO* Delobel (p. 20)
- Proximal sclerite small to moderately large, triangular, with anterior margin at 90° to *Rs+2r* and with distal angle directed at about 45° to axis of wing (Figs 55, 56) 9
- 9(8) Fore tibial spur very long, 0.8 or more times as long as 2nd fore tarsal segment (Fig. 39); inner hind tibial spur 1.2 times or more as long as 2nd hind tarsal segment; forewing with *ICI* more than 0.30 (Fig. 50) *PELLUCIDUS* (Kriechbaumer) (p. 21)
- Fore tibial spur less than 0.6 times as long as 2nd fore tarsal segment (Fig. 41); inner hind tibial spur less than 1.1 times as long as 2nd hind tarsal segment; *ICI* less than 0.25 10
- 10(9) Propodeum with posterior area finely alutaceous; hind trochantellus mediodorsally more than 1.0 times as long as broad (Fig. 37); posterior ocellus contiguous with the eye (Fig. 30) *SEYRIGI* Delobel (p. 21)
- Propodeum with posterior area irregularly wrinkled to finely reticulate; hind trochantellus less than 0.9 times as long mediodorsally as broad (Fig. 38); posterior ocellus separated from eye by about 0.1 of its diameter (Fig. 31) 11
- 11(10) Distal sclerite absent; proximal sclerite posteriorly incompletely sclerotized (Fig. 56) *TOWNESI* Delobel (p. 22)
- Distal sclerite present; proximal sclerite posteriorly strongly sclerotized (Fig. 51) *PULCHELLUS* (Morley) (p. 22)

DICAMPTUS NEAVEI sp. n.

(Figs 29, 33, 45)

Description. Mandible without a groove, centrally with sparse hair; malar space 1.0 times basal mandibular width; lower face transverse, 1.2-1.3 times as broad as long, coarsely punctate. Genae strongly inflated behind the eyes; posterior ocellus separated from orbits by about 2 times its own diameter; *FI* = 25%. Antennae with 41-43 flagellar segments; 1st flagellar segment 1.3-1.4 times as long as 2nd, 20th segment 0.8 times as long as broad.

Mesopleuron matt, closely and coarsely punctate; epicnemial carina strong, curved to, but not reaching anterior pleural margin. Scutellum in profile weakly convex, dorsally closely punctate. Metapleuron closely punctate; submetapleural carina narrow and parallel sided. Propodeum in profile abruptly declivitous, dorsally flattened; anterior transcarina vestigial or absent and with posterior area coarsely reticulate.

Forewing length 13-14mm; discosubmarginal cell as in Fig. 45. *AI* = 0.80-0.85; *CI* = 0.25-0.35; *ICI* = 0.65-0.75; *SDI* = 0.90; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 7 hamuli on *R*₁.

Foreleg with outer surface of tibia with long close spines; fore tibial spur 1.3 times as long as tarsus 2 which is unusually short and stout. Hind coxa in profile 1.6 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; inner hind tibial spur 0.8-0.9 times as long as hind tarsus 2.

Gaster stout; tergite 2 in profile 2.4-2.6 times as long as deep; thyridia large, oval, separated from anterior margin of tergite by less than its own length.

Ovipositor short, apically shortly acute. ♂ genitalia with sternites 6-8 finely and shortly pubescent; gonosquama simply rounded distally.

Colour generally orange-red, thorax laterally, propodeum entirely and distal parts of gastral tergites 3+ blackish; inter-ocellar area reddish; flagellum orange. Wings infumate.

Remarks. This species is distinct in being much shorter and stouter than any of the other African species of *Dicamptus*. It is morphologically rather similar to an undescribed Oriental species but this similarity may be merely the result of convergence. Other than the short gaster and appendages this species is not unlike *D. braunsii*.

Distribution. East Africa, possibly on open plains (Map 7).

Material examined. Holotype ♀, UGANDA: Plain NE of Edward, x.11 (*Neave*) (BMNH). Paratypes. MALAWI: 1♂, Mlanje Plateau, xii.13 (*Neave*) (BMNH). UGANDA: 1♀, Kibale, v.11 (*Gowdey*) (BMNH).

DICAMPTUS BANQUI Delobel

(Fig. 46)

Dicamptus banqui Delobel, 1976 : 460, 464. Holotype ?sex, CENTRAL AFRICAN REPUBLIC (TC) [examined].

Description. Mandible with a strong proximal concavity, without a groove and with isolated pubescence; malar space 1.0 times basal mandibular width; lower face transverse, 1.2 times as broad as long, finely punctate. Genae weakly constricted behind the eyes; posterior ocellus separated from eye by 0.6 times its maximum diameter; FI = 45%. Antennae incomplete; 1st flagellar segment 1.5 times as long as 2nd, 20th segment 4.5 times as long as broad.

Mesopleuron polished, dorsally smooth and without punctures, ventrally with few striae radiating from epicnemial carina; epicnemial carina complete to anterior margin of pleuron. Scutellum in profile weakly convex, dorsally smooth. Metapleuron more or less smooth; submetapleural carina parallel sided, narrow. Propodeum in profile evenly declivitous, dorsally flat; anterior transcarina complete and with posterior area finely wrinkled.

Forewing length 12mm; discosubmarginal cell as in Fig. 46. CI = 0.15; SDI = 1.00; *cu-a* opposite *Rs&M*. Hindwing with 4 hamuli on R_1 .

Foreleg with outer surface of tibia lacking obvious spines; fore tibial spur 0.8 times as long as tarsus 2. Hind coxa in profile 1.9 times as long as deep; hind trochantellus mediodorsally 1.2 times as long as broad; inner hind tibial spur 0.8 times as long as hind tarsus 2.

Gaster except tergite 1 missing.

Colour generally pale yellowish, inter-ocellar area black.

Remarks. This species is immediately recognizable on account of its unusual venation, especially having *M* between *2m-cu* and *3m* curved.

Material examined. Holotype ?sex, CENTRAL AFRICAN REPUBLIC: Bangui (TC).

DICAMPTUS TAMPUS sp. n.

Description. Mandible with a strong proximal concavity, without a groove, with isolated pubescence; malar space 1.25 times basal mandibular width; lower face transverse 1.1 times as broad as long, finely coriaceous. Genae weakly constricted behind eyes; posterior ocellus separated from eye by 0.8 times its own maximum diameter; FI = 30%. Antennae with 59 flagellar segments; 1st flagellar segment 1.5 times as long as 2nd, 20th segment 2.1 times as long as broad.

Mesopleuron subpolished, finely coriaceous; epicnemial carina curved to but not reaching anterior margin of pleuron. Scutellum in profile moderately convex, dorsally trans-strigose. Metapleuron finely coriaceous; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly declivitous, dorsally flattened; anterior transcarina vestigial and with posterior area finely reticulate.

Forewing length 12mm; discosubmarginal cell similar to that of *D. braunsii* (Fig. 49); AI = 1.00; CI = 0.65; ICI = 0.55; SDI = 1.10; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 7 hamuli on R_1 .

Foreleg with outer surface of tibia bearing scattered long spines; fore tibial spur 0.5 times as long as tarsus 2. Hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; inner hind tibial spur 0.8 times as long as hind tarsus 2.

Gaster moderately long; tergite 2 in profile more than 4.0 times as long as posteriorly deep; thyridia large, oval, separated from anterior margin or tergite by 1.5 times its own length.

Ovipositor concealed; ♂ unknown.

Colour generally orange-red with alitrunk laterally and gaster terminally infuscate; inter-ocellar area black; wings hyaline.

Remarks. This species is rather similar to *D. braunsii* but differs in the form of the mandible, having the eyes much smaller, and in the fine microsculpture of the alitrunk.

Distribution. Only recorded from South Africa.

Material examined. Holotype ♀, SOUTH AFRICA: Transvaal, Graskop, 1600m., ii.69 (*Thomas*) (ZC).

DICAMPTUS BRAUNSI (Kriechbaumer) comb. n.

(Figs 35, 49)

Ophion (Henicospilus) Braunsii Kriechbaumer, 1894a : 53. Holotype ♀, SOUTH AFRICA (TMP) [examined].

Ophion (Henicospilus) Braunsii Kriechbaumer; Kriechbaumer, 1894b : 307.

Ophion (Henicospilus) rufus Kriechbaumer, 1894b : 307. Holotype ♀, TANZANIA (TMP) [examined]. [Junior primary homonym of *Ophion rufus* Brullé, 1846.] Syn. n.

Ophion (Henicospilus) Kriechbaumeri Dalla Torre, 1901 : 182. Replacement name for *rufus* Kriechbaumer.

L.I. 81.317

Henicospilus athi Morley, 1912a : 40. Lectotype ♀, KENYA (BMNH), designated by Townes & Townes (1973 : 170) [examined]. **Syn. n.**

Henicospilus rufoides Strand, 1915 : 122. Replacement name for *rufus* Kriechbaumer.

Henicospilus rufus (Kriechbaumer) Morley, 1917 : 223.

Henicospilus rufus (Kriechbaumer); Enderlein, 1921 : 31.

Amesospilus fortis Seyrig, 1935 : 62. LECTOTYPE ♀, KENYA (MNHN), by present designation [examined]. **Syn. n.**

Dicamptus athi (Morley) Townes & Townes, 1973 : 170.

Dicamptus kriechbaumeri (Dalla Torre) Townes & Townes, 1973 : 171.

Enicospilus braunsii (Kriechbaumer) Townes & Townes, 1973 : 174.

Dicamptus kriechbaumeri (Dalla Torre); Delobel, 1976 : 465.

Description. Mandible with a groove extending from the upper proximal corner to centre, this groove bearing long hair; malar space 0.5-0.6 times basal mandibular width; lower face transverse 1.05-1.10 times as broad as long, coarsely punctate. Genae swollen behind the eyes; posterior ocellus separated from orbits by about 0.5 times its own diameter; FI = 40-45%. Antennae with 62-65 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 2.0-2.2 times as long as broad.

Mesopleuron polished or subpolished, closely punctate; epicnemial carina curved towards anterior pleural margin, but obsolescent above lower corner of pronotum. Scutellum in profile more or less flat, dorsally closely punctate. Metapleuron closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded dorsally convex; anterior transcarina present centrally and with posterior area finely reticulate.

Forewing length 14-18mm; discosubmarginal cell as in Fig. 49. AI = 1.10-1.20; CI = 0.55-0.65; ICI = 0.50-0.65; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 7-9 hamuli on R_1 .

Foreleg with outer surface of tibia bearing long close spines; fore tibial spur 0.4-0.5 times as long as tarsus 2. Hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; inner hind tibial spur 0.7-0.8 times as long as hind tarsus 2.

Gaster moderately long; tergite 2 in profile more than 4 times as long as deep; thyridia ellipsoidal, separated from anterior margin of tergite by 1.5-2.0 times its own length.

Ovipositor apically elongately acute. Male unknown.

Colour generally brownish-red; inter-ocellar area black and terminal segments of gaster black; flagellum distally infusate; wings weakly infumate.

Variation. This species is very variable in colour. We have seen specimens from Uganda which have the propodeum and thoracic pleurae black and one specimen with the alitrunk entirely black. Such specimens have the terminal segments of the gaster more extensively black marked than typical specimens, but often these specimens do not have the inter-ocellar area black.

Remarks. This species is closely related to *D. bantu* and *D. kelnerae*. The form of the mandible enables these three species to easily be separated. The venation, sculpturing and position of the ocelli indicate that this species is far more closely related to the above mentioned two species than it is to *D. crassellus* as has been suggested (Delobel, 1976).

Distribution. This species has been recorded from eastern Africa, from Kenya to South Africa and from eastern Zaire (Delobel, 1976). We have seen material from Angola and Sierra Leone (Map 8). This species is possibly on the wing during the wet season.

Material examined. *Henicospilus athi* Morley, lectotype ♀, KENYA: Athi-ya-Mawe, between Voi and Ndi, iii.v.99 (*Betton*) (BMNH); paralectotype ♀, same data as lectotype (BMNH). *Ophion (Henicospilus) Braunsii* Kriechbaumer, holotype ♀, SOUTH AFRICA (TMP). *Amesospilus fortis* Seyrig, lectotype ♀, KENYA: N'gombe Mts., near Nairobi (*Poncins & Lambertye*) (MNHN). *Ophion rufus* Kriechbaumer, holotype ♀, TANZANIA (TMP).

Non-type material. ANGOLA: 1♀, Chianga, iii.72 (*Day*) (BMNH); 1♀, Tundavala, 16km NW of Sa de Bandeira, iii.72 (*Day*) (BMNH). BURUNDI: 1♀, Kitega, iv.67 (*Fontaine*) (MRAC). KENYA: 1♀, Kavirondo, Kisii, v.11 (*Neave*) (BMNH); 2♀, Nairobi, v.56 (*Jackson*) (BMNH); 1♀, near Nairobi, 1912 (*Lambertye*) (MNHN); 1♀, Nairobi, xi.11 (*Alluaud & Jeannel*) (MNHN); 1♀, Ngong, v.40 (*van Someren*) (BMNH). MALAWI: 1♀, Limbe, vi.68 (*Schulten*) (ZMA); 1♀, Maone, iv.73 (*Freiye*) (ZMA); 1♀, Mlanje, v.13 (*Neave*) (BMNH). MOÇAMBIQUE: 1♀, Kola River, near Mt. Chipirone, iv.13 (*Neave*) (BMNH); 1♀, Vallée du Revoué, env. D'Andrada, iv.v.05 (*Vasse*) (MNHN). SIERRA LEONE: 1♀, Njala, v.32 (*Hargreaves*) (BMNH). SOUTH AFRICA: 1♀, Howick, 1904 (*Cregoe*) (BMNH); 1♀, Kruger National Park, Skukuza, iii.52 (*Janse & Vari*) (TC). TANZANIA: 1♀, Kamena, 1400m, i.53 (*Bomans*) (MRAC); 2♀, Zanzibar, no further data (MNHN). UGANDA: 1♀, E of Lake Albert, xi.21 (*Carpenter*) (BMNH). ZAIRE: 1♀, Bas-Congo, Cattler, 1946-49 (*Delajaille*) (MRAC); 1♀, Kivu, Kadjudju, 1932 (*Babault*) (MNHN); 1♀, Lubumbashi, 1933 (ZMA) 1♀, Lubumbashi, iii.57 (*Seydel*) (TC); 1♀, Mahagi-Niarembe, 1935 (*Scops*) (MRAC).

DICAMPTUS BANTU Delobel

(Figs 17, 28, 36, 47, 58)

Dicamptus bantu Delobel, 1976 : 463. Holotype ♀, CENTRAL AFRICAN REPUBLIC (MNHN) [examined].

Description. Mandible without a groove but with a strong proximal concavity, outer surface punctate with fine scattered hairs; malar space 0.2-0.3 times basal mandibular width; lower face quadrate, 0.95-1.05 times as broad as long, closely and coarsely punctate. Genae slightly swollen behind the eyes; posterior ocellus separated from eye by 0.3-0.4 times its own maximum diameter; FI = 50-55%. Antennae with 63-66 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 2.1-2.3 times as long as broad.

Mesopleuron subpolished, evenly and closely punctate; epicnemial carina vestigial above lower corner of pronotum, its upper end remote from pleuron. Scutellum in profile flat, dorsally with deep close punctures. Metapleuron closely punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina present as a central vestige and with posterior area finely reticulate.

Forewing length 17-19mm; discosubmarginal cell as in Fig. 47. AI = 1.10-1.20; CI = 0.85-0.95; ICI = 0.60-0.70; SDI = 1.2-1.3; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 8-9 hamuli on R_1 .

Foreleg with outer surface of tibia bearing long strong spines; fore tibial spur about 0.6 times as long as tarsus 2. Hind

coxa in profile 2.0-2.1 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; inner hind tibial spur 0.7-0.8 times as long as hind tarsus 2.

Gaster moderately long; tergite 2 in profile more than 4.0 times as long as deep; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute. ♂ with short dense pubescence on sternites 6-8; gonosquama distally obliquely truncate.

Colour generally orange-brown; inter-ocellar area and terminal segments of gaster black; wings very weakly infumate.

Variation. Some specimens have the alitrunk infusate.

Remarks. This species is very similar to *D. kelnerae* from which it may be distinguished by the sculpture of the propodeum and mesopleuron and the form of the mandible.

Distribution. Recorded previously from Central African Republic, Dahomey and Zaire (Delobel 1976). Its range is now extended eastwards to Uganda and Burundi (Map 9).

Material examined. Holotype ♀, CENTRAL AFRICAN REPUBLIC: Maboke, 1967 (*Teocel*) (MNHN); paratype ♀, same locality and collector, 1968 (MNHN).

Non-type material. ANGOLA: 1♀, Dundo, v.49 (*Machado*) (MRAC); 1♂, Muita-Luembe E., ii.48 (*Petchkovsky*) (MRAC). BURUNDI: 1♀, Makoronkwe, iii.53 (*Basilewsky*) (MRAC); 1♀, Rugari, 1948 (*Dames de Marie*) (MRAC). DAHOMEY: 2♀, Cercle de Djougou-Kouande, 1908 (*Brot*) (MNHN). NIGERIA: 1♀, Samaru, vii.70 (*Ward*) (BMNH). UGANDA: 1♀, Nile, ix.28 (*Carpenter*) (BMNH). ZAIRE: 1♀, Bunia, xii.39 (*Maristes*) (MRAC); 1♀, Gandajika, ii.60 (*Marechal*) (MRAC); 1♀, Kabinda, ii.33 (*Gillardin*) (MRAC); 1♀, Kamina, ii-iii.60 (*Froidebise*) (MRAC); 1♀, Katoka, Luluabourg, 1938 (*Vankerkhovan*) (MRAC); 1♀, Kibali-Ituri, Mahagi, 1934 (*Scops*) (MRAC); 1♀, 1♂, Kivu, Fizi, i.57 (*Leleup*) (MRAC); 5♀, Lubumbashi, 1934-5 (*Seydel*) (MRAC); 3♀, Lubumbashi, 1921-2 (ZMA); 1♀, Lubumbashi, iii.47 (*Seydel*) (TC); 1♀, Moero, Nyonzu, 1934 (*De Saeger*) (MRAC).

DICAMPTUS KELNERAE Delobel (Figs 27, 34, 48, 59)

Dicamptus kelnerae Delobel, 1976 : 461. Holotype ♀, ZAIRE (MNHN) [examined].

Description. Mandible without a groove, with fine central pubescence, proximal concavity weak; malar space 0.2-0.3 times basal mandibular width; lower face 0.90-0.95 times as broad as long, coarsely punctate. Genae weakly constricted behind the eyes; posterior ocellus separated from orbit by about 0.2 times its own diameter; FI = 50-60%. Antennae with 59-64 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment, 2.1-2.2 times as long as broad.

Mesopleuron polished, upper part puncto-alutaceous, ventrally puncto-striate with alutaceous overlay; epicnemial carina vestigial above lower corner of pronotum, its upper end remote from pleural margin. Scutellum in profile convex, dorsally with small close punctures. Metapleuron closely but weakly punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile fairly evenly rounded, dorsally deplanate, anterior transcarina present and with posterior area coarsely wrinkled to reticulate.

Forewing length 19-21mm; discosubmarginal cell as in Fig. 48; AI = 1.30-1.50; CI = 0.75-0.80; ICI = 0.50-0.55; SDI = 1.20-1.30. *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 7 hamuli on *R*₁.

Foreleg with outer surface of tibia with long decurved spines; fore tibial spur 0.5 times as long as tarsus 2. Hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; inner hind tibial spur 0.8 times as long as hind tarsus 2.

Gaster moderately slender; tergite 2 in profile 3.3-3.5 times as long as deep; thyridia large, oval, separated from anterior margin of tergite by 2-3 times its own length.

Ovipositor apically fairly long. ♂ with sternites 6-8 with dense fine pubescence and few scattered long erect hairs; gonosquama simply curved distally.

Colour generally similar to *D. bantu*.

Variation. Some specimens are paler orange in colour.

Remarks. Very closely related to *D. bantu*.

Distribution. Recorded by Delobel (1976) from Zaire and Angola. Its range is now extended westwards to Nigeria and east to Tanzania. This is a rather uncommon species in collections (Map 10).

Material examined. Holotype ♀, ZAIRE: Kivu, Kadjudju, 1932 (*Babault*) (MNHN).

Non-type material. ANGOLA: 1♂, Cacolo, 1300m, xii.57 (*Heinrich*) (TC). CENTRAL AFRICAN REPUBLIC: 1♂, La Maboke, ix.70 (*Matile*) (MNHN). NIGERIA: 1♂, Ibadan, vi.36 (*Golding*) (BMNH). TANZANIA: 1♀, Landi, v.25 (*Cutler*) (BMNH). ZAIRE: 1♀, Eala, ix.34 (*Ghesquière*) (MRAC).

DICAMPTUS CRASSELLUS (Morley) (Figs 40, 52, 67)

Allocamptus crassellus Morley, 1917 : 222. Holotype ♂, SOUTH AFRICA (SAM) [examined].

[*Amesospilus pulchellus* (Morley) Seyrig, 1935 : 56. Misidentification.]

Dicamptus crassellus (Morley) Townes & Townes, 1973 : 170.

Dicamptus crassellus (Morley); Delobel, 1976 : 467.

Description. Mandible without a groove but with a proximal tuft of long hair, outer mandibular surface somewhat inflated; malar space 0.3-0.4 times basal mandibular width; lower face quadrate, 1.00-1.10 times as broad as long, with fine punctures. Genae not constricted behind the eyes; posterior ocellus separated from orbit by 0.1 times its maximum diameter; FI = 50%. Antennae with 59-61 flagellar segments; 1st flagellar segment 1.1-1.2 times as long as 2nd, 20th

segment 2.0-2.1 times as long as broad.

Mesopleuron polished, dorsally punctate, ventrally grading into puncto-striate; epicnemial carina curved but not reaching anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, dorsally finely punctate. Metapleuron punctate; submetapleural carina weakly anteriorly broadened. Propodeum in profile evenly rounded dorsally slightly convex; anterior transcarina present centrally and with posterior area finely and irregularly wrinkled.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 52; AI = 1.60-1.90; CI = 0.27-0.40; ICI = 0.25-0.35; SDI = 1.10; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on R_1 .

Foreleg with outer surface of tibia bearing dense long spines; fore tibial spur 0.5 times as long as tarsus 2. Hind coxa in profile 2.2-2.4 times as long as deep; hind trochantellus mediodorsally 0.3-0.4 times as long as broad; inner hind tibial spur 0.8-0.9 times as long as hind tarsus 2.

Gaster slender; tergite 2 in profile more than 5 times as long as deep; thyridia ellipsoidal, separated from anterior margin of tergite by 2-3 times its own length.

Ovipositor apically elongately acute. ♂ with sternites 6-8 with moderately dense rather long pubescence; gonosquama distally evenly rounded.

Colour generally reddish-orange, genae yellowish-orange; inter-ocellar area and terminal 3 segments of gaster black; flagellum distally infusate; wings hyaline.

Remarks. This species is intermediate between the *D. braunsii* and *D. pellucidus* species-groups. In venation and sculpture it resembles the latter whilst in the shape of the face and spines of the fore tibia it resembles the former.

Distribution. Delobel (1976) records this species from South Africa to Kenya. A ♂ in the collection of the BMNH extends the range of this species northwards to Ethiopia (Map 11).

Material examined. Holotype ♂, SOUTH AFRICA: M'fongosi, near Kranskop in Zululand (SAM).

Non-type material. CENTRAL AFRICAN REPUBLIC: 1♀, Fort Crampel, 1919 (*De Gaulle*) (MNHN). ETHIOPIA: 1♂, Wolamo, Soddu, 2300m, xi.48 (*Scott*) (BMNH). KENYA: 1♀, 1♂, Taveta, 750m, 1912 (*Alluaud & Jeannel*) (MNHN). SOUTH AFRICA: 1♀, Transvaal, confluence of Crocodile and Marico Rivers (TC). ZAIRE: 1♀, Gandajika, v.59 (*Decelle*) (MRAC); 2♀, Kasai, iii.39 (*Bequaert*) (MRAC); 1♀, Kikwit (*Close*) (MRAC); 1♀, Kwango, Atene (*Charlier*) (MRAC); 1♀, Lubumbashi, iv.49 (*Seydel*) (MRAC); 1♀, Lubumbashi, iv.60 (*Bourgeois*) (TC); 1♀, Lulua, Kapanga, v-viii. 59 (*Allaer*) (MRAC).

DICAMPTUS XHOSA Delobel

(Fig. 54)

Dicamptus xhosa Delobel, 1976 : 471. Holotype ♀, SOUTH AFRICA (TC) [examined].

Description. Mandible without groove but with a tuft of long hair; outer surface convex, polished and with isolated punctures; malar space 0.3 times basal mandibular width; lower face 0.85 times as broad as long, with obsolete punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 50%. Antennae with 55 flagellar segments; 1st flagellar segment 1.6 times as long as 2nd, 20th segment 2.8 times as long as broad.

Mesopleuron polished, striate; epicnemial carina reaching above level of lower corner of pronotum but not reaching pleural margin. Scutellum in profile very weakly convex, dorsally with isolated punctures. Metapleuron puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded dorsally weakly convex; anterior transcarina present and with posterior area finely reticulately wrinkled.

Forewing length 11mm; discosubmarginal cell as in Fig. 54; AI = 0.92; CI = 0.28; ICI = 0.31; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 6 hamuli on R_1 .

Foreleg with outer surface of tibia without spines; fore tibial spur 0.5 times as long as tarsus 2. Hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.8 times as long as broad; inner hind tibial spur 1.2 times as long as hind tarsus 2.

Gaster elongate, slender; tergite 2 in profile more than 5 times as long as deep; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5 times its own length.

Ovipositor apically elongately acute. ♂ unknown.

Colour generally pale yellow, black on inter-ocellar area, lower face centrally, propleuron, mesoscutum, mesopleuron, mesosternum, propodeum dorsally, hind coxae almost entirely, mid and fore coxae on ventral surfaces and gaster behind tergite 2. Flagellum orange-yellow; wings hyaline.

Remarks. This species is distinctive in the form of the alar sclerite, the shape of *1m-cu* and in its coloration.

Distribution. This species is recorded only from South Africa.

Material examined. Holotype ♀, SOUTH AFRICA: Port St. John, xii.70 (*H. & M. Townes*) (TC).

DICAMPTUS BETSILEO Delobel

(Fig. 53)

Dicamptus betsileo Delobel, 1976 : 472. Holotype ♀, MADAGASCAR (MNHN) [examined].

Description. Mandible without a groove, with a central tuft of long hair; outer mandibular surface swollen, polished; malar space 0.2-0.3 times basal mandibular width; lower face 0.90 times as broad as long, virtually impunctate. Genae constricted behind the eyes; posterior ocellus separated from orbits by 0.1 times its diameter; FI = 50%. Antennae with 50-53 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 2.5 times as long as broad.

Mesopleuron polished, finely puncto-striate, ventrally simply punctate; epicnemial carina reaching above lower corner of pronotum but with upper end remote from pleural margin. Scutellum in profile weakly convex, dorsally aluto-punctate. Metapleuron with obsolescent striations; submetapleural carina parallel sided. Propodeum in profile evenly rounded dorsally slightly convex; anterior transcarina complete and with posterior area finely and irregularly wrinkled.

Forewing length 10-11mm; discosubmarginal cell as in Fig. 53; AI = 2.50-2.60; CI = 0.20-0.25; ICI = 0.20-0.25; SDI = 0.80-0.85; *cu-a* opposite or slightly distal to *Rs&M*. Hindwing with 5-6 hamuli on R_1 .

Foreleg with outer surface of tibia with a few short spines; fore tibial spur about 0.8 times as long as tarsus 2. Hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.7-0.8 times as long as broad; inner hind tibial spur 1.2 times as long as hind tarsus 2.

Gaster long and slender; tergite 2 in profile about 7 times as long as deep; thyridia small, oval, separated from anterior margin of tergite by about 7 times its own length.

Ovipositor apically elongately acute. ♂ with sternites 6-8 with fine short pubescence, gonosquama distally evenly rounded.

Remarks. This species is probably closely related to *D. pellucidus* which it resembles in venation, form of tibial spur and sculpture. It is distinct from *pellucidus* in the form of the alar sclerite, colour of gaster and value of ICI.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Antsirabé, xi.36 (*Seyrig*) (MNHN); paratypes 6♀, 4♂, same data as holotype; 1♀, Antsirabé, ii.33 (*Seyrig*) (MNHN).

DICAMPTUS PELLUCIDUS (Kriechbaumer) (Figs 26, 32, 39, 50, 66)

Ophion (*Henicospilus*) *pellucidus* Kriechbaumer, 1894a : 54. Holotype ♂ [not ♀, as stated by Kriechbaumer], "CAMEROON" (TMP) [examined].

[*Amesospilus hammersteini* Enderlein, 1921 : 21. Paralectotype ♀ [not ♂, as stated by Enderlein]. Misidentification.]

Dicamptus pellucidus (Kriechbaumer) Townes & Townes, 1973 : 171.

Dicamptus pellucidus (Kriechbaumer); Delobel, 1976 : 469.

Description. Mandible without a groove, with a central band of long hair; outer surface convex, polished; malar space 0.2-0.3 times basal mandibular width; lower face 0.75-0.85 times as broad as long, finely alutaceous virtually without punctures. Genae constricted behind the eyes; posterior ocellus very close to orbits; FI = 50-55%. Antennae with 48-57 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.6-3.1 times as long as broad.

Mesopleuron polished, aluto-striate; epicnemial carina reaching to or slightly above level of lower corner of pronotum, its upper end remote from pleural margin. Scutellum in profile weakly convex, dorsally aluto-punctate. Metapleuron finely coriaceous; submetapleural carina weakly and evenly expanded anteriorly. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete and with posterior area finely reticulate.

Forewing length 9-13mm; discosubmarginal cell as in Fig. 50; AI = 1.10-1.40; CI = 0.20-0.30; ICI = 0.31-0.41; SDI = 1.00-1.10; *cu-a* opposite or very slightly proximal to *Rs&M*. Hindwing with 5-6 hamuli on R_1 .

Foreleg with outer surface of tibia virtually without spines; fore tibial spur 0.80 or more times as long as tarsus 2. Hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.5-0.6 times as long as broad; outer hind tibial spur 1.2 or more times as long as hind tarsus 2.

Gaster slender; tergite 2 in profile 7 or more times as long as deep; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.5 times its own length.

Ovipositor apically elongately acute; ♂ with sternites 6-8 with rather long dense pubescence; gonosquama distally fairly evenly rounded.

Colour generally orange but with tergites 3 & 4 of gaster paler yellowish, tergites 5+ infuscate to black; inter-ocellar area black; flagellum distally infuscate; wings hyaline.

Variation. The extent to which the vein *Rs+2r* is sinuate varies somewhat but is always less sinuate than that of *D. pulchellus*. Generally the distal sclerite is confluent with the proximal sclerite but in a few specimens the two are separated by a narrow area of membrane.

Remarks. This species shows affinity with *D. betsileo*, *D. seyrigi*, *D. townesi* and *D. pulchellus*. *D. pellucidus* differs from the latter 3 species in having longer tibial spurs and having the postero-distal angle of the 2nd discal cell 90° or more.

Distribution. One of the commonest African species of *Dicamptus* occurring throughout west, central and east Africa, Madagascar and the Comores (Map 12).

Material examined. Holotype ♂, "CAMEROON" (TMP).

Non-type material. CAMEROON: 1♀, Yaoundé (*Benoit*) (MRAC). COMORES: 1♂, Mayotte, Coconi, i.74 (*Matile*) (MNHN). IVORY COAST: 1♀, Bingerville, xi.62 (*Decelle*) (MRAC). MADAGASCAR: 1♀, Analandraka, vi.37 (*Seyrig*) (MRAC); 1♀, 1♂, Anivorano, xii.29-i.32 (*Seyrig*) (MNHN); 1♀, Behara, i.38 (*Seyrig*) (MNHN); 1♀, Bekily, v.37 (*Seyrig*) (MNHN); 1♀, 1♂, Fort Dauphin, v.34-36 (*Seyrig*) (MNHN); 1♀, Ivondro, v.40 (*Seyrig*) (MNHN); 1♀, Maroantsetra, xi.34 (*Vadon*) (MNHN); 2♀, 2♂, Ranomafana, x.38-i.40 (*Seyrig*) (MNHN); 1♀, Ranomafana (*Inst. Res. Mad.*) (MRAC); 1♀, 2♂, Rogez, xi.46 (*Lamberton*) (TC). MALAWI: 3♀, Mlanje, 1912-13 (*Neave*) (BMNH). RWANDA: 1♀, Kisanyi, x.51 (*Bertrand*) (MRAC). SIERRA LEONE: 5♀, Freetown, i-v.70 (*Owen*) (TC). TANZANIA: 1♂, Morogoro, i.63 (*Heinrich*) (TC). UGANDA: 12♀, 3♂, Kampala, 1917-18 (*Gowdey*) (BMNH); 1♀, Kampala, iii.64 (*Owen*) (TC); 1♀, Mengo, Zika Forest, xi.63 (*Lancaster*) (TC); 1♀, Toro, Daro Forest, 1911 (*Neave*) (BMNH). ZAIRE: 1♂, Basoko, 1948 (*Benoit*) (MRAC); 1♀, Kisangani, xi.30 (*Vrydagh*) (MRAC).

DICAMPTUS SEYRIGI Delobel (Figs 30, 37, 55)

Dicamptus seyrigi Delobel, 1976 : 473. Holotype ♀, MADAGASCAR (MNHN) [examined].

Description. Mandible without a groove, with strong proximal concavity, without cluster of long hair on outer surface; malar space 0.2-0.3 times basal mandibular width; lower face 0.85-0.93 times as broad as long, obsoletely punctate. Genae

constricted behind the eyes; posterior ocellus contiguous with eye; FI = 50-55%. Antennae with 60-65(72) flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 3.0-3.5 times as long as broad.

Mesopleuron subpolished with weak striations; epicnemial carina not or just reaching level of lower corner of pronotum, with upper end remote from pleural margin. Scutellum in profile weakly convex, dorsally aluto-punctate. Metapleuron aluto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina present and with posterior area finely alutaceous.

Forewing length 9-12(16)mm; discosubmarginal cell as in Fig.55; AI = 1.20-1.40; CI = 0.30-0.40; ICI = 0.10-0.15; SDI = 0.75-0.85; *cu-a* opposite *Rs&M*. Hindwing with 6 hamuli on R_1 .

Foreleg with outer surface of tibia devoid of spines; fore tibial spur about 0.5 times as long as tarsus 2. Hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 1.0-1.1 times as long as broad; outer hind tibial spur 1.0-1.1 times as long as hind tarsus 2.

Gaster long and slender; tergite 2 in profile 6 or more times as long as deep; thyridia ellipsoidal, separated from anterior margin of tergite by 2-3 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with moderately long fine pubescence; gonosquama evenly rounded.

Colour generally pale orange; face, except centrally, and genae whitish; inter-ocellar area black; flagellum distally infuscate; wings hyaline.

Variation. One ♀ from Marojely differs from the material examined by Delobel in being very much larger (forewing length 16 as opposed to 12mm). The proximal sclerite of this individual is slightly smaller than normal but otherwise this specimen is a typical example of the species.

Remarks. *D. seyrigi* very closely resembles *D. townesi* and *D. pulchellus*. It differs from these species, not only in the characters mentioned in the key, but also in having slightly longer flagella and a paler face.

Distribution. This species is restricted to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Rogez, xi.32 (*Seyrig*) (MNHN); paratypes 1♀, Perinet, ii.39 (*Seyrig*) (BMNH); 5♀, 4♂, Rogez, 1930-40 (*Seyrig*) (MNHN).

Non-type material. MADAGASCAR: 1♂, Andreba, xi.33 (*Seyrig*) (MNHN); 9♀, 4♂, Ankaratra, 1932-40 (*Seyrig*) (MNHN); 1♂, Ivondro, xii.38 (*Seyrig*) (MNHN); 2♀, Kalambatitra, i.33 (*Seyrig*) (MNHN); 1♀, Marojely, xii.60 (*Soga*) (MNHN); 1♂, Perinet, ii.39 (*Seyrig*) (MNHN); 1♀, Sandrangato (*Inst. Res. Mad.*) (MRAC).

DICAMPTUS TOWNESI Delobel

(Fig. 56)

Dicamptus townesi Delobel, 1976 : 478. Holotype ♀, UGANDA (TC) [examined].

Description. Mandible without a groove, with a central cluster of hairs; outer surface convex, swollen, polished; malar space 0.2-0.3 times basal mandibular width; lower face 0.80-0.85 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to but not touching eye; FI = 50-55%. Antennae with 50-52 flagellar segments; 1st flagellar segment 1.2-1.5 times as long as 2nd, 20th segment 2.2-2.4 times as long as broad.

Mesopleuron polished, puncto-striate; epicnemial carina reaching above level of lower corner of pronotum but with upper end remote from pleural margin. Scutellum in profile weakly convex, dorsally aluto-punctate. Metapleuron puncto-striate; submetapleural carina parallel-sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete and with posterior area irregularly wrinkled.

Forewing length 10-11mm; discosubmarginal cell as in Fig.56: AI = 0.85-1.50; CI = 0.10-0.20; ICI = 0.15-0.25; SDI = 0.90-1.00; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on R_1 .

Foreleg with outer surface of tibia without spines; fore tibial spur 0.6 times as long as tarsus 2. Hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.5-0.7 times as long as broad; inner hind tibial spur 0.80-0.95 times as long as hind tarsus 2.

Gaster long and slender; tergite 2 in profile more than 6 times as long as deep; thyridia oval, separated from anterior margin of tergite by about 3 times its own length.

Ovipositor apically elongately acute. ♂ with sternites 6-8 densely covered with fine hair; gonosquama fairly acute.

Colour generally reddish-orange, genae yellowish, terminal segments of gaster infuscate; inter-ocellar area black; wings hyaline.

Remarks. Very similar to *D. pulchellus*. The two species are separated only on rather few weak characters.

Distribution. Recorded from east Africa and Madagascar (Map 13).

Material examined. Holotype ♀, UGANDA: Mengo, Entebbe, iv.64 (*Lancaster*) (TC); paratypes 3♀, 3♂, same locality, iv-v.64 (*Lancaster*) (TC).

Non-type material. MADAGASCAR: 2♀, Ivondro (River), iv.41 (*Seyrig*) (MRAC). TANZANIA: 5♀, Mt. Meru, 1500m, vi-vii.62 (*Heinrich*) (TC). UGANDA: 1♀, Entebbe, ix.11 (*Neave*) (BMNH). ZAIRE: 1♀, Kivu, Kavivira (Uvira), iii.55 (*Marlier*) (MRAC); 1♀, Mauda, H. Uelé, iii.25 (*Schouteden*) (MRAC).

DICAMPTUS PULCHELLUS (Morley)

(Figs 31, 38, 41, 51)

Allocamptus pulchellus Morley, 1912a : 27. Holotype ♂, KENYA (BMNH) [examined].

Dicamptus pulchellus (Morley) Townes & Townes, 1973 : 171.

Dicamptus pulchellus (Morley); Delobel, 1976 : 475.

Description. Mandible usually without a groove, with or without a rather sparse tuft of pubescence; outer surface swollen;

malar space 0.2-0.3 times basal mandibular width; lower face 0.75-0.85 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus close to but not confluent with eye; FI = 50-60%. Antennae with 53-57 flagellar segments; 1st flagellar segment 1.3-1.6 times as long as 2nd, 20th segment 3.0-4.0 times as long as broad.

Mesopleuron polished, striate or puncto-striate; epicnemial carina reaching above lower corner of pronotum curved to but not reaching anterior pleural margin. Scutellum in profile weakly convex, dorsally aluto-punctate. Metapleuron striate or puncto-striate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina usually complete and with posterior area irregularly wrinkled to finely reticulate.

Forewing length 8-10mm; discosubmarginal cell as in Fig. 51; AI = 1.40-2.00; CI = 0.10-0.20; ICI = 0.10-0.20; SDI = 0.95-1.05; *cu-a* more or less opposite *Rs&M*. Hindwing with 5-6 hamuli on *R*₁.

Foreleg with outer surface of tibia without obvious spines; fore tibial spur 0.65 times as long as tarsus 2. Hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.4-0.6 times as long as broad; outer hind tibial spur 0.90-1.10 times as long as hind tarsus 2.

Gaster elongate and slender; tergite 2 in profile more than 7 times as long as deep; thyridia ellipsoidal, separated from anterior margin of tergite by about 3 times its own length.

Ovipositor slender, apically elongately acute. ♂ with sternites 6-8 with dense, fine pubescence; gonosquama distally rather acute.

Colour generally orange-red, posterior orbits flavous; gaster with tergites 3-4 pale orange, tergites 5+ infuscate or black; inter-ocellar area black.

Distribution. Widely distributed throughout Africa and Madagascar (Map 14).

Material examined. Holotype ♂, KENYA: no further data (*Betton*) (BMNH).

Non-type material. CENTRAL AFRICAN REPUBLIC: 1♀, Bambari, i.64 (*Pierrard*) (MRAC); 1♀, "Oubangi-Chari" (*Breuning*) (MRAC). IVORY COAST: 2♀, Bingerville, xi.62 (*Decelle*) (MRAC); 1♀, no further data (ZC). MADAGASCAR: 2♀, 1♂, Anivorano, 1929-32 (*Seyrig*) (MNHN); 1♂, Iakora, vi.33 (*Seyrig*) (MNHN); 2♀, 2♂, Ivondro (River), 1938-40 (*Seyrig*) (MNHN); 9♀, Ivondro (River), x.44 (*Seyrig*) (MRAC); 1♀, Perinet, i.34 (*Seyrig*) (MNHN); 1♀, Rogez, xii.31 (*Seyrig*) (MNHN); 1♀, Saint Marie, no further data (MNHN); 1♀, Sombirano (*Seyrig*) (MNHN). MALAWI: 1♀, Zomba, no further data (*Stannus*) (BMNH). NIGERIA: 9♀, Ife-Ife, 1973 (*Medler*) (TC). SIERRA LEONE: 2♀, Freetown, 1967-70 (*Owen*) (TC); 1♀, Kambui Hills, iv.68 (*Owen*) (TC). SOUTH AFRICA: 2♀, Natal, Kloof, 500m, ix.26 (*Turner*) (BMNH). SUDAN: 1♀, Khartoum, ix.64 (*Schulz*) (WAU). TANZANIA: 1♀, Morogoro, i-ii.62 (*Heinrich*) (TC). UGANDA: 2♀, Kampala, 1918 (*Gowdey*) (BMNH); 2♀, Ruwenzori Range, Semilik, viii.52 (*Fletcher*) (BMNH). ZAIRE: 1♀, Gandajika, 1956 (*Francquen*) (MRAC); 3♀, Lubumbashi, i.34-iii.35 (*Seydel*) (MRAC); 2♀, Lubumbashi, 1938-39 (*Brédo*) (IRSNB); 1♀, Lubumbashi, viii.51 (*Seydel*) (MRAC); 1♀, Lubumbashi, xii.56 (*Seydel*) (TC); 2♀, Rutshuru, iv.36 (*Lippens*) (MRAC); 1♀, Rutshuru, vii.37 (*Prophylactique*) (MRAC).

Genus *EURYOPHION* Cameron

Euryophion Cameron, 1906 : 83. Type-species: *Euryophion nigripennis* Cameron, by monotypy.

Eurycamptus Morley, 1912a : 27. Type-species: *Ophion latipenne* Kirby, by subsequent designation (*Viereck*, 1914 : 57).

Thoracophion Roman, 1943 : 22. Type-species; (*Thoracophion ventrator* Roman) = *latipenne* Kirby, by monotypy.

Primophion Townes, 1971 : 65. Type-species: *Primophion adustus* Townes, by original designation. Syn. n.

Generic diagnosis. Mandibles large, not twisted, weakly narrowed, apically subequally bidentate; maxillary palp 4-5 segmented; labial palp 4-segmented. Clypeus in profile rather flat, often with apex out-turned. Occipital carina usually complete; frons not or very weakly laterally carinate. Antennae short and stout, usually not longer than forewing.

Mesoscutum with notauli more or less absent; scutellum convex without lateral longitudinal carinae; posterior transverse carina of mesosternum absent except at lateral extremities. Propodeum variously sculptured, usually without anterior transverse carina; posterior part of metanotum at most weakly swollen opposite propodeal spiracle.

Forewing with *cu-a* opposite or distal to *Rs&M*, very rarely slightly proximal to it; discosubmarginal cell with a glabrous area in extreme anterior corner; *1m-cu* without ramellus, usually rather evenly bowed; *Rs+2r* abruptly curved and thickened before reaching pterostigma. CI = 0.15-0.65; DI = 0.38-0.60. Hindwing with *Rs* from weakly to strongly curved; marginal cell proximally glabrous; NI = 0.65-1.50.

Fore tibial spur without a membranous flange behind macrotrichial comb; mid and hind trochantelli unspecialized; inner hind tibial spur subcylindrical to somewhat flattened.

Gaster rather short and stout; sternite 2 with anterior margin before the petiolar spiracle; thyridia subcircular or ovate, generally separated from anterior margin of tergite by about 2 times its own length; tergite 2 in profile less than 3 times as long as deep, with epipleuron pendant or turned under.

♂ genitalia with gonosquama of moderate size.

General body colour from reddish to black, often with wings infumate or black patterned.

Townes (1971) placed 4 species in 2 separate genera. The differences between these genera are summarized below.

	<i>EURYOPHION</i>	<i>PRIMOPHION</i>
Maxillary palp	4-segmented	5-segmented
Epicnemial carina	Present only ventrally	Present laterally and ventrally
Epipleuron of tergite 2	Pendant	Turned under

Some of the species included below were found to fall between these generic limits. *E. meridionalis* has a 5,4 palpal formula (*Primophion*) but epipleuron of tergite 2 pendant and *cu-a* distal to *Rs&M* (*Euryophion*). *E. pisinnus* has a 5,4 palpal formula and the epipleuron turned under (*Primophion*) but has *cu-a* distal to *Rs&M* (*Euryophion*). It is apparent therefore that *Primophion* must be included as a synonym of *Euryophion*.

This genus is restricted to the Ethiopian region. Superficially it is rather similar in facies to the new world genera, *Rhynchophion* Enderlein and *Thyreodon* Brullé, especially in the form of the mouthparts and articulation of the mandibles. However the new world genera differ in a number of features such as venation and propodeal structure which could

well indicate that there is no real phylogenetic affinity between the old and new world genera and thus the similarities could be the result of evolutionary convergence.

Townes & Townes (1973) include 4 species in *Euryophion* (including *Primophion*). Two additional species have been found to be represented in the collections of the BMNH.

KEY TO THE SPECIES OF THE GENUS *EURYOPHION*

- 1 Maxillary palpi 4-segmented; tergite 2 of gaster with epipleuron pendant (Fig 96) 2
 — Maxillary palpi 5-segmented; tergite 2 of gaster usually with epipleuron folded under (Fig. 8), except in one species 3
- 2(1) Lower face transverse 1.05-1.10 times as broad as long; wings blackish; alitrunk red-brown; inter-ocellar area concolorous with vertex *NIGRIPENNIS* Cameron (p. 24)
 — Lower face subquadrate, 0.90-1.00 times as broad as long; wings yellowish or hyaline; alitrunk orange; inter-ocellar area black *LATIPENNIS* (Kirby) (p. 24)
- 3(1) Inner edge of inner hind tibial spur with a fringe of long macrotrichia (Fig. 64); tergite 2 of gaster with epipleuron pendant (Fig. 95) *MERIDIONALIS* (Morley) (p. 25)
 — Inner edge of inner hind tibial spur without a fringe of long macrotrichia, at most with a band of short stout hairs (Fig. 65); tergite 2 of gaster with epipleuron folded under (Fig. 8) 4
- 4(3) Notauli strongly impressed on anterior 0.2 of mesoscutum; inter-ocellar area black, contrasted with remainder of vertex; forewing with *cu-a* slightly distal to *Rs&M* *PISINNUS* sp. n. (p. 27)
 Notauli vestigial; inter-ocellar area reddish-brown, concolorous with remainder of vertex; forewing with *cu-a* opposite or proximal to *Rs&M* 5
- 5(4) Hindwing with *Rs* rather weakly and evenly curved (Fig. 72); forewing with *Rs+2r* sinuate, curved to join pterostigma; CI = 0.15-0.25 (Fig. 70) *VARIEGATUS* sp. n. (p. 26)
 — Hindwing with *Rs* strongly and abruptly curved (Fig. 71); forewing with *Rs+2r* abruptly curved to join pterostigma after weak geniculation; CI = 0.30-0.36 (Fig. 69) *ADUSTUS* (Townes) (p. 26)

EURYOPHION NIGRIPENNIS Cameron

(Figs 21, 62)

Euryophion nigripennis Cameron, 1906 : 83. Holotype ♀, SOUTH AFRICA (SAM) [examined].

Euryophion nigripennis Cameron; Morley, 1912a : 5.

Euryophion nigripennis Cameron; Townes, 1971 : 275.

Euryophion nigripennis Cameron; Townes & Townes, 1973 : 169.

Description. Outer surface of mandible with fine pubescence; maxillary palpi 4-segmented, labial palpi 4-segmented; labrum triangular; malar space 0.1 times as long as basal mandibular width; lower face slightly transverse, 1.05-1.10 times as broad as long, centrally convex, coarsely punctate; clypeus 1.5-1.6 times as broad as long with margin flat, acute. Genae weakly swollen; occipital carina mediodorsally incomplete; FI = 45-50%. Flagellum with about 50 segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment about 0.9 times as long as broad.

Mesoscutum in profile abruptly rounded; mesopleuron matt, closely and coarsely punctate; epicnemial carina not extending onto pleuron, but often replaced by a secondary furrow from which posteriorly radiate ridges. Scutellum finely punctate. Metapleuron punctate; submetapleural carina anteriorly expanded weakly. Propodeum in profile abruptly rounded.

Forewing length 20-25mm; AI = 0.60-0.90; CI = 0.30-0.55; ICI = 1.35-1.55; DI = 0.45-0.50; *cu-a* distal to or opposite *Rs&M*, *1m-cu* evenly bowed; *Rs+2r* proximally thickened and abruptly curved to join pterostigma. Hindwing with NI = 0.65-1.00; vein *Rs* not thickened, rather weakly curved; 9-12 hamuli on *R*₁.

Fore tibia with scattered long fine spines on anterodistal surface; hind coxa in profile 1.7 times as long as deep; hind trochantellus dorsally 0.1 times as long as broad; inner hind tibial spur flattened, with an internal row of closely interspaced long hairs; outer hind tarsal claws of ♀ long and weakly curved with about 12 moderately long close pectinae; ♂ similar to ♀ but pectinae shorter and closer.

Gaster stout; tergite 2 about as long as deep posteriorly, with epipleuron pendant; thyridia oval separated from anterior margin of tergite by at most 2 times its own length; sternite 2 with posterior margin far before spiracle of tergite 2.

Ovipositor stout but strongly acute; subapical notch vestigial; valvulae 3 narrow with long fine pubescence. ♂ sternites 6-8 with long fine semi-erect pubescence.

Dark brownish-red species with gaster from tergite 3 onwards entirely black; alitrunk often infuscate laterally; wings strongly infumate; inter-ocellar area reddish, flagellum orangish.

Remarks. This species appears to be very closely related to *E. latipennis* from which it is separated by the characters mentioned in the key. We have seen one ♀ from Uganda (BMNH) which is apparently intermediate between the two species. More material needs to be examined before the validity of the two species can be reliably confirmed or refuted.

Distribution. Widely distributed throughout Africa (Map 16).

Material examined. Holotype ♀, SOUTH AFRICA: Durban (SAM).

Non-type material. BOTSWANA: 1♀, Nathan, i.74 (*Ginn*) (TC). CHAD: 1♀, Bebedija bij Moundou, vii.70 (*Lourens*) (ZMA). MALAWI: 1♂, Mlanje, ii.14 (*Neave*) (BMNH). MOÇAMBIQUE: 1♀, Lourenço Marques, xi.55 (*Brown*) (BMNH). NIGERIA: 1♀, Azare, 1926 (*Lloyd*) (TC); 1♂, Azare, 1926 (*Lloyd*) (BMNH); 1♀, Samaru, viii.70 (*Ward*) (BMNH). RHODESIA: 1♀, Bulawayo, xii.41 (BMNH); 1♀, Premier Mine, xii.41 (BMNH); 1♂, Sawmills, xii.26 (BMNH). SOUTH AFRICA: 2♀, 1♂, Natal, Weenan, xii.27 (*Thomasset*) (BMNH). TANZANIA: 1♀, Dar es Salaam, v.53 (*Brown*) (BMNH). UGANDA: 1♀, Buruli, x.42 (*Taylor*) (BMNH). COUNTRY ? : 1♀, Bangali Garissa, 1943 (*Opiko*) (BMNH).

EURYOPHION LATIPENNIS (Kirby)

(Figs 12, 68, 73, 96, 808)

Ophion latipenne Kirby, 1896 : 263. Holotype ♀, GABON (BMNH) [examined].

Eurycamptus latipennis (Kirby) Morley, 1912a : 28.

Eurycamptus latipennis (Kirby); Morley, 1926 : 480.

Thoracophion ventrator Roman, 1943 : 22. Lectotype ♀, UGANDA (NR), designated by Townes & Townes (1973 : 169) [examined]. [Synonymized by Townes & Townes 1973 : 169.]

Eurycamptus latipennis (Kirby); Townes, 1961 : 172.

Euryophion ventrator (Roman) Townes, 1971 : 67.

Euryophion latipennis (Kirby) Townes & Townes, 1973 : 169.

Description. Outer surface of mandible with long fine pubescence. Maxillary palp 4-segmented, labial palp 4-segmented; labrum triangular; malar space 0.1 times as long as basal mandibular width; lower face subquadrate, 0.90-1.00 times as broad as long, centrally convex, dorsally coarsely punctate with punctures becoming obsolescent ventrally; clypeus 1.8 times as broad as long with margin flat, acute. Genae weakly swollen; occipital carina mediodorsally incomplete; FI = 50-60%. Flagellum with 50-53 segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 1.3-1.5 times as long as broad.

Mesoscutum in profile abruptly rounded; mesopleuron polished, closely punctate; epicnemial carina not extending onto pleuron. Scutellum punctate, metapleuron punctate, submetapleural carina anteriorly expanded weakly. Propodeum in profile abruptly rounded.

Forewing length 16-33mm; AI = 0.55-0.65; CI = 0.55-0.65; ICI = 1.60-1.70; DI = 0.38-0.50; *cu-a* distal to *Rs&M* by up to 0.2 times its own length; *1m-cu* rather evenly bowed; *Rs+2r* proximally thickened and abruptly curved to join pterostigma. Hindwing with NI = 1.00-1.05; vein *Rs* not thickened rather weakly and unevenly curved; 10-12 hamuli on *R*₁.

Fore tibia with numerous long thin spines on anterodistal surface; hind coxa in profile about 1.4 times as long as deep; hind trochantellus 0.1 times as long as broad; inner hind tibial spur flattened with an internal row of long densely packed hairs; outer hind tarsal claw of ♀ long and weakly curved, with about 12 moderately long close pectinae; ♂ similar to ♀.

Gaster stout; tergite 2 about as long as deep posteriorly with epipleuron pendant; thyridia oval separated from anterior margin of tergite by about its own length; sternite 2 with posterior margin far before spiracle.

Ovipositor acute, with subapical notch weak; valvulae 3 with dense elongate pubescence on lower half only. ♂ with sternites 6-8 with long fine semi-erect pubescence.

Orange-red species, sometimes with terminal segments of gaster black; wings yellowish, in large specimens, with irregular patches of infumation on forewing along veins *Rs&M* and *Rs* and in hindwing and in marginal cell adjacent to margin of glabrous area; inter-ocellar area black; flagellum orange-brown.

Remarks. Similar to the preceding species from which it differs most noticeably in colour. The colour pattern of this species resembles *E. meridionalis*.

Immature stages. Final instar larva (Fig. 808); hypostoma strongly sclerotized, narrow, abruptly turned through 65°; hypostomal spur moderately long; pleurostoma and epistoma long and slender, unusual in that the former is longer than the latter; mandible small, with a straight blade arising from its lower part, unusual in having an inflated blunt tubercle close to its base; sclerotized oral bar strong; labial sclerite short and broad; posterior hypostomal process long and stout; stipital sclerite long, slender.

This species differs from all species of *Enicospilus* in the form of the mandibles.

Cocoon 26mm long with its maximum diameter about 0.5 times its length; outer surface smooth, dark brown with a slightly paler equatorial band.

Host records. Morley (1926) records this species as a parasite of *Bunaea alcinoe cafraria** Stoll (Lep., Saturniidae), *Imbrasia macrothyris** Rothschild (Lep., Saturniidae) and *Janomima westwoodi** Aurivillius (Lep., Eupterotidae).

Distribution. Widely distributed throughout Africa from Sierra Leone to South West Africa (Map 15).

Material examined. *Ophion latipenne* Kirby, holotype ♀, GABON: Ogoové River (BMNH). *Thoracophion ventrator* Roman, lectotype ♀, UGANDA: Tororo (NR).

Non-type material. ANGOLA: 1♂, Condé (Petit) (IRSNB); 1♀, 10km W of Gabela, iii.72 (Day) (BMNH); 1♂, 10km NE of Porto Alexandre, ii.72 (Day) (BMNH); 1♀, Quirimbo, v.34 (Jordan) (BMNH); 1♀, 3♂, Salazar, iii.72 (Day) (BMNH). CENTRAL AFRICAN REPUBLIC: 2♀, 1♂, La Maboke, viii.67 (Matile) (MNHN); 2♂, La Maboke, ix.67 (Matile) (MNHN); 1♂, La Maboke, 1967 (Teocchi) (MNHN); 3♀, 5♂, La Maboke, viii.69 (Teocchi) (MNHN); 5♀, 4♂, La Maboke, 1968 (MNHN). CONGO: 1♀, Brazzaville (MNHN). GHANA: 1♂, 1910 (Gould) (BMNH). KENYA: 2♀, 2♂, Nyanza, Lumbwa, viii.13 (Dobbs) (BMNH). NIGERIA: 1♂, Samaru, viii.70 (Ward) (BMNH). SENEGAL: 1♂, (Khaya) Kayar, i.66 (Gezana) (BMNH). SIERRA LEONE: 1♀, 1♂, Njala, vii.34 (Hargreaves) (BMNH). SOUTH WEST AFRICA: 1♀, Okji-koko, ii.72 (Day) (BMNH). UGANDA: 2♀, Bwamba, vi.48 (van Someren) (BMNH); 5♀, 3♂, Entebbe, v.64 (Lancaster) (TC); 1♂, Kangole, Karamoja, vii.49 (van Someren) (BMNH); 1♂, Kwanda, vi.43 (Taylor) (BMNH); 1♀, Lwasamaire, iii.35 (Johnston) (BMNH); 1♀, Mengo, Zika Forest, ix-x.63 (Lancaster) (TC); 2♀, Tororo, v.62 (Burt) (BMNH). ZAIRE: 1♀, Bumba, xi.39 (De Saeger) (MRAC); 1♀, Kitembo, Kivu (Babault) (MNHN); 1♀, Luluabourg, ii.47 (Seydel) (TC); 2♀, Luluabourg, i-viii.56 (Seydel) (TC).

EURYOPHION MERIDIONALIS (Morley)

(Figs 63, 64, 74, 95)

Eurycamptus meridionalis Morley, 1912a : 29. Holotype ♀, SOUTH AFRICA (BMNH) [examined].

Euryophion meridionalis (Morley) Townes & Townes, 1973 : 169.

Description. Outer surface of mandible with fine pubescence. Maxillary palp 5-segmented, labial palp 4-segmented; labrum semicircular; malar space less than 0.1 times as long as basal mandibular width; lower face elongate, 0.75-0.80 times as broad as long, centrally convex closely punctate; clypeus 1.4-1.5 times as broad as long, margin flat or slightly out-turned, acute. Genae constricted; occipital carina complete; FI = 60%. Flagellum with about 50 segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.2-1.3 times as long as broad.

Mesoscutum in profile evenly rounded, sub-polished, closely punctate; epicnemial carina not extending onto pleuron.

Scutellum quadrate, coarsely punctate. Metapleuron punctate; submetapleural carina weakly broadened anteriorly. Propodeum in profile abruptly rounded.

Forewing length 22-28mm; AI = 0.50-0.60; CI = 0.55-0.60; ICI = 1.15-1.25; DI = 0.50-0.55; *cu-a* opposite or slightly distal to *Rs&M*; *1m-cu* abruptly centrally curved; *Rs+2r* proximally broadened slightly sinuate before being abruptly curved to join pterostigma. Hindwing with NI = 1.20-1.25; vein *Rs* not thickened, weakly and evenly curved; 6-7 hamuli on R_1 .

Fore tibia with scattered long fine spines on anterodistal surface; hind coxa in profile 1.6-1.7 times as long as deep; hind trochantellus 0.1 times as long as broad; inner hind tibial spur flattened, with internal row of close very long hairs outer hind tarsal claw of ♀ long and weakly curved with 11 short stout pectinae; those of ♂ not found.

Gaster moderately stout tergite 2 in profile 2.0-3.0 times as long as deep posteriorly; epipleuron pendant; thyridia ellipsoidal, separated from anterior margin of tergite by 1.0-2.0 times its own length; sternite 2 with posterior margin before spiracle of tergite 2.

Ovipositor elongately acute; subapical notch weak; valvulae 3 covered with long fine hairs. ♂ sternites 6-8 with long fine semi-erect pubescence.

Dark brownish-red species with gaster from tergite 4 infuscate; wings infumate weakly, especially the forewing by veins *Rs&M* and *Rs* and in hindwing in marginal cell adjacent to margin of glabrous area; inter-ocellar area red-brown, flagellum orange-brown.

Remarks. This species is morphologically closely related to *E. latipennis* from which it differs not only in number of maxillary palpal segments but also in having tergite 2 of gaster longer, having *Rs+2r* more sinuate before joining pterostigma, having lower face more elongate and not having the genae swollen.

Distribution. Widely distributed throughout Africa from Ethiopia to South Africa but usually not common (Map 17).

Material examined. Holotype ♀, SOUTH AFRICA: Durban (BMNH).

Non-type material. CENTRAL AFRICAN REPUBLIC: 1♂, La Maboke, 1967 (*Teocchi*) (MNHN). CHAD: 1♀, NE de Fort Archambault Mara-Goulfez, Mission Chari, ix.04 (*Decorse*) (MNHN). ETHIOPIA: 1♀, Mieso, viii.45 (*Guichard*) (BMNH). KENYA: 1♀, Mlingano, iii.51 (*Sweeney*) (BMNH). MALAWI: 1♀, Mlange, i.14 (*Neave*) (BMNH). NIGER: 1♀, Moyon, Vuillet, viii-ix.07 (*Fleutiaux*) (MNHN). NIGERIA: 1♀, Azare, 1926 (*Lloyd*) (BMNH); 1♀, Keffi, v.51 (*Gregory*) (BMNH). RHODESIA: 1♀, Salisbury, xii.19 (*O'Neil*) (BMNH). UGANDA: 1♂, Entebbe, v.09 (*Gowdey*) (BMNH); 1♀, Gulu, v.30 (*Hopkins*) (BMNH); 1♀, Makere, Kampala, v-xii.65 (*Unamba*) (TC).

EURYOPHION VARIEGATUS sp. n.

(Figs 65, 70, 72, 75)

Description. Outer surface of mandible with fine dense pubescence. Maxillary palp 5-segmented, labial palp 4-segmented; labrum triangular; malar space 0.1 times basal mandibular width; lower face 1.1-1.2 times as broad as long, convex, closely and coarsely punctate; clypeus 2.0 times as broad as long with margin flat, acute. Genae weakly buccate; occipital carina complete; FI = 50-55%. Flagellum 52-53 segmented; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 1.1-1.3 times as long as broad.

Mesoscutum evenly rounded in profile; mesopleuron polished with deep large punctures, separated from each other by slightly more than their own diameter; epicnemial carina vestigial or obsolescent at most discernible to about lower corner of pronotum. Scutellum subquadrate, with scattered punctures. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum evenly rounded.

Forewing length 17-20mm; AI = 0.15-0.30; CI = 0.30-0.36; ICI = 1.05-1.30; DI = 0.50-0.55; *cua* slightly proximal to *Rs&M* by less than 0.1 times its own length; *1m-cu* unevenly bowed; *Rs+2r* sinuate; distal angle of discosubmarginal cell 80°. Hindwing with NI = 1.35-1.50; vein *Rs* abruptly thickened, weakly curved; 4 hamuli on R_1 .

Fore tibia with numerous long slender spines on anterodistal surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus 0.1 times as long as broad; inner hind tibial spur cylindrical with an internal row of close short hairs; outer hind tarsal claw of ♀ long, weakly curved, with about 15 short pectinae.

Gaster stout; tergite 2 in profile about 2 times as long as deep posteriorly with epipleuron turned under; thyridia triangular, separated from anterior margin of tergite by 1.0 times its own length; hind margin of sternite 2 before spiracle of tergite 2.

Ovipositor concealed; valvulae 3 narrow with long fine pubescence. ♂ unknown.

Head, alitrunk and coxae brownish-red; remainder of legs, gaster, flagellum and palpi badious; inter-ocellar area concolorous with vertex, red-brown; wings hyaline, forewing with discosubmarginal cell proximally, marginal cell almost entirely and distal margin of wing infumate.

Remarks. This species is recognizable not only by the characters mentioned in the key but it differs from all others in the genus in having hyaline wings with conspicuous dark patterning. The colour pattern of the body distinguishes it from all other species except *E. pisinnus*.

Distribution. This species has only been recorded from west Africa (Map 18).

Material examined. Holotype ♀, SIERRA LEONE: Njala, viii.35 (*Hargreaves*) (BMNH); paratypes 1♀, NIGERIA: Ibadan, vi.51 (*Gregory*) (BMNH); 1♀, NIGERIA: Ife-Ife, 1969 (BMNH).

EURYOPHION ADUSTUS (Townes) comb. n.

(Figs 15, 69, 71)

Primophion adustus Townes, 1971 : 66 Holotype ♀, ZAIRE (TC) [examined].

Primophion adustus Townes; Townes & Townes, 1973 : 168.

Description. Outer surface of mandible with fine dense pubescence; maxillary palp 5-segmented, labial palp 4-segmented; labrum triangular; malar space 0.1 times basal mandibular width; lower face subquadrate 1.00-1.10 times as broad as long, convex, closely and coarsely punctate, clypeus about 2.0 times as broad as long with margin slightly swollen, acute.

Genae weakly buccate; occipital carina complete; FI = 45-50%. Flagellum with about 55 segments; 1st flagellar segment 1.4 times as long as 2nd, 20th segment 1.1 times as long as broad.

Mesoscutum in profile smoothly and evenly rounded; mesopleuron polished, closely and rather finely punctate, the spaces between the punctures conspicuously less than their own diameter; epicnemial carina reaching above lower corner of pronotum, distant from anterior margin of pleuron. Scutellum coarsely punctate. Metapleuron closely and finely punctate; submetapleural carina evenly broadened anteriorly, at widest point as broad as minimum diameter of propodeal spiracle. Propodeum abruptly declivitous, postero-dorsally deplanate.

Forewing length 23-25mm; AI = 0.20-0.30; CI = 0.15-0.25; ICI = 0.90-1.05; DI = 0.40-0.45; *cu-a* opposite *Rs&M*; *1m-cu* fairly evenly bowed; *Rs+2r* proximally thickened, somewhat geniculate; distal angle of discosubmarginal cell 65°-75°. Hindwing with NI = 1.00-1.10; vein *Rs* centrally thickened, strongly curved; 5-6 hamuli on *R*₁.

Fore tibia with numerous slender spines on anterodistal surface; hind coxa in profile 1.8 times as long as deep; hind trochantellus dorsally 0.1 times as long as broad; inner hind tibial spur subcylindrical, with an internal row of very short hairs; hind tarsal claws missing.

Gaster moderately stout; tergite 2 in profile 2.5-3.0 times as long as deep posteriorly with epipleuron turned under; thyridia oval, separated from anterior margin of pleuron by about 2 times its own length; sternite 2 with margin before spiracle of tergite 2.

Ovipositor concealed; valvulae 3 narrow, with long fine pubescence.

Reddish-brown species with mesothorax and legs excluding coxae infusate; wings yellowish, forewing antero-distally infumate; hindwing weakly infumate on distal extremity. Flagellum badius, distally rufescent; inter-ocellar area reddish.

Host records. Townes & Townes (1973) record this species as a parasite of *Lobobunaea paratyrrhene* Bouvier (Lep., Saturniidae).

Distribution. This species is widely distributed in west and central Africa. Rare (Map 18).

Material examined. Holotype ♀, ZAIRE: Lubumbashi (*Seydel*) (TC).

Non-type material. MALAWI: 1♀, Mt. Mlange, xi.13 (*Neave*) (BMNH). NIGERIA: 1♂, Ibadan, v.51 (*Gregory*) (BMNH).

EURYOPHION PISINNUS sp. n.

(Fig. 8)

Description. Outer surface of mandible with fine dense pubescence; maxillary palp 5-segmented, labial palp 4-segmented; labrum triangular; malar space 0.1 times basal mandibular width; lower face subquadrate 0.90-1.10 times as broad as long, convex, closely punctate; clypeus 2.0-2.1 times as broad as long, flat, acute. Genae weakly swollen; occipital carina complete; FI = 50%. Flagellum with 46 segments; 1st flagellar segment 1.6-1.7 times 2nd, 20th segment 1.1 times as long as broad.

Mesoscutum in profile evenly rounded; mesopleuron polished, closely and finely punctate; epicnemial carina curved to anterior margin of pleuron just above lower corner of pronotum. Scutellum punctate. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum abruptly declivitous, postero-dorsally flattened.

Forewing length 15-16mm; AI = 0.25-0.35; CI = 0.40-0.50; ICI = 1.20-1.30; DI = 0.55-0.60; *cu-a* slightly distal to *Rs+M*; *1m-cu* abruptly bowed; *Rs+2r* proximally thickened, somewhat geniculate before being abruptly curved to join pterostigma; distal angle of discosubmarginal cell 65°-75°. Hindwing with NI = 1.00-1.10; vein *Rs* slightly thickened, moderately strongly curved; 4 hamuli on *R*₁.

Fore tibia with numerous slender spines on anterodistal surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus dorsally 0.1 times as long as broad; inner hind tibial spur subcylindrical with internal row of scattered short hairs; hind tarsal claw of ♀ long, weakly curved with about 12 short stout pectinae.

Gaster stout, tergite 2 in profile 1.5-2.0 times as long as deep posteriorly with epipleuron turned under; thyridia oval, separated from anterior margin of pleuron by about 1.5 times its own length; sternite 2 with margin before spiracle of tergite 2.

Ovipositor short, acute; valvulae 3 slender with long fine pubescence. ♂ unknown.

Head, coxae and alitrunk red-brown; gaster, legs and flagellum black; inter-ocellar area black; wings strongly and entirely infumate.

Remarks. This, the smallest species in the genus, is apparently closely related to *E. adustus* and *E. variegatus*. It is similar to these two species in the form of the mouthparts and tergite 2 but differs in having notauli strongly impressed on the anterior 0.2 of the mesoscutum and in the other characters given in the key. It is also recognizable because of its very dark wings.

Distribution. This species has been recorded from east Africa (Map 18).

Material examined. Holotype ♀, KENYA: Tsavo Nat. Pk., iv.68 (*Cogan & Hutson*) (BMNH); paratype 1♀, same data as holotype (BMNH).

Genus *RICTOPHION* Townes

Rictophion Townes, 1971 : 66. Type-species: (*Euryophion nebulifer* Morley) = *Cymatoneura ikuthana* Kriechbaumer, by original designation.

Generic diagnosis. Mandibles large, not twisted, weakly narrowed, apically subequally bidentate; maxillary palp 3-segmented; labial palp 3-segmented. Clypeus in profile somewhat thickened, margin slightly out-turned. Occipital carina complete, frons not laterally carinate. Antennae short and stout, not longer than forewing.

Mesoscutum without notauli; scutellum convex without lateral longitudinal carinae; posterior transverse carina of mesosternum absent except at lateral extremities. Propodeum coriaceous, without anterior transcarina; posterior part of metanotum very weakly swollen opposite propodeal spiracle.

Forewing with *cu-a* proximal to *Rs&M*; discosubmarginal cell with a glabrous area in extreme anterior corner; *1m-cu*

without ramellus, sinuate; *Rs+2r* abruptly curved and thickened before reaching pterostigma; CI = 0.80-0.90; DI = 0.60-0.65. Hindwing with *Rs* bowed; marginal cell fairly evenly hirsute; NI = 1.30-1.50.

Fore tibial spur without a membranous flange behind macrotrichial comb; mid and hind trochantelli unspecialized; inner hind tibial spur cylindrical.

Gaster rather short and stout; sternite 2 with anterior margin before petiolar spiracle; thyridia absent, tergite 2 in profile less than 3 times as long as deep posteriorly, with epipleuron turned under.

General body colour reddish-brown.

Discussion. This genus contains a single species, *R. ikuthana*. It is possibly quite closely related to species of *Euryophion* but there are a number of small consistent differences, the most notable of which are summarized below.

RICTOPHION

Tergite 2 of gaster without thyridia.
Marginal cell of hindwing evenly hirsute.
CI = 0.80-0.90.
Palp formula 3-3.
Forewing with *cu-a* proximal to *Rs&M* by more than 0.1 times its own length.

EURYOPHION

Tergite 2 of gaster with distinct thyridia.
Marginal cell of hindwing glabrous proximally.
CI = 0.15-0.65.
Palp formula 5-4 or 4-4.
Forewing with *cu-a* from very slightly proximal to, to distal to *Rs&M*.

In view of these differences it is suggested that *Rictophion* should be retained as a separate genus.

RICTOPHION IKUTHANA (Kriechbaumer)

(Figs 76, 97)

Cymatoneura Ikuthana Kriechbaumer, 1901 : 78. Lectotype ♀, KENYA (ZSBS), designated by Townes & Townes (1973 : 168) [examined].

Allocamptus ikuthana (Kriechbaumer) Szépligeti, 1905 : 36.

Euryophion nebulifer Morley, 1926 : 478. Holotype ♀, SOUTH AFRICA (SAM) [examined]. [Synonymized by Townes & Townes, 1973 : 168.]

Eremotylus pollutus Seyrig, 1935 : 47. Holotype ♀, TANZANIA (MNHN) [examined]. [Synonymized by Townes & Townes, 1973 : 168.]

Rictophion nebulifer (Morley) Townes, 1971 : 67.

Rictophion ikuthana (Kriechbaumer) Townes & Townes, 1973 : 168.

Description. Outer surface of mandible with fine pubescence; malar space 0.1 times as long as basal mandibular width; lower face transverse 1.3-1.4 times as broad as long, flat with coarse puncturation; clypeus 2.1 times as broad as long, with margin thickened, out-turned and blunt. Genae buccate; occipital carina complete, mediodorsally angularly produced upwards; FI = 45-50%. Flagellum with about 50 segments; 1st flagellar segment 1.2-1.3 times as long as 2nd, 20th segment 1.1 times as long as broad.

Mesoscutum in profile smoothly and evenly rounded; mesopleuron polished with close coarse punctures; epicnemial carina vestigial, not reaching above lower corner of pronotum. Scutellum finely punctate. Metapleuron reticulate; sub-metapleuron carina abruptly expanded anteriorly into a triangular lobe. Propodeum rather abruptly declivitous, posterodorsally convex.

Forewing length 16-23mm. AI = 0.45-0.55; ICI = 1.10-1.15; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length; *1m-cu* unevenly bowed; *Rs+2r* proximally abruptly curved and thickened. Hindwing with 8-9 hamuli on *R*₁.

Fore tibia with scattered spines on antero-distal surface; hind coxa in profile about 1.6 times as long as deep; hind trochantellus dorsally 0.1 times as long as broad; inner hind tibial spur subcylindrical with an internal row of widely interspaced short macrotrichia; outer hind tarsal claw of ♀ moderately long with about 10 stout pectinae, those of ♂ similar but with claw more strongly curved.

Gaster stout; tergite 2 about 2.0 times as long as deep posteriorly with epipleuron turned under; hind margin of sternite 2 far before spiracle of tergite 2.

Ovipositor stout with subapical notch weak; valvulae 3 stout with fine scattered pubescence. Sternites 6-8 of ♂ with short fine erect hairs.

Reddish-brown species with gaster terminally infuscate; wings pale yellowish, infumate in forewing by vein *Rs&M* and *Rs*, in hindwing in marginal cell adjacent to margin of glabrous area; inter-ocellar area concolorous with vertex; flagellum brown.

Distribution. This species has been recorded from eastern and southern Africa. Rare (Map 19).

Material examined. *Cymatoneura Ikuthana* Kriechbaumer, lectotype ♀, KENYA: Ikutha (ZSBS). *Euryophion nebulifer* Morley, holotype ♀, SOUTH AFRICA: Transvaal, Kapmuiden (SAM). *Eremotylus pollutus* Seyrig, holotype ♀, TANZANIA: SE slopes of Mt. Kilimanjaro, New Mosche = ? Moshi, 800m (MNHN).

Non-type material. KENYA: 1♂, Kibwezi, ii.29 (*van Someren*) (BMNH); 1♀, Mt. Labur, iv.50 (*van Someren*) (BMNH). MOÇAMBIQUE: 1♂, Delagoa Bay (ZC). SOUTH AFRICA: 1♀, Zululand, Eshowe, v.26 (*Turner*) (BMNH). TANZANIA: 1♀, Mt. Kilimandjaro, iv.12 (*Alluaud & Jeannel*) (MNHN).

Genus *OPHIONOPSIS* Tosquinet

Ophionopsis Tosquinet, 1903 : 389. Type-species: *Ophionopsis fulvipes* Tosquinet, by subsequent designation (Viereck, 1914 : 106).

Hypselogastrina Enderlein, 1918 : 217. Type-species: *Hypselogastrina saliina* Enderlein, by original designation.

Generic diagnosis. Mandibles not twisted, very weakly narrowed apically, more or less subequally bidentate; maxillary palp 5-segmented, labial palp 4-segmented. Clypeus in profile marginally out-turned slightly. Occipital carina complete except at ventral extremity; frons with strong carinae close to and parallel with the upper orbits, the carinae dorsally

curved towards, but not reaching, the ocellar triangle. Antennae about as long as forewing.

Mesoscutum without notauli; scutellum very strongly convex, without lateral longitudinal carinae except at extreme anterior end; posterior transverse carina of mesosternum complete; posterior margin of metanotum produced into a tubercle opposite the upper end of the propodeal spiracle.

Forewing with *cu-a* more or less opposite *Rs&M*; discosubmarginal cell evenly hirsute; *1m-cu* sinuous, with or without a discernible ramellus; *Rs+2r* very weakly arcuate. Hindwing with *Rs* slightly bowed to almost straight; marginal cell more or less evenly hirsute; NI = 0.50-0.80.

Fore tibial spur without a membranous flange behind the macrotrichial comb; mid and hind trochantelli unspecialized; inner hind tibial spur cylindrical.

Gaster short and quite stout, with anterior margin of sternite 2 far before the level of the petiolar spiracles; thyridia subcircular to oval, separated from anterior margin of tergite by about its own length; tergite 2 in profile 0.7-1.3 times as long as posteriorly deep, with epipleuron pendant.

General body colour brownish to black, wings mottled with, or entirely blackish.

Discussion. This is a small Ethiopian genus, with 3 described species. We consider all as a single species and have described a second species from Madagascar.

Ophionopsis superficially resembles *Euryophion* and *Rictophion*. We do not think it is at all closely related to these genera, but we believe it to be very closely related to the Oriental genus *Dictynotus* Kriechbaumer. The two genera are similar in having the metanotum swollen, the frons carinate, the posterior transverse carina of the mesosternum complete, *Rs+2r* in the forewing relatively straight and the marginal cell of the hindwing fairly evenly hirsute. Very few of these characters are shared with *Euryophion* and *Rictophion* species.

The position of the thyridia, well removed from the anterior margin of tergite 2, would seem to indicate the extant species of *Ophionopsis* may have originated from species with more elongate gasters. Such species would be very similar to extant species of *Dictynotus*, and it is possible that *Ophionopsis* should be included as a synonym of *Dictynotus*. For the present, pending further study of Oriental species we have retained *Ophionopsis* as a separate genus.

KEY TO SPECIES OF THE GENUS *OPHIONOPSIS*

- Metapleuron centrally produced into an acute tubercle; gena with an impressed striate area close to occipital carina; wings entirely infumate; African mainland *NIGROCYANEUS* Tosquinet (p. 29)
- Metapleuron without a central tubercle, virtually flat; gena without an impressed area, uniformly convex and punctate; wings mottled with black; Madagascar *SETUS* sp. n. (p. 30)

OPHIONOPSIS NIGROCYANEUS Tosquinet

(Fig. 11)

Ophionopsis fulvipes Tosquinet, 1903 : 389. Holotype ♀, TANZANIA (IRSNB) [examined]. **Syn. n.**

Ophionopsis nigrocyaneus Tosquinet, 1903 : 392. Holotype ♀, MALAWI (IRSNB) [examined].

Euryophion magnificus Morley, 1912a : 5. Holotype ♀, RHODESIA (BMNH) [examined]. [Synonymized by Townes & Townes, 1973 : 169.]

Euryophion superbus Morley, 1912a : 6. Holotype ♂, SOUTH AFRICA (BMNH) [examined]. **Syn. n.**

Hypselogastrina saliina Enderlein, 1918 : 217. Holotype ♀, SOUTH WEST AFRICA (MNHU) [examined]. **Syn. n.**

Euryophion superbus Morley; Morley, 1926 : 478.

Ophionopsis saliina (Enderlein) Townes, 1971 : 68.

Ophionopsis fulvipes Tosquinet; Townes & Townes, 1973 : 169.

Ophionopsis nigrocyanea Tosquinet; Townes & Townes, 1973 : 169.

Ophionopsis saliina (Enderlein); Townes & Townes, 1973 : 170.

Description. Lower face transverse, 1.1-1.2 times as broad as long, closely and coarsely punctate; malar space about 1.0 times as long as basal mandibular width; genae punctate, with an impressed, impunctate, somewhat striate region close to occipital carina. Antennae setaceous, short; flagellum with 60-64 segments, the central ones about 0.7 times as long as broad.

Mesoscutum closely punctate, clothed with dense short black pubescence. Mesopleuron punctate, with weakly impressed median longitudinal furrow; metapleuron punctate with a large acute central tubercle. Propodeum without transcarinae, from irregularly reticulate to with scattered rugosities.

Forewing length 25-30mm; forewing with ICI = 1.30-1.40; CI = 0.70-0.90; *1m-cu* without ramellus; 1st subdiscal cell distally tapered. Hindwing with *Rs* slightly bowed; *R*₁ with 11-13 hamuli.

Legs stout, fore tibia strongly flattened. Hind coxa in profile 1.7-1.8 times as long as deep; hind tarsal claws long, stout, pectinate closely.

Gaster very short and stout; tergite 2 in profile deeper than long.

A black, piceous or dark brown species with dense short black pubescence covering much of body; wings uniformly infumate, often with a metallic reflection.

Variation. Many larger Ichneumonidae have a great range of intra-specific variation (Townes, personal comm.) and this is one such species. Both Tosquinet (1903) and Morley (1912a) considered there were two species differing in the characters tabulated below

'fulvipes' (= *superbus*)

legs mostly yellow

propodeum without areae

2m-cu with 1 bulla

antennae shorter

nigrocyaneus (= *magnificus*)

legs entirely black

propodeum rugose

2m-cu with 2 bullae

antennae longer

The difference in number of bullae on *2m-cu* is not of specific value as only one exceptionally large specimen of *nigrocyaneus* has 2 bullae. A large specimen of *'fulvipes'* (in BMNH) shows a slight tendency to have 2 bullae whereas all other specimens have a single bulla. One specimen of *'fulvipes'* has slightly shorter antennae than all other specimens otherwise

no difference between the lengths of the antennae of the various specimens was seen. The so-called difference between the propodeal sculpture holds only for the two Morley holotypes. The paratype of *magnificus* has a propodeum similar to that of a second specimen of '*fulvipes*' (in BMNH).

The two 'species' do differ in leg colour, but the yellow-legged form has the body colour slightly paler than the black-legged form. One specimen of '*fulvipes*' in the BMNH has the legs darker than those of the holotype.

Enderlein (1918) described a third species, *saliina*, which differs merely in having a brown mesothorax. Much of the specific colour difference can be attributed to the fact that the dense black thoracic pubescence has been rubbed off the mesothorax of Enderlein's specimen. The legs of the holotype of *saliina* are rufescent, intermediate between those of '*fulvipes*' and *nigrocyaneus*.

A further interesting example of variation is the form of the clypeus. The largest specimen has a pair of extremely well developed latero-median clypeal teeth (We know of no other ophionine with such a development; usually the clypeus is without teeth, or in a few New World species of *Thyreodon* Brullé there is a tendency to develop a median apical clypeal tooth.) Small specimens of *O. nigrocyaneus* have no trace of such teeth, whilst intermediate sized individuals have weakly developed teeth. A similar type of variation is found in some species of *Anomalon* Panzer (Ichneumonidae: Anomaloninae) which inhabit similar dry areas (Gauld, 1976). The significance of such variation is not clear, but it does not, in our opinion have any specific significance.

Remarks. Despite the small amount of material available for study we have no hesitation in regarding all the so-called specific differences as intra-specific variation and placing all the specimens as a single species.

There are many morphological differences between this and the following species. It appears they are only distantly related.

Host records. Morley (1912a; 1926) recorded this species as a parasite of the larvae of *Lophostethus dumolinii* Angas (Lep., Sphingidae).

Distribution. Drier areas of Southern Africa (Map 4). Apparently a rather rare species.

Material examined. *Ophionopsis fulvipes* Tosquinet, holotype ♀, TANZANIA (IRSNB). *Euryophion magnificus* Morley, holotype ♀, RHODESIA: Bulawayo, xii.1903 (Marshall) (BMNH) paratype ♂, SOUTH AFRICA: Transvaal/Natal border, iii.02 (Ross) (BMNH). *Ophionopsis nigrocyaneus* Tosquinet, holotype ♀, MALAWI: 'Lake Nyasa' (IRSNB). *Hypselogastrina saliina* Enderlein, holotype ♀, SOUTH WEST AFRICA: Namutoni (MNHU). *Euryophion superbus* Morley, holotype ♂, SOUTH AFRICA: Durban, 1860 (*Gueinzus*) (BMNH).

Non-type material. 1♀, SOUTH AFRICA: Durban, 1913 (*Leigh*) (BMNH).

OPHIONOPSIS SETUS sp. n.

(Fig. 9)

Description. Lower face transverse, 1.2-1.3 times as broad as long, finely and sparsely punctate; malar space about 1.3 times as long as basal mandibular width; genae punctate, convex, without an impressed area. Antennae subsetaceous, short; flagellum with about 48 segments, the central ones about 0.9 times as long as broad.

Mesoscutum rather finely punctate, with scattered fine white pubescence. Mesopleuron punctate, without a discernible median longitudinal furrow; metapleuron punctate, without a central tubercle. Propodeum with a very deep, narrow, parallel sided transverse groove, and without a transverse carina; dorsal surface of propodeum abruptly declivitous, irregularly rugulose.

Forewing length 13-14mm; forewing with ICI = 1.20-1.40; CI = 0.90-1.00; *1m-cu* with a trace of, or a well developed ramellus; 1st subdiscal cell not conspicuously tapered distally. Hindwing with *Rs* straight; *R*₁ with 9 hamuli.

Legs moderately stout, fore tibia slightly flattened. Hind coxa, in profile, 1.8-1.9 times as long as deep; hind tarsal claws moderately long, quite stout and closely pectinate.

Gaster short and stout; tergite 2 in profile, slightly longer than deep.

An orange species with flagellum blackish and gaster indistinctly slightly infusate; wings yellowish with extremities infumate and with an infumate patch in proximal part of discosubmarginal cell of forewing.

Variation. The paratype has a more strongly developed ramellus than the holotype.

Remarks. This species is in some characters intermediate between *Ophionopsis nigrocyaneus* and some Oriental species of *Dictynotus*. Unlike *Dictynotus* it does not have a strong furrow on the outer surface of the mandible and it has the gaster shorter and more compact, though not so much as *O. nigrocyaneus*.

Distribution. South west Madagascar (Map 4).

Material examined. Holotype, ♀, MADAGASCAR: Bekily, xii.32 (*Seyrig*) (MNHN). Paratype 1♀, same locality, date and collector as holotype (BMNH).

Genus ORIENTOSPILUS Morley

Orientospilus Morley, 1912a : 6. Type-species: *Orientospilus individuus* Morley, by subsequent designation (Morley, 1913 : 378).

Generic diagnosis. Mandibles not twisted, strongly apically narrowed, with upper tooth conspicuously longer than lower; maxillary palp 5-segmented; labial palp 4-segmented; clypeus in profile slightly out-turned. Occipital carina very strongly raised; frons laterally not carinate. Antennae moderately long, stout, 1.2 times as long as forewing.

Pronotum exceptional in having anterior margin mediodorsally strongly up-turned, thickened; parallel to this and slightly posterior is a strong keel (Fig. 16). Notauli absent; scutellum with strong longitudinal lateral carinae; posterior transverse carina of mesosternum absent. Propodeum reticulate; anterior transcarina complete; posterior margin of meta-notum not swollen opposite propodeal spiracle.

Forewing with *cu-a* distal to *Rs&M*; discosubmarginal cell evenly hirsute except for glabrous area in extreme anterior corner; *1m-cu* strongly bowed; ramellus absent; *Rs+2r* proximally curved to meet slender pterostigma; CI = 0.35-0.45;

DI = 0.60-0.65. Hindwing with *Rs* not thickened, very weakly bowed; marginal cell with small glabrous area proximally; NI = 2.2-2.8.

Fore tibial spur without a membranous flange; mid and hind trochantelli unspecialized; inner hind tibial spur cylindrical. Gaster rather long; sternite 2 with anterior margin behind petiolar spiracles; thyridia obsolescent, oval; tergite 2 in profile about 4.0 times as long as posteriorly deep with its epipleuron turned under.

Discussion. Three species of this genus are known. Two occur in the Ethiopian region, the third is from India.

KEY TO SPECIES OF THE GENUS *ORIENTOSPILUS* OCCURRING IN THE ETHIOPIAN REGION

- Malar space 0.2 times as broad as basal mandibular width; posterior ocellus separated from orbit by 0.4 times its maximum diameter; wings yellowish, distally with margins infumate and with discosubmarginal cell bearing a black spot (Fig. 86); Madagascar *MELASMA* Townes (p. 31)
- Malar space 1.0 times as broad as basal mandibular width; posterior ocellus separated from orbit by 1.0 times its maximum diameter; wings blackish (Fig. 85); eastern Africa *CAPITATUS* sp. n. (p. 31)

ORIENTOSPILUS MELASMA Townes (Figs 16, 86)

Orientospilus melasma Townes, 1971 : 72. Holotype ♀, MADAGASCAR (MNHN) [examined].
Orientospilus melasma Townes; Townes & Townes, 1973 : 170.

Description. Outer surface of mandible polished, bearing long fine pubescence; labrum terminally truncate; malar space 0.2 times as long as basal mandibular width; lower face transverse about 1.2 times as broad as long, polished with scattered punctures; posterior ocelli separated from orbits by 0.4 times their own diameter; FI = 40%. Flagellum with 48-50 segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 0.9 times as long as broad.

Mesoscutum in profile smoothly and evenly rounded; mesopleuron polished with isolated punctures; epicnemial carina not reaching above lower corner of pronotum, its upper end distant from anterior pleural margin. Scutellum smooth with isolated punctures. Metapleuron inflated, finely punctate; submetapleural carina anteriorly strongly broadened into triangular lobe. Propodeum abruptly declivitous, postero-dorsally deplanate; anterior transcarina complete.

Forewing length 12-14mm; AI = 2.10-3.00; ICI = 0.40-0.50. Hindwing with 8-9 hamuli on R_1 .

Fore tibia without spines on antero-distal surface; hind coxa in profile 1.4-1.5 times as long as deep; hind trochantellus dorsally less than 0.1 times as long as broad; hind leg unspecialized; outer hind tarsal claws of ♀ with about 10 closely spaced stout pectinae, of ♂ similar but with pectinae slightly shorter.

Orange-yellow species, wings yellowish distally infumate and bearing a black mark in centre of discosubmarginal cell; flagellum black, at extreme distal apex paler brownish.

Remarks. This species is very closely related to the Indian species, *O. individuus* from which it differs in having the anterior transverse carina of the propodeum complete and the dark wing colour less extensive.

Material examined. Holotype ♀, MADAGASCAR: Bekily, xi.36 (*Seyrig*) (MNHN); paratypes 2♀, 1♂, same data as holotype (TC); 1♀, same data as holotype (BMNH); 3♀, same data as holotype (MNHN).

ORIENTOSPILUS CAPITATUS sp. n. (Figs 13, 85)

Description. Outer surface of mandible polished with sparse pubescence; labrum terminally slightly rounded; malar space 1.0 times as long as basal mandibular width; lower face transverse, 1.4 times as broad as long, polished with small punctures; posterior ocelli separated from orbits by 1.0 times their own diameter; FI = 25%. Flagellum with 43 segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 0.9 times as long as broad.

Mesoscutum in profile smoothly and evenly rounded; mesopleuron polished with isolated punctures; epicnemial carina not present on pleuron. Scutellum smooth with isolated punctures. Metapleuron inflated, deeply punctate; submetapleural carina anteriorly expanded into a triangular flange. Propodeum abruptly declivitous, postero-dorsally concave; anterior transcarina absent.

Forewing length 12-13mm; AI = 2.30-2.60; ICI = 0.40-0.50. Hindwing with 8 hamuli on R_1 .

Fore tibia without spines on antero-distal surface; hind coxa in profile 1.5-1.6 times as long as deep; hind trochantellus dorsally less than 0.1 times as long as broad; hind leg unspecialized; outer hind tarsal claws of ♂ with about 8 short pectinae. ♀ unknown.

Orange species; wings entirely blackish.

Remarks. This species differs from *O. melasma* not only in the key characters but also in having the antennae shorter and lacking the anterior propodeal transcarina.

Material examined. Holotype ♂, SOUTH AFRICA: Vyehoeokrivier River, xii.10 (*Neave*) (BMNH); paratype ♂, same data as holotype (BMNH).

Genus *LATICOLEUS* Townes

Laticoleus Townes in Townes & Townes, 1973 : 358. Type-species: *Coiloneura unicolor* Szépligeti, by original designation.

Generic diagnosis. Mandibles not twisted, weakly narrowed, apically equally bidentate; maxillary palp 5-segmented, labial palp 4-segmented. Clypeus in profile somewhat convex. Occipital carina complete; frons not laterally carinate. Antennae generally very long and slender.

Mesoscutum with notauli absent to weakly impressed; scutellum weakly convex, with lateral longitudinal carinae; posterior transverse carina of mesosternum absent except for lateral vestiges. Propodeum from without carinae to with anterior transverse carina complete; posterior margin of metanotum not swollen opposite propodeal spiracle.

Forewing with *cu-a* opposite or slightly proximal to *Rs&M*; discosubmarginal cell with at least a small glabrous area in extreme anterior corner sometimes with area extending to *1m-cu* rarely with a small sclerite; *1m-cu* sinuous to arcuate, ramellus absent; *Rs+2r* from slightly curved to centrally angled usually very strongly broadened to join pterostigma; CI = 0.30-0.90; DI = 0.40-0.60. Hindwing with *Rs* bowed or straight; marginal cell from evenly hirsute to proximally glabrous.

Fore tibial spur without a membrane; mid and hind trochantelli from simple to with a blunt marginal tooth; inner hind tibial spur flattened.

Gaster elongate and slender, sternite 2 with anterior margin behind the petiolar spiracle; thyridia ellipsoidal separated from anterior margin of tergite 2 by 2-4 times its own length; tergite 2 in profile more than 4 times as long as deep posteriorly with its epipleuron turned under.

♂ genitalia with gonosquama of normal size and shape.

General body colour orange-brown, wings more or less hyaline.

Discussion. *Laticoleus* is a small genus which is apparently confined to the Ethiopian region. It shares a number of features with the Australasian genus *Leptophion* Cameron, especially in venation and structure of the mandibles. There are however consistent differences between the two genera. *Laticoleus* has characteristically broad valvulae 3; these are narrow in *Leptophion*. Species of *Leptophion* often have an enlarged hamulus which is always the penultimate distal one. A similar trend towards the enlargement of hamuli found in *Laticoleus* always leaves the 3 distal hamuli small; any enlargement occurs only in the proximal 3 or 4 hamuli.

Townes & Townes (1973) catalogue only a single species, the type-species. Delobel (1974) described 4 new species from Madagascar. In the present work 11 species are recognized.

Laticoleus species are extremely rare in general collections and as such it is difficult to accurately gauge the limits of the species concerned. The authors have tended to be conservative in their splitting and less conservative workers may well subdivide *L. unicolor* and *L. curvatus*.

Virtually nothing is known either about the host range or habitat preference of *Laticoleus* species. From the few specimens available it would seem that they are forest dwelling species. The exceptionally long flagella, a morphological modification often found in forest living Ichneumonidae, is evidence for this supposition. A possible reason for the rarity of these species in collections is that most general collectors have not sampled the fauna of forest canopies. Such certainly appears to be the case in *Enicospilus*.

KEY TO THE SPECIES OF THE GENUS *LATICOLEUS*

- 1 Hindwing with *Rs* more or less straight except at extreme anterior end (Figs 81, 84); posterior ocelli often separated from eye by more than 0.2 times their own diameter 2
- Hindwing with *Rs* between *R*₁ and *1rm* bowed (Figs 78, 79, 83); posterior ocellus contiguous with, or very close to eye margin 6
- 2(1) Anterior margin of pronotum turned backwards (Fig. 98); hindwing with NI about 1.25; forewing with CI about 0.30 (Fig. 94) *PRONOTALIS* sp. n. (p. 32)
- Anterior margin of pronotum flat or slightly thickened, never turned back; hindwing with NI greater than 1.60; forewing with CI greater than 0.35 3
- 3(2) Fenestra bearing a detached pigmented sclerite (Fig. 92); distal margin of mid and hind trochantelli slightly swollen into a blunt tooth (Fig. 107) *SPILUS* sp. n. (p. 33)
- Fenestra without a sclerite; distal margin of mid and hind trochantelli simple (Fig. 106) 4
- 4(3) *Rs+2r* virtually straight; fenestra large, reaching from anterior margin of discosubmarginal cell to *1m-cu* near bulla (fig. 91); ICI less than 0.25 *ALARIS* sp. n. (p. 33)
- *Rs+2r* slightly bowed or distally angled; fenestra small to moderately large, not extending to *1m-cu* (Fig. 84); ICI more than 0.35 5
- 5(4) *Rs+2r* weakly bowed, not expanded before reaching pterostigma (Fig. 89); pronotum mediodorsally short with anterior margin swollen (Fig. 105); *R*₁ with 7 hamuli *MOBILIS* Delobel (p. 33)
- *Rs+2r* with a central angulation and expanded before reaching pterostigma (Fig. 84); pronotum mediodorsally long with anterior part horizontal (Fig. 104) or slightly swollen; *R*₁ with 4-5 hamuli *UNICOLOR* Szépligeti (p. 34)
- 6(1) Forewing with ICI less than 0.25; discosubmarginal cell with an infumate region distally (Fig. 88) *INFUMATUS* sp. n. (p. 34)
- Forewing with ICI greater than 0.30; discosubmarginal cell not infumate distally, evenly hyaline 7
- 7(6) Forewing with AI less than 1.00; *R*₁ of hindwing with distal 3 hamuli widely interspaced (Fig. 78); mandible proximally strongly swollen (Fig. 101) *LONGICORNIS* Delobel (p. 35)
- Forewing with AI greater than 1.00; hindwing with *R*₁ with distal 3 hamuli close together (Fig. 83); mandible at most proximally very weakly swollen (Fig. 102) 8
- 8(7) Hindwing with *R*₁ bearing 6-7 hamuli of which the proximal ones are very much longer than the distal 3; *Rs* very strongly bowed (Fig. 83) *CURVATUS* Delobel (p. 35)
- Hindwing with *R*₁ bearing 4-6 hamuli of which the proximal ones are, at the very most, only slightly longer than the distal 3; *Rs* weakly to moderately bowed (Figs 79, 80, 82) 9
- 9(8) Hind tarsal claws strongly curved, basally lobate (Fig. 109); segment 2 of maxillary palp strongly swollen (Fig. 112) *PALPALIS* sp. n. (p. 36)
- Hind tarsal claws evenly curved, without a basal lobe; maxillary palp with segment 2 slender (Fig. 111) 10
- 10(9) Forewing with ICI less than 0.90; tarsal claws with about 5 very short, stout pectinae (Fig. 108); Madagascan species *PEDALIS* sp. n. (p. 36)
- Forewing with ICI more than 1.00; tarsal claws with 7+ slender pectinae (Fig. 110); eastern African species *SOKOKEI* sp. n. (p. 36)

LATICOLEUS PRONOTALIS sp. n. (Figs 94, 98)

Description. Mandibles proximally weakly swollen, outer surface with scattered pubescence; maxillary palp with segment

2 strongly swollen; malar space 0.6 times basal mandibular width; lower face transverse, 1.15 times as broad as long; clypeus in profile weakly swollen. Genae broad; posterior ocelli separated from orbits by 0.6 times their own maximum diameter; FI = 35%. Flagellum elongate, central segments about 1.7 times as long as broad.

Pronotum with anterior margin turned back over pronotum and posterior margin with a small transverse crest, the area between them in the form of a broad trough. Mesoscutum in profile evenly rounded, anteriorly not out-turned, notauli absent. Mesopleuron sparsely punctate; propodeum rather abruptly declivitous, dorsally finely and irregularly wrinkled.

Forewing length 11mm; *Rs+2r* weakly angled and thickened before reaching pterostigma; fenestra small, without sclerites, confined to anterior corner of discosubmarginal cell; *Rs&M* opposite *cu-a*; AI = 1.40; CI = 0.30; ICI = 0.60. Hindwing with *Rs* straight; *R*₁ bearing 7 hamuli of similar size and shape; NI = 1.25; marginal cell evenly hirsute.

Fore tibia and basitarsus with few weak spines on anterior surface; hind coxa in profile 1.5 times as long as deep; hind trochantellus simple; outer hind tarsal claw of ♂ evenly curved with 8 moderately long pectinae; ♀ unknown.

Colour generally orange-brown; inter-ocellar area and terminal 2 segments of gaster black; flagellum dark brown; pterostigma badius.

Remarks. The form of the pronotum immediately distinguishes this species from all others in the genus. Pronota of this pattern have also been observed in Madagascan species of *Enicospilus* and *Orientospilus*. It is likely that such modifications serve as protection against Asilid predators.

Material examined. Holotype ♂, MADAGASCAR: Bekily, i.33 (*Seyrig*) (MNHN).

LATICOLEUS SPILUS sp. n.

(Figs 92, 107)

Description. Mandible proximally not swollen, concave, outer surface with scattered pubescence; segment 2 of maxillary palp weakly swollen; malar space 0.4 times basal mandibular width; lower face quadrate, about 1.0 times as broad as long; clypeus in profile strongly swollen. Genae moderately broad; posterior ocelli separated from orbits by 0.2 times their maximum diameter; FI = 50%. Flagellum long, central segments about 2.2 times as long as broad.

Pronotum mediodorsally of moderate length, anterior margin almost flat, transverse furrow weak. Mesoscutum in profile abruptly rounded, anterior margin out-turned, notauli absent. Mesopleuron weakly punctate with very fine longitudinal striations; propodeum abruptly declivitous, dorsally finely transversely wrinkled.

Forewing length 10mm; *Rs+2r* medially angled, broadened before joining pterostigma; fenestra of moderate size with a weak detached sclerite; *Rs&M* subopposite *cu-a*; AI = 1.50-1.60; CI = 0.35-0.40; ICI = 0.60. Hindwing with *Rs* straight; *R*₁ bearing 5 hamuli of similar size and shape; NI = 2.10-2.20; marginal cell evenly hirsute.

Fore tibia and basitarsus with rather few scattered spines on outer surface, hind coxa in profile 2.0 times as long as deep; hind trochantelli with distal margin slightly swollen, produced into a blunt tooth; outer hind tarsal claw of ♀ evenly curved with about 10 moderately long pectinae of similar length; ♂ unknown.

Colour generally pale orange-brown; inter-ocellar area black; flagellum reddish-brown; terminal segments of gaster weakly infuscate; pterostigma reddish.

Remarks. The presence of an alar sclerite and the form of the trochantelli distinguishes this species from others in the genus.

Material examined. Holotype ♀, SOUTH AFRICA: Grahamstown, xi.70 (*Gess*) (TC); paratype 1♀, same data as holotype (TC).

LATICOLEUS ALARIS sp. n.

(Fig. 91)

Description. Mandible proximally weakly swollen, outer surface with a scant row of fine pubescence extending from upper corner to between bases of mandibular teeth; segment 2 of maxillary palp weakly swollen; malar space 0.4 times basal mandibular width; lower face subquadrate, 0.9 times as broad as long; clypeus in profile strongly swollen. Genae moderately broad; posterior ocelli separated from orbits by 0.2 times their own maximum diameter; FI = 52%. Flagellum very long with 76 segments, central segments about 2.3 times as long as broad.

Pronotum mediodorsally rather short, anterior margin not turned back, merely slightly thickened; transverse furrow strong. Mesoscutum in profile abruptly rounded, anterior concavity virtually absent, notauli vestigial. Mesopleuron with isolated minute punctures; propodeum weakly declivitous, dorsally coarsely wrinkled.

Forewing length 17mm; *Rs+2r* straight, evenly broadened to join pterostigma; fenestra large, without a sclerite extending from anterior corner of discosubmarginal cell to *1m-cu*; *Rs&M* slightly distal to *cu-a*; AI = 4.00; CI = 0.42; ICI = 0.20. Hindwing with *Rs* straight; *R*₁ bearing 6 widely interspaced hamuli of similar size and shape; NI = 2.20; marginal cell evenly hirsute.

Fore tibia and basitarsus with a few fine scattered spines on anterior surface; hind coxa in profile 2.4 times as long as deep; hind trochantelli simple; outer hind tarsal claw of ♂ evenly curved with 10 moderately long pectinae; ♀ unknown.

Generally pale brownish-orange in colour; inter-ocellar area and terminal segments of gaster black; flagellum orange-brown; pterostigma orange.

Remarks. The very short *3rm*, straight *Rs+2r* and large fenestra distinguish this species from all others in the genus.

Material examined. Holotype ♂, MADAGASCAR: Nord massif du Tsaratanana en dessous de l'Andohanisambirano Matsabory, 1900m, xii.64 (*Soga*) (MNHN).

LATICOLEUS MOBILIS Delobel

(Figs 81, 89, 105)

Laticoleus mobilis Delobel, 1974 : 223. Holotype ♀, MADAGASCAR (MNHN) [examined].

Description. Mandible proximally weakly swollen, outer surface with central tuft of elongate hair; segment 2 of maxillary palp distally abruptly swollen; malar space 0.5 times basal mandibular width; lower face transverse 1.10 times as broad as

long; clypeus in profile moderately convex. Genae moderately broad; posterior ocelli separated from orbits by 0.4 times their own maximum diameter; FI = 40%. Flagellum very long with about 78 segments, central segments about 1.8 times as long as broad.

Pronotum mediodorsally rather short, anterior margin somewhat inflated, transverse furrow very strong. Mesoscutum in profile abruptly rounded, anterior margin narrowly out-turned; notauli absent. Mesopleuron with fine isolated punctures; propodeum fairly abruptly rounded dorsally with fine irregular wrinkling.

Forewing length 13-15mm; *Rs+2r* weakly bowed, not broadened to join pterostigma but evenly expanded for proximal 0.5; fenestra moderately large but not reaching *1m-cu* and without a detached sclerite; *Rs&M* subopposite *cu-a*; AI = 1.20-1.40; CI = 0.35-0.45; ICI = 0.45-0.55. Hindwing with *Rs* straight; *R*₁ bearing 7 hamuli of similar size and shape; NI = 2.00-2.40; marginal cell more or less evenly hirsute.

Fore tibia and basitarsus virtually devoid of spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantelli distally simple; outer hind tarsal claw of ♀ and ♂ with about 7 stout pectinae.

Colour pale orange-brown; inter-ocellar area black; flagellum reddish; terminal segments of gaster weakly infusate; pterostigma orange.

Remarks. This species is morphologically rather similar to *L. alaris* from which it differs in the form of the forewing and positioning of the hamuli.

Material examined. Holotype ♀, MADAGASCAR: Rogez, forêt Côte Est, 1935 (*Seyrig*) (MNHN).

Non-type material. MADAGASCAR: 1♂, Andreba, xi.33 (*Seyrig*) (BMNH); 6♂, Rogez, x.30 (*Seyrig*) (MNHN); 2♀, Rogez, 1935 (*Seyrig*) (MNHN).

LATICOLEUS UNICOLOR (Szépligeti)

(Figs 77, 84, 100, 104, 106)

Coiloneura unicolor Szépligeti, 1908 : 47. Holotype ♂, TANZANIA (NR) [examined].

Eremotylus fractus Seyrig, 1935 : 48. Holotype ♀, TANZANIA (MNHN) [examined]. [Synonymized by Townes & Townes, 1973 : 170.]

Laticoleus unicolor (Szépligeti) Townes & Townes, 1973 : 170.

Laticoleus unicolor (Szépligeti); Delobel, 1974 : 225.

Laticoleus bekiliensis Delobel, 1974 : 226. Holotype ♀, MADAGASCAR (MNHN) [examined]. Syn. n.

Description. Mandible proximally weakly swollen, outer surface with a central dense tuft of elongate hair; segment 2 of maxillary palp distally abruptly swollen; malar space 0.3-0.5 times basal mandibular width; lower face subquadrate 0.90-1.05 times as broad as long; clypeus in profile weakly convex. Genae moderately broad; posterior ocelli separated from eye by 0.4 times their maximum diameter; FI = 40-50%. Flagellum moderately to very long with 52-75 flagellar segments; central segments 1.7-1.9 times as long as broad.

Pronotum mediodorsally of moderate length, anterior margin slightly swollen, transverse furrow rather weak. Mesoscutum in profile abruptly rounded, anterior margin weakly out-turned; notauli vestigial. Mesopleuron with close shallow puncturation; propodeum abruptly rounded, posteriorly with fine reticulation.

Forewing length 9-18mm; *Rs+2r* abruptly curved and expanded to join pterostigma; fenestra small, without a detached sclerite; *Rs&M* slightly distal to *cu-a*; AI = 1.00-1.60; CI = 0.40-0.70; ICI = 0.40-0.80. Hindwing with *Rs* angled at extreme anterior end, otherwise straight; *R*₁ bearing 4-5 hamuli of similar size and shape; NI = 1.70-2.20; marginal cell proximally glabrous.

Fore tibia and basitarsus usually with numerous stout spines on outer surface; hind coxa in profile 1.6-1.9 times as long as deep; hind trochantelli with distal margin slightly thickened; outer hind tarsal claw of ♀ and ♂ with 6-8 moderately short pectinae.

Colour generally pale orange-brown to dark reddish; inter-ocellar area black or infusate; flagellum orange-red; pterostigma reddish to badious; terminal segments of gaster often infusate or black.

Remarks. This is a morphologically extremely variable species which is possibly a complex of sibling species. Although differences do exist between populations (for example, South African specimens have an average of 54 flagellar segments compared with 64 for East African specimens) there was found to be such a great range of variation within a population that no simple combination of characters worked to effect separation. Coupled with this great range of variation is the fact that specimens of this insect are rare in collections and at present far too little material is available to enable a taxonomist to reliably gauge the limits of intra-population variation compared to inter-population. The characters used by Delobel (1974 : 223) to separate *unicolor* from *bekiliensis* completely break down when more material from East Africa is seen.

Distribution. Widely distributed through Africa and Madagascar (Map 21).

Material examined. *Coiloneura unicolor* Szépligeti, holotype ♂, TANZANIA: Kilimanjaro, Kibongoto (*Sjöstedt*) (NM). *Eremotylus fractus* Seyrig, holotype ♀, TANZANIA: Kilimanjaro, Moshi (MNHN). *Laticoleus bekiliensis* Delobel, holotype ♀, MADAGASCAR: Bekily, i.37 (*Seyrig*) (MNHN); paratypes 27♀, 8♂, same locality and collector as holotype, 1932-37 (MNHN).

Non-type material. CENTRAL AFRICAN REPUBLIC: 1♀, La Maboque, ix.67 (*Matile*) (MNHN). GUINEA: 1♀, Kouroussa, 1901 (*Pobeguïn*) (MNHN). KENYA: 1♀, Elgon, vi.61 (*Jackson & Abraham*) (BMNH); 1♂, Ilala, Maramas, vi.13 (*Neave*) (BMNH); 2♂, Nairobi, ii.29 (*van Someren*) (BMNH); 1♀, Naivisha, vi.42 (*Copley*) (BMNH); 1♂, Nandi Plateau, vi.11 (*Neave*) (BMNH); 1♂, Yala River, Kakumga, v.11 (*Neave*) (BMNH). MADAGASCAR: 1♀, Anlaminola, i.37 (*Seyrig*) (MNHN); 1♂, Tsinjoarua, ii.32 (*Seyrig*) (MNHN). SOUTH AFRICA: 1♀, Grahamstown, iii.72 (*Gess*) (TC); 2♀, Kenton-on-Sea, iii.71 (*Jubb*) (TC); 1♀, Natal, Malvern, 1904 (*Cregoe*) (BMNH); 3♀, 1♂, St. Lucia Estuary, xi.70 (*Townes*) (TC). UGANDA: 1♀, Entebbe, Zika Forest, iii.61 (*Corbet*) (BMNH); 1♀, Kampala, i.13 (*Gowdey*) (BMNH); 1♂, Kampala, ii.15 (*Gowdey*) (BMNH); 1♀, Kampala, xi.17 (*Gowdey*) (BMNH). ZAIRE: 1♀, Lubumbashi, ix.67 (*Burgeois*) (TC); 1♀ Kwango, Popokobaka, iv.52 (*Pierquin*) (MRAC); 1♀, Uelé, Moto, 1920 (*Burgeon*) (MRAC).

LATICOLEUS INFUMATUS sp. n.

(Fig. 88)

Description. Mandible proximally not swollen, with a diagonal row of hair; maxillary palp with segment 2 weakly swollen;

malar space 0.3 times basal mandibular width; lower face elongate 0.80-0.85 times as broad as long; clypeus in profile weakly convex. Genae narrow; posterior ocelli separated from eye by less than 0.1 times its own maximum diameter; FI = 60%. Flagellum long and slender with 52-54 segments, central ones about 3.5 times as long as broad.

Pronotum mediodorsally very short with apical margin swollen, transverse furrow strong. Mesoscutum in profile abruptly rounded, anterior margin strongly out-turned; notauli absent. Mesopleuron with isolated punctures; propodeum abruptly declivitous, dorsally alutaceous.

Forewing length 7-9mm. *Rs+2r* slightly angled centrally, abruptly expanded to join pterostigma; fenestra large, without a sclerite but with distal margin broadly infumate; *Rs&M* slightly distal to *cu-a*; AI = 1.10-1.30; CI = 0.45-0.55; ICI = 0.15-0.20. Hindwing with *Rs* bowed; *R*₁ bearing 5-6 hamuli, the proximal ones of which are very slender except for distal end which is abruptly swollen; NI = 1.50-1.70; marginal cell proximally glabrous.

Fore tibia and basitarsus with scattered spines on outer surface; hind coxa in profile 2.0-2.1 times as long as deep; distal margin of hind trochantelli simple; outer hind tarsal claw of ♂ with 7 short quite stout pectinae; ♀ unknown.

Colour generally brownish; inter-ocellar area and terminal segments of gaster black; flagellum reddish-brown; pterostigma badius.

Remarks. The small size and form of the forewing distinguishes this species from others in the genus.

Material examined. Holotype ♂, CENTRAL AFRICAN REPUBLIC: La Maboke, 1967 (*Teocchi*) (MNHN); paratypes 1? sex, UGANDA: Ruwenzori Range, Nyamgasani Valley, i.35 (*Buxton*) (BMNH). 1♂, ZAIRE: Bassin Lukuga, iv-vii.34 (*De Saeger*) (MRAC).

LATICOLEUS LONGICORNIS Delobel

(Figs 57, 78, 101)

Laticoleus longicornis Delobel, 1974 : 227. Holotype ♀, MADAGASCAR (MNHN) [examined.]

Description. Mandible proximally very strongly swollen with transverse row of stout hairs; maxillary palp with segment 2 not swollen conspicuously; malar space 0.2 times basal mandibular width; lower face elongate about 0.75 times as broad as long; clypeus in profile moderately convex. Genae narrow; posterior ocelli separated from eyes by less than 0.1 their own maximum diameter; FI = 60-65%. Flagellum exceptionally long with 76 segments; central segments about 4 times as long as broad.

Pronotum mediodorsally short with margin slightly swollen and transverse furrow moderately impressed. Mesoscutum in profile abruptly rounded, anterior margin slightly out-turned; notauli absent. Mesopleuron with very fine close puncturation; propodeum abruptly declivitous, dorsally virtually without sculpture.

Forewing length 14-15mm; *Rs+2r* centrally slightly angled rather abruptly expanded to join pterostigma; fenestra large without a sclerite; *Rs&M* opposite *cu-a*; AI = 0.70-0.80; CI = 0.65-0.75; ICI = 0.50-0.60. Hindwing with *Rs* strongly curved; *R*₁ with 5-6 hamuli, of which the distal 3 are very widely interspaced and the proximal ones are elongate and fairly straight; NI = 2.10-2.20; marginal cell adjacent to *Rs*, glabrous.

Fore tibia and basitarsus virtually without spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantelli distally with obsolescent flat tooth; outer hind tarsal claw of ♀ and ♂ with about 8 moderately long pectinae.

Colour generally orange-brown; inter-ocellar area black; flagellum orange-brown; pterostigma orange-brown.

Remarks. The venation and unusual hamuli together with the very long flagellum distinguishes this species from others in the genus.

Material examined. Holotype ♀, MADAGASCAR: Rogez, forêt côte Est, ii.31 (*Seyrig*) (MNHN); paratypes 1♀, 1♂, MADAGASCAR: Perinet, forêt côte Est, xi.30 (*Seyrig*) (MNHN).

LATICOLEUS CURVATUS Delobel

(Figs 83, 90, 102, 103)

Laticoleus curvatus Delobel, 1974 : 229. Holotype ♀, MADAGASCAR (MNHN) [examined].

Description. Mandible proximally weakly to moderately swollen with a diagonal band of dense elongate pubescence; maxillary palp with segment 2 weakly swollen; malar space 0.2-0.3 times basal mandibular width; lower face elongate, 0.80-0.90 times as broad as long; clypeus in profile convex. Genae narrow; posterior ocellus virtually contiguous with orbit; FI = 70-75%. Flagellum very long with 69-75 segments, central ones 1.9-2.1 times as long as broad.

Pronotum mediodorsally fairly short, anterior margin slightly swollen, transverse furrow moderately impressed. Mesoscutum in profile abruptly rounded with margin slightly out-turned; notauli absent. Mesopleuron with scattered fine puncturation; propodeum abruptly declivitous, irregularly wrinkled.

Forewing length 12-18mm; *Rs+2r* centrally slightly curved, expanded before reaching pterostigma; fenestra small without a sclerite; *Rs&M* opposite or distal to *cu-a*; AI = 1.30-1.90; CI = 0.65-0.90; ICI = 0.55-0.80. Hindwing with *Rs* very strongly curved, usually medianly thickened; *R*₁ bearing 6-7 hamuli, the distal 3 of which are short, the proximal ones being very long and coiled; NI = 1.40-2.20; marginal cell proximally glabrous.

Fore tibia and basitarsus with long stout spines; hind coxa in profile 1.8-2.1 times as long as deep; hind trochantelli distally with an obsolescent tooth; outer hind tarsal claws of ♀ and ♂ abruptly curved with a basal lobe and about 6 close short pectinae.

Colour generally from orange to brownish with badius markings on alitrunk; terminal segments of gaster often infuscate, sometimes black; flagellum orange; inter-ocellar area black or infuscate; pterostigma orange to brownish.

Remarks. This a rather variable species in colour but from the limited material available it is better at present to retain all as a single species. The hamuli and tarsal claws are features which distinguish this species from others in the genus.

Distribution. Widely distributed throughout Africa and Madagascar (Map 22).

Material examined. Holotype ♀, MADAGASCAR: no further data (*Seyrig*) (MNHN); paratypes 4♂, MADAGASCAR: Rogez, 1931-36 (*Seyrig*) (MNHN).

Non-type material. CONGO: 1♀, Mbila, Chaillu Mts., xii.63 (*Carpentries & Villiers*) (MNHN). IVORY COAST: 1♀, Bingerville, i.62 (*Decelle*) (MRAC). SOUTH AFRICA: 1♂, Natal, Eshowe, xi.70 (*H. & M. Townes*) (TC); 1♀, Natal, Ngome Forest, xi.70 (*H. & M. Townes*) (TC); 1♀, Pietermaritzburg, xii.70 (*H. & M. Townes*) (TC). TANZANIA: 1♀, W. Usambara Mts., iii.62 (*Heinrich*) (TC). UGANDA: 1♀, Kirianga, v.27 (*Hargreaves*) (BMNH). ZAIRE: 1♀, Haute-Uelé, Moto, 1920 (*Burgeon*) (MRAC); 1♀, Kalemé, xii.18 (*Mayné*) (MRAC).

LATICOLEUS PALPALIS sp. n.

(Figs 7, 79, 109, 112)

Description. Mandible proximally weakly swollen, outer surface with fine scattered pubescence; segment 2 of maxillary palp strongly swollen; malar space 0.2-0.3 times basal mandibular width; lower face elongate, 0.80 times as broad as long; clypeus in profile moderately swollen. Genae narrow; posterior ocelli close to orbits; FI = 60%. Flagellum elongate with 73-74 segments, central segments 2.1-2.3 times as long as broad.

Pronotum very short with anterior margin slightly swollen, transverse furrow strong. Mesoscutum in profile abruptly rounded, anterior margin slightly out-turned; notauli absent. Mesopleuron virtually without punctures; propodeum abruptly declivitous, dorsally with fine transverse aciculation.

Forewing length 14-16mm; *Rs+2r* angled and expanded before reaching pterostigma; fenestra large, without sclerites, not reaching *1m-cu*; *Rs&M* slightly distal to *cu-a*; AI = 1.70-1.80; CI = 0.65-0.80; ICI = 0.65-0.70. Hindwing with *Rs* weakly to moderately bowed; *R*₁ bearing 7 hamuli of similar size and shape; NI = 3.00-3.20; marginal cell proximally glabrous.

Fore tibia and basitarsus with numerous stout spines on outer surface; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantelli simple; outer hind tarsal claws of ♀ and ♂ strongly curved, basally lobate with about 8 short fine pectinae.

Colour generally orange-brown; inter-ocellar area black or infusate; flagellum reddish; pterostigma brownish, distally infusate.

Remarks. The tarsal claws, swollen palps, highly polished and impunctate mesopleurae distinguish this species from related species. The ♂ was observed to have the terminal segments of the gaster infusate.

Material examined. Holotype ♀, TANZANIA: Uluguru, 1800m, xii.61-i.62 (*Heinrich*) (TC); paratypes 1♂, CENTRAL AFRICAN REPUBLIC: La Maboke, 1968 (MNHN). 1♀ (lacks gaster), SIERRA LEONE: Port Lokko, v.12 (*Simpson*) (BMNH).

LATICOLEUS PEDALIS sp. n.

(Figs 80, 87, 108, 111)

Description. Mandibles proximally not swollen, outer surface with scattered pubescence; segment 2 of maxillary palp slender; malar space 0.2 times basal mandibular width; lower face elongate, 0.85 times as broad as long; clypeus in profile moderately convex. Genae narrow, posterior ocellus close to orbits; FI = 50%. Flagellum long, incomplete; central flagellar segments 1.8 times as long as broad.

Pronotum mediodorsally fairly short, anterior margin slightly swollen, transverse furrow impressed. Mesoscutum in profile abruptly rounded, not apically out-turned; notauli vestigial. Mesopleuron with fine punctures; propodeum rather evenly declivitous, dorsally alutaceous with central irregular longitudinal wrinkles.

Forewing length 12mm; *Rs+2r* centrally curved and broadened to join pterostigma; fenestra moderately small, without a sclerite; *Rs&M* distal to *cu-a*; AI = 1.60; CI = 0.90; ICI = 0.55. Hindwing with *Rs* evenly and weakly bowed; *R*₁ bearing 5 hamuli of similar size and shape; NI = 1.70; marginal cell proximally glabrous.

Fore tibia and basitarsus with numerous long stout spines; hind coxa in profile 1.8 times as long as deep; hind trochantellus simple; outer hind tarsal claws of ♀ evenly curved with 3 very large curved teeth. ♂ unknown.

Colour generally orange-brown; inter-ocellar area black; flagellum reddish; pterostigma reddish-brown.

Remarks. The holotype is the only known specimen of this species and is distinct from all other species in the form of the claws.

Material examined. Holotype ♀, MADAGASCAR: Perinet, Forêt côte est, iii.35 (*Seyrig*) (MNHN).

LATICOLEUS SOKOKEI sp. n.

(Figs 82, 93, 110)

Description. Mandible proximally not swollen, outer surface with diagonal band of long hair; segment 2 of maxillary palp slender; malar space 0.3 times basal mandibular width; lower face elongate, about 0.85 times as broad as long; clypeus in profile moderately convex. Genae narrow; posterior ocelli very close to eye; FI = 60%. Flagellum long with about 55 segments, the central segments 1.8 times as long as broad.

Pronotum mediodorsally short, margin fairly flat, transverse furrow not strong. Mesoscutum in profile abruptly rounded, apically out-turned; notauli vestigial. Mesopleuron with fine scattered punctures; propodeum rather evenly declivitous with weak transverse striations dorsally.

Forewing length 8-10mm; *Rs+2r* curved and thickened before reaching pterostigma; fenestra moderately large, without a sclerite, extending posteriorly from anterior corner of discosubmarginal cell but not reaching *1m-cu*; *Rs&M* slightly distal to *cu-a*; AI = 1.10-1.30; CI = 0.50-0.55; ICI = 1.10. Hindwing with *Rs* proximally curved about 45°, distally straight; *R*₁ bearing 5-6 hamuli of rather similar size and shape; NI = 1.50-1.85; marginal cell proximally glabrous.

Fore tibia and basitarsus with scattered spines on outer surface; hind coxa in profile 1.7 times as long as deep; hind trochantelli distally distinctly delineated but unspecialized; outer hind tarsal claw of ♂ evenly curved, with about 7 fairly short stout close pectinae; ♀ unknown.

Colour generally pale orange-brown; inter-ocellar area black; flagellum distally infusate; pterostigma brownish.

Remarks. This species is rather similar to *L. pedalis* from which it can be distinguished not only in the characters mentioned in the key but also in having *Rs* of the hindwing less strongly curved.

Material examined. Holotype ♂, KENYA: Sokoke Forest, v.76 (*Bampton*) (TC); paratype 1♂, same data as holotype (TC).

Genus *LEPISCELUS* Townes

Lepiscelus Townes, 1971 : 73. Type-species: (*Lepiscelus gracile* Townes) = *Eremotylus distans* Seyrig, by original designation.

Generic diagnosis. Mandibles twisted 10°, strongly proximally narrowed, distally parallel sided, apically with upper tooth conspicuously the longer; maxillary palp 5-segmented, labial palp 4-segmented. Clypeus in profile weakly convex. Occipital carina absent except for lateral vestiges; frons laterally not carinate. Antennae elongate, as long as forewing.

Mesoscutum with notauli impressed on anterior 0.2; scutellum convex, without lateral longitudinal carinae; posterior transverse carina of mesosternum present, centrally weak. Propodeum with carinae dorsally; posterior margin of metanotum not swollen opposite propodeal spiracle.

Forewing with *cu-a* opposite *Rs&M*, exceptional in being very oblique; discosubmarginal cell with a small glabrous area in extreme anterior corner; *1m-cu* sinuate; ramellus absent; *Rs+2r* proximally abruptly curved to join pterostigma; CI = 2.20-2.50; DI = 0.50-0.55. Hindwing with *Rs* bowed; marginal cell proximally glabrous; NI = 0.55-0.90.

Fore tibial spur without a membranous flange; mid and hind trochantelli extended apically as a broad flange over proximal end of femur; inner hind tibial spur flattened.

Gaster elongate and slender; sternite 2 with anterior margin at or slightly before petiolar spiracle; thyridia ellipsoidal, remote from anterior margin of tergite but connected to it by an impressed groove; tergite 2 in profile about 4 times as long as deep posteriorly with its epipleuron turned under.

♂ genitalia with gonosquama large and shaped not unlike a plough share (Fig. 99).

General body colour red-brown; wings very weakly infumate.

Discussion. This genus contains a single species, *L. distans* Seyrig, which is only recorded from the Ethiopian region.

Morphologically this genus is obviously closely related to many others. The venation is similar to that of *Laticoleus* particularly in having the 3 distal hamuli unspecialized and the proximal 2 slightly enlarged but the ♀ valvulae are unlike those of *Laticoleus*. The mandibles are similar to those of some *Enicospilus* species occurring in arid regions and not like those of *Laticoleus*. The specialized trochantelli are a unique feature of this genus.

LEPISCELUS DISTANS Seyrig

(Figs 14, 99)

Eremotylus distans Seyrig, 1935 : 45. Holotype ♂, KENYA (MNHN) [examined].

Eremotylus distans Seyrig; Benoit, 1953 : 545.

Lepiscelus gracile Townes, 1971 : 74. Holotype ♀, ANGOLA (TC) [examined]. [Synonymized by Townes & Townes, 1973 : 170.]

Lepiscelus distans (Seyrig) Townes & Townes, 1973 : 170.

Description. Mandibles strongly and evenly narrowed, twisted about 10° with upper tooth about 2.0 times as long as the lower; outer mandibular surface flat, with scattered fine hairs; labrum 0.3 times as long as broad basally. Clypeus in profile weakly convex, with apical margin blunt; clypeus in anterior aspect 1.8 times as broad as long, matt, coarsely punctate with fine reticulation between the punctures; clypeal apex slightly concave; lower face 0.8-0.9 times as long as broad, closely punctate. Head with genae somewhat swollen; posterior ocelli very close to eyes; FI = 60%. Antennae elongate with 55-58 flagellar segments; 1st flagellar segment 1.1-1.3 times as long as 2nd, 20th segment about 2.2 times as long as broad.

Pronotum mediodorsally long, flat. Mesoscutum in profile evenly rounded, with anterior margin not out-turned. Mesopleuron polished, closely punctate; epicnemial carina curved to reach anterior margin of pleuron above lower corner of pronotum. Scutellum punctate. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum with posterior area finely wrinkled.

Forewing length 12-17mm; AI = 0.50-0.70; ICI = 0.85-1.05. Hindwing with the distal 3 hamuli of similar size, proximal 2 rather longer and stouter.

Fore tibia with numerous spines on outer surface; hind coxa in profile 2.2 times as long as deep; outer hind tarsal claws weakly curved, long, of ♀ with about 9 long pectinae, of ♂ with more numerous, slightly shorter pectinae.

Tergite 2 of gaster with thyridia separated from anterior margin of tergite by 3-4 times their own length; ♂ with sternites 6-8 bearing short fine hairs; ♂ genitalia as in Fig. 99, unusual in having lateral projections on aedeagus.

Colour generally reddish-brown; inter-ocellar area black.

Distribution. This species is widely distributed throughout Africa between latitude 10°N and 20°S. It is quite an uncommon species in general collections.

Material examined. *Eremotylus distans* Seyrig, holotype ♂, KENYA: Maranga, Fort Hall, xi.09 (*Alluaud*) (MNHN); paratypes 2♀, CENTRAL AFRICAN REPUBLIC: Fort Crampel (*De Gaulle*) (MNHN). *Lepiscelus gracile* Townes, holotype ♀ ANGOLA: Lundo, Dundo, ii-iv.58 (*Heinrich*) (TC).

Non-type material. IVORY COAST: 1♀, Bingerville, vii.62 (*Decelle*) (MRAC). KENYA: 1♂, Nandi Plateau, vi.11 (*Neave*) (BMNH); 1♀, Unoa-Nziu, xii.38 (*MacArthur*) (BMNH); NIGERIA: 2♂, Ilora, viii.74 (*Medler*) (TC); 1♀, Lagos, Yaba, 1910 (*Stieger*) (BMNH). SUDAN: 1♀, Kadugh, vii.54 (*Sweeny*) (BMNH). TANZANIA: 1♀, "Handeni", iv.57 (*Basilewsky & Leleup*) (MRAC). ZAIRE: 1♂, Bambesa, i.37 (*Vrydagh*) (MRAC); 1♀, Mayidi, 1942 (*Van Eyen*) (MRAC). ZAMBIA: 1♂, Abercorn, xii.64 (TC).

Genus *STAUROPOCTONUS* Brauns

Stauropactonus Brauns, 1889 : 75. Type-species: *Ophion bombycivorus* Gravenhorst, by monotypy.

Stauropodoctonus Morley, 1913 : 375 [Unjustified emendation.]
Nipponophion Uchida, 1928 : 201. Type-species: (*Nipponophion variegatus* Uchida) = *Ophion bombycivorus* Gravenhorst, by original designation.

Generic diagnosis. Mandible twisted about 85°, apically narrowed, subequally bidentate; maxillary palp 5-segmented; labial palp 4-segmented; clypeus in profile almost flat. Occipital carina absent or mediodorsally complete, laterally obsolescent; frons not carinate strongly. Antennae elongate about 2 times as long as forewing.

Mesoscutum with notauli vestigial; scutellum moderately convex with lateral longitudinal carina on anterior 0.4; posterior transverse carina of mesosternum complete or obsolescent on midline; posterior margin of metanotum not swollen opposite propodeal spiracle.

Forewing with *cu-a* proximal to *Rs&M*; discosubmarginal cell with anterior corner glabrous; *1m-cu* sinuate; ramellus absent; *Rs+2r* proximally abruptly curved and thickened before joining pterostigma. CI = 2.00; DI = 0.45. Hindwing with *Rs* bowed; marginal cell proximally glabrous. NI = 0.30.

Fore tibial spur without a membranous flange behind macrotrichial comb; mid and hind trochantelli with distal margin produced into a long curved acute tooth; inner hind tibial spur flattened.

Gaster elongate and slender; sternite 2 with anterior margin level with petiolar spiracle; thyridia ellipsoidal, separated from anterior margin of tergite 2 by 3 times its own length but with a deep groove extending from thyridia to anterior margin of tergite; tergite 2 in profile more than 4 times as long as deep, its epipleuron turned under.

♂ genitalia with gonosquama moderate sized, terminally acute.

General body colour blackish-red.

Discussion. This is a small genus. Townes (1971) knew only three species, *S. bombycivorus* which is Palaearctic and two undescribed species, one from the Philippines and the other one from Borneo. Cushman (1947) described a species, *S. chezanus*, from China. In the BMNH is a third undescribed species from Java. Gauld (1977) described one species from New Guinea/N. Australia. These six species form a compact species-group. The species described below, the first record of this genus from the Ethiopian region, differs from the typical *Stauropodoctonus* species in having an occipital carina present dorsally and having *1m-cu* very widely separated from *Cu_{1a}*. However the venation, mandibles and trochantelli clearly show that this is a species of *Stauropodoctonus*.

STAUROPOCTONUS OCCIPITALIS sp. n.

(Fig. 10)

Description. Lower face convex, elongate, about 0.75 times as broad as long, with close weak punctures. Ocelli separated from eyes by about 0.6 times maximum diameter; FI = 40%. Flagellum very long with 64-66 segments, central segments 1.4 times as long as broad.

Mesopleuron sub-polished, upper part punctate with fine reticulations between punctures, lower part similar but wrinkled; epicnemial carina strong to level of lower corner of pronotum, above this indistinct. Scutellum aluto-coriaceous; metapleuron alutaceous, submetapleural carina narrow, parallel sided. Propodeum with anterior area in form of an exceptionally deep trough; anterior transcarina strong; posterior area coriaceous.

Forewing length 14-15mm; AI = 1.10-1.20; ICI = 1.50-1.60. Hindwing with 2-3 hamuli on vein *R₁*.

Hind coxa in profile about 2.1 times as long as deep; outer hind tarsal claw of ♀ strongly curved with about 10 closely interspaced pectinae, those of ♂ similar but with a slightly longer apical point.

Gaster elongate; posterior margin of sternite 2 very far before spiracle of tergite 2.

Head red-brown; alitrunk and gaster blackish with extensive red-brown markings; wings yellow; legs and antennae reddish.

Material examined. Holotype ♀, MADAGASCAR: Vatondrany, xii.29 (*Seyrig*) (MNHN); paratype 1♂, same data as holotype (MNHN).

Genus ENICOSPILUS Stephens

Enicospilus Stephens, 1835 : 126. Type-species: *Ophion merdarius* Gravenhorst, by subsequent designation (Viereck, 1914 : 51).

Henicospilus Agassiz, 1846 : 138. [Unjustified emendation.]

Allocamptus Foerster, 1868 : 150. Type-species: *Ophion undulatus* Gravenhorst, by subsequent designation (Thomson, 1888 : 1189).

Dispilus Kriechbaumer, 1849 : 309. Type-species: *Ophion (Dispilus) natalensis* Kriechbaumer, by monotypy.

Pleuroneurophion Ashmead, 1900 : 86. Type-species: *Pleuroneurophion hawaiiensis* Ashmead, by original designation.

Cymatoneura Kriechbaumer, 1901 : 22, 74. Type-species: *Ophion undulatus* Gravenhorst, by subsequent designation (Viereck, 1914 : 8).

Pterospilus Kriechbaumer, 1901 : 156. Type-species: *Ophion (Enicospilus) dubius* Tosquinet, by subsequent designation (Viereck, 1914 : 126). [Junior homonym of *Pterospilus* Rondani, 1856.]

Trispilus Kriechbaumer, 1901 : 156. Type-species: *Ophion (Enicospilus) trimaculatus* Tosquinet, by monotypy.

Metophion Szépligeti, 1905 : 28. Type-species: *Metophion bicolor* Szépligeti, by subsequent designation (Viereck, 1914 : 94).

Ceratospilus Szépligeti, 1905 : 28. Type-species: *Ceratospilus biroi* Szépligeti, by monotypy.

Atoponeura Szépligeti, 1905 : 34. Type-species: *Atoponeura concolor* Szépligeti (= *Enicospilus atoponeurus* Cushman) by monotypy.

Ophiomorpha Szépligeti, 1905 : 34. Type-species: *Ophion curvinervis* Cameron (= *Enicospilus cameronii* Dalla Torre) by subsequent designation (Hooker, 1912 : 134). [Junior homonym of *Ophiomorpha* Nilsson, 1836.]

Cryptocamptus Brèthes, 1909 : 230 [Unnecessary replacement name for *Allocamptus* Foerster, Thomson.]

Eremotyloides Perkins, 1915 : 530. Type-species: *Eremotyloides orbitalis* Ashmead, by monotypy.

Amesospilus Enderlein, 1918 : 222. Type-species: *Ophion unicallosus* Snellen, by original designation.

Schizospilus Seyrig, 1935 : 79. Type-species: *Schizospilus divisus* Seyrig, by original designation.

We have not included *Abanchogastra* Perkins as a synonym of *Enicospilus*. The type-species, *A. debilis* Perkins (= *Abanchogastra hawaiiensis* Ashmead), is an aberrant species of doubtful affinity. We believe it is more closely related to genera such as *Leptophion* than it is to *Enicospilus* and suggest it is better retained as a distinct genus.

There is some confusion about the date of publication of *Beiträge zur Kenntnis der Land-und Süßwasserfauna Deutsch-Südwestafrikas*. Townes (1971) gives the date of publication as 1918 following that given in *Zoological Record* but Townes & Townes (1973) give it as 1914. The date 1914 is printed on the cover of the fascicle and it seems likely that it was printed in that year. However, all available evidence shows that the work was not distributed until 1918. Under Articles 8, 10 & 11 of the International Code of Zoological Nomenclature a name becomes available only when the publication containing it is obtainable by purchase or free distribution. As this fascicle was not obtainable generally until 1918 we use this as date of publication following the precedent established in the *Zoological Record*.

Generic diagnosis. Mandibles from slightly to very strongly twisted, weakly to strongly apically narrowed, from subequally bidentate to with one or other tooth conspicuously the longer; maxillary palp 5-segmented; labial palp 4-segmented; clypeus in profile from flat to convex. Occipital carina usually complete. Frons without lateral carinae. Antennae from short and stout to very long and slender, 1.0-2.5 times as long as forewing.

Mesoscutum with notauli absent or vestigial, less commonly discernible on anterior 0.2, exceptionally stronger; scutellum with lateral longitudinal carina more or less complete, very rarely vestigial; posterior transcarina of mesosternum usually complete, rarely centrally obsolete; posterior margin of metanotum not swollen opposite propodeal spiracle.

Forewing with *cu-a* opposite or proximal to *Rs&M*; discosubmarginal cell usually with a glabrous fenestra adjoining *Rs+2r*, very rarely with a sclerite and no fenestra, often with sclerite(s) present in fenestra; *1m-cu* from arcuate to sinuous, usually without a ramellus; *Rs+2r* from straight to sinuate, arcuate or centrally angled, generally evenly curved to join pterostigma. CI = 0.10-4.30; DI = 0.35-0.50. Hindwing with *Rs* straight; marginal cell rather evenly hirsute; NI greater than 1.00.

Fore tibial spur without a membranous flange behind macrotrichial comb; mid and hind trochantelli usually simple very rarely produced distally into an acute tooth; inner hind tibial spur flattened.

Gaster usually long and slender; sternite 2 with anterior margin behind or opposite petiolar spiracle; thyridia oval-ellipsoidal, separated from anterior margin of tergite 2 by more than 1.5 times its own length; tergite 2 in profile more than 4.0 times as long as deep, its epipleuron (in Ethiopian species at least) turned under.

♂ genitalia with gonosquama of moderate size, usually terminally evenly rounded or sub-truncate.

General body colour orange-brown.

Discussion. *Enicospilus*, as we have mentioned, is an extremely large genus. Although repeated attempts have been made to divide it into a number of separate genera or subgenera none has endured. This is for two reasons: firstly, no one has yet familiarized themselves with more than a small percentage of the total number of species and secondly, there are really very few obvious species-groups distinguishable and generally these intergrade with each other. In an earlier work (Gauld, 1977) some attempt was made to delineate species-groups of *Enicospilus* occurring in Australia. Similarly in this work we have attempted to outline the phylogenetic affinities of a number of species. These species groupings are discussed below but it should be emphasized here that these are merely informal groupings based on the African fauna and may well not be valid for other zoogeographical regions. Far more material will need to be studied before it is possible to ascertain and delimit "natural" species-groups. Undoubtedly many of the species-groups occurring in Africa are far more closely related to species occurring in other zoogeographic regions than they are to other African species-groups.

We have not attempted to use these species-groups as intermediate steps in the key because of the great difficulty in defining them. Several species could be placed in one of a number of species-groups and in some cases species from different groups exhibit character convergence, probably as a result of sharing similar ecological environments. In many cases it is not clear whether a shared character is the result of true phylogenetic affinity or of evolutionary convergence.

The species-groups we suggest are as follows:

1. *E. unidens* species-group (*unidens*, *gonidius*, *amygdalis*, *akainus*, *diro*)

Characterized by the enlarged lower mandibular tooth, black inter-ocellar area, small SDI, small claws and rather compact thorax which is usually strongly punctate. Primarily Madagascan with one species on the mainland. This is one of the most distinctive of all species-groups. It may be related to the *E. dubius* species-group as *E. bantu* has some characters of both groups.

2. *E. leucocotis* species-group (*leucocotis*, *camboui*).

Characterized by the inflated genae, strong puncturation and generally robust appearance. A southern African/Madagascan species-group probably closely related to the following.

3. *E. senescens* species-group (*senescens*, *streblus*, *prolixus*, *cubitalis*, *marjorieae*, *camerunensis*, *nugalis*, *pseudonugalis*, *oweni*, *hyailosus*, *glyphanosus*).

This is the largest species-group without an alar sclerite. It is characterized by similarities in venation, mouthparts, genitalia and to some extent sculpture of thorax and propodeum. There are many species belonging to this group occurring in the Oriental region but they are probably not closely allied to the Palearctic species formerly placed in *Allocamptus* from which they differ in not having a reflexed clypeus.

4. *E. pressuratus* species-group (*pressuratus*, *fatalis*).

Similar to the preceding species-group although more delicate insects with generally a smaller ICI and a simple gonolacinia. This group is only known to occur in Madagascar.

5. *E. cohacarus* species-group (*cohacarus*, *evanescens*, *eirmosus*, *mamatus*, *decaryi*, *umbratus*, *talaorus*, *seyrigi*).

This group is characterized by the aberrant and poorly developed alar sclerite. Most species are very large robust insects with flattened faces and well developed membranous extensions of the basivolsella proximal to the basivolsellar strut. This species-group is exclusively Madagascan. *E. umbratus*, which almost certainly belongs in this species-group, is more slender and probably specialized for a sylvan habitat, hence its resemblance to some species of the *E. drymosus* species-group.

6. *E. angustatus* species-group (*angustatus*, *plagiatus*).

Morphologically similar to the previous species-group but differing in the form of the fenestra. Like the *cohacarus* species-group this group is confined to Madagascar.

7. *E. antimena* species-group (*antimena*, *cariosus*, *damius*, *indovus*, *volitius*, *janakus*).

A rather heterogenous species-group having in common only a few characters most notable of which are the large fenestra and strongly arcuate $Rs+2r$. In these characters this species-group resembles a number of Indo-Australian species including *E. coarctatus* (Brullé). Members of the *antimena* species-group are confined to the Mascarene Archipelago and Madagascar.

8. *E. abessyniensis* species-group (*abessyniensis*, *lancasteri*).

This species-group is characterized by the strongly sinuate $Rs+2r$ and the presence of a minute sclerite in the centre of a fenestra. Its affinities to other groups are not understood nor do they appear to have close relatives in other zoogeographic regions.

9. *E. punctipinnis* species-group (*punctipinnis*, *fananus*, *microspilus*).

This Madagascan species-group is characterized by the venation and thoracic sculpture. This group may only be a subgroup of the following.

10. *E. lanafius* species-group (*lanafius*, *belosus*, *mahalonius*, *retsifoius*, *vorikus*, *famantrus*, *oswaldi*, *recavus*, *sphenus*, ?*fetus*).

This species-group is characterized by a large value of CI and generally with a weak epicnemial carina. It is confined to Madagascar.

11. *E. vatius* species-group (*vatius*, *meledonosus*).

A small species-group of dubious affinity characterized by the inflated labrum and two central sclerites.

12. *E. drymosus* species-group (*drymosus*, *nefarius*).

A small species-group characterized by the odd alar sclerites and the asymmetrical hind tarsal claws. The affinities of this group are not known.

13. *E. biimpressus* species-group (*biimpressus*, *cittus*, *hecastus*, *simandrius*, *seminiger*, *ruwenzorius*, ?*divisus*).

This species-group is characterized by having a partially bilobate quadra which shows a marked tendency to develop sclerotization at two places on its margin. Several members of this group have asymmetrical hind tarsal claws. Several Oriental species also belong to this group.

14. *E. babaulti* species-group (*babaulti*, *polyspilus*).

This species-group is the only group in the genus to contain multiple central sclerites. Morphologically these species appear to be related to the *E. biimpressus* species-group.

15. *E. pacificus* species-group (*pacificus*, *icterus*, *mnous*).

This species-group is characterized by the form of the proximal sclerite. Several other species belonging to this group occur in the Oriental region.

16. *E. rubens* species-group (*rubens*, *nubeculatus*, *amarus*, *corrugans*).

This species-group is distinct in having a quadra placed between the modified central and proximal sclerite. The affinities of this group are not known. They do not appear to have relatives in other zoogeographic regions.

17. *E. dubius* species-group (*dubius*, *helvolus*, *bantu*, *herero*, *henryi*, *leonotus*).

This species-group is characterized by the form of the alar sclerites, mandibles and sculpture. The species are most common in the drier regions of Africa. This group appears to have a close affinity with the following.

18. *E. capensis* species-group (*capensis*, *batus*, *bajulus*, *psammus*).

Similar to the *E. dubius* species-group but with a central sclerite. We believe that both are very closely related and have affinities with many other species in dry parts of the world including the Australo-New Zealand *E. skeltonii* species-group.

19. *E. rufus* species-group (*rufus*, *albigus*, *grandiflavus*, *oculator*, species 4).

This species-group is characterized by the flat clypeus, anteriorly placed propodeal spiracle and absence of central sclerite. Species also tend to have the mesoscutum more strongly punctate than most other species. This species-group is distributed principally throughout southern Africa and Madagascar.

20. *E. dolosus* species-group (*dolosus*, *sliochus*, *cednus*, *bebelus*, *daulus*).

This African species-group is characterized by the flattened upper mandibular tooth, the small CI, the large AI and the black inter-ocellar area. Its affinity with other groups is not clear but some Oriental species apparently belong here also.

21. *E. communis* species-group (*communis*, *rundiensis*, *fenestralis*, *addendus*, *furius*, *agrophus*, *apicalis*, *drakensbergi*, *justus*, *diabolicus*, *braunsii*, *pesceator*, *reti*, species 2).

This is one of the largest species-groups. It is characterized by a slightly more quadrate head and rather elongate trochantelli. Species often have either the interocellar area or the terminal segments of the gaster or both black, the value of AI less than 1.00 and the ovipositor a little shorter and stouter than is usual for species of the genus. This species-group has many relatives in the Palearctic and Oriental regions.

22. *E. antefurcalis* species-group (*antefurcalis*, *bicoloratus*, *ruscus*).

Similar to the *E. communis* species-group but with a diagonal groove in the mandibles, the trochantelli shorter, and the genae more constricted.

23. *E. transvaalensis* species-group (*transvaalensis*, *krossus*, *hova*).

This species-group is characterized by the form of the mandibles and the central sclerite. It is apparently related to the following group, but whether there is any true phylogenetic affinity is not clear. Unlike species of the *E. betanimenus* species-group, males of this group have the pectinae of the hind tarsal claws far more dense than those of the female.

24. *E. betanimenus* species-group (*betanimenus*, *expeditus*, *lictus*, *ruvidus*, *pallidus*, *natalensis*, *finalis*, ?*vontalis*).

This large species-group all have a relatively large central sclerite and a slightly flattened upper mandibular tooth. Several Oriental species also belong to this group.

Townes & Townes (1973) catalogue 74 species of *Enicospilus* as occurring in the Ethiopian region. One of these, *E. braunsii* is transferred to *Dicamptus* and two further species are not considered to really occur in this region (see p. 4). In the present work 156 species are recognized, but 6 are not formally named because of insufficient material. An additional 94 new species are described. A large number of misidentifications found in the literature have been corrected. We have examined the collections of Morley and Seyrig and have been able to rectify their published misidentifications.

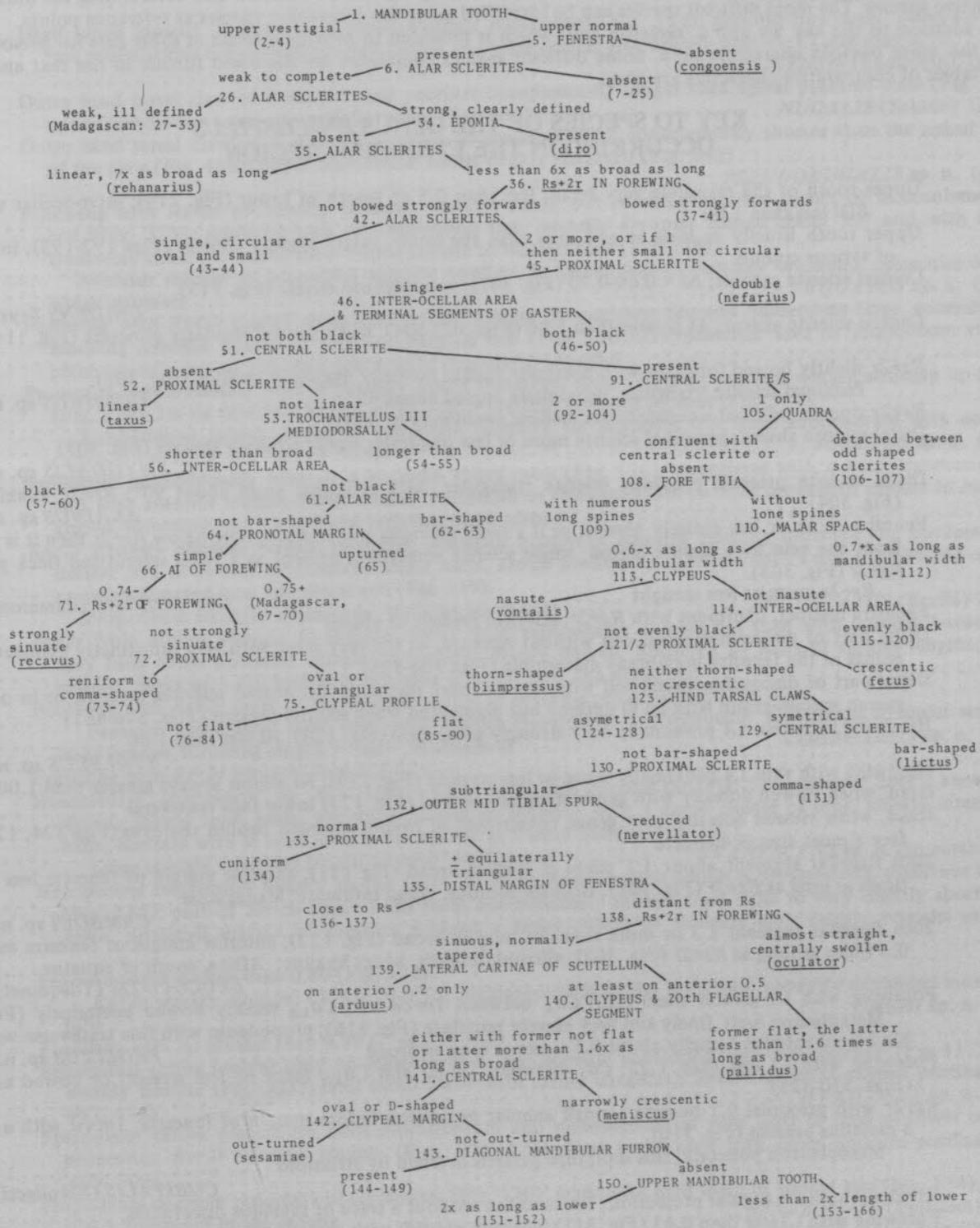


Chart 1. THE SKELETON KEY. Upper case entries refer to characters; the following lower case entries to the contrasting states of the character. Numbers refer to couplets in the main key.

Almost all other pre-Townesian taxonomists merely described species and seldom used the names given to species by their predecessors. Consequently, they seldom published misidentifications although they sometimes described a species several times in the course of their careers.

A great area of confusion concerns determinations made of species being investigated by agricultural entomologists. Where possible we have corrected misidentifications, but in cases marked with an asterisk we have not seen any material and have assumed a correct determination.

The key to species is of necessity long and in places quite difficult. Although we have illustrated most characters used in the key certain determination of some species may require recourse to a reference collection. For workers making frequent identifications we suggest it is easier to start by making a general collection and determining the most common distinctive species. The more difficult species can be identified using the commoner species as reference points.

In addition to the key we give a 'skeleton key' which is intended to provide a series of short cuts for persons familiar with the more obvious characters used. Some difficult species complexes are discussed further in the text and in a few cases tables of comparative characters are given.

KEY TO SPECIES OF THE GENUS *ENICOSPILUS* OCCURRING IN THE ETHIOPIAN REGION

- | | | |
|--------|--|---------------------------------------|
| 1 | Upper tooth of the mandible very small, less than 0.5 of length of lower (Fig. 119); inter-ocellar area black. SDI less than 1.00 | 2 |
| - | Upper tooth usually as long as or longer than the lower, rarely slightly shorter (Figs 192-195); inter-ocellar of various colours | 5 |
| 2(1) | Central sclerite present; AI = 0.60-0.70 (Fig. 301); mesopleuron striate (Fig. 113) | <i>UNIDENS</i> Seyrig (p. 53) |
| - | Central sclerite absent; AI greater than 1.00 (Figs 302-304); mesopleuron regularly punctate (Fig. 114) | 3 |
| 3(2) | <i>Rs+2r</i> slightly bowed forwards with posterior margin medially angularly swollen (Fig. 302). Proximal sclerite triangular, proximally angled about 45° | <i>GONIDIUS</i> sp. n. (p. 54) |
| - | <i>Rs+2r</i> sinuate, without a conspicuous median swelling (Fig. 303) | 4 |
| 4(3) | Distal sclerite absent; proximal sclerite more or less quadrate; <i>Rs+2r</i> strongly sinuate (Fig. 303) | <i>AMYGDALIS</i> sp. n. (p. 54) |
| - | Distal sclerite present; proximal sclerite triangular, with proximal angle about 90°; <i>Rs+2r</i> weakly sinuate (Fig. 304) | <i>AKAINUS</i> sp. n. (p. 55) |
| 5(1) | Fenestra more or less entirely absent, or if a small glabrous area is discernible below <i>Rs+2r</i> then it is separated from the vein by a hirsute region; single sclerite sometimes present as a small sclerotized fleck parallel to <i>Rs+2r</i> (Fig. 305). <i>Rs+2r</i> more or less straight | <i>CONGOENSIS</i> (Cameron) (p. 55) |
| - | Fenestra distinct, confluent with <i>Rs+2r</i> ; sclerites present or absent | 6 |
| 6(5) | Distal part of discosubmarginal cell without sclerites, at the very most with very indistinctly delineated thickenings of the fenestra membrane discernible (Figs 306-325) | 7 |
| - | Distal part of discosubmarginal cell with one or more distinctly delineated sclerites present, or in one Madagascar species-group with an ill defined but pigmented weak sclerite present (Figs. 326-461) | 26 |
| 7(6) | Hindwing with vein 1A proximally very strongly geniculate (Fig. 126); NI less than 1.00 | <i>STREBLUS</i> sp. n. (p. 56) |
| - | Hindwing with vein 1A proximally more or less straight (Fig. 127); NI almost always greater than 1.00 | 8 |
| - | Head, when viewed dorsally with genae strongly inflated (Fig. 123) lower face transverse | 9 |
| - | Head, when viewed dorsally with genae constricted or evenly rounded behind the eyes (Figs 124, 125) lower face almost always elongate | 10 |
| 9(8) | 20th flagellar segment about 1.1 times as long as broad (Fig 121); anterior margin of fenestra less than 0.5 times as long as <i>Rs+2r</i> (Fig. 308); alitrunk badius, wings infumate; Madagascar | <i>CAMBOUI</i> sp. n. (p. 57) |
| - | 20th flagellar segment 1.3 or more times as long as broad (Fig. 122); anterior margin of fenestra more than 0.5 times as long as <i>Rs+2r</i> (Fig. 307); alitrunk reddish, wings hyaline; Africa, south of equator | <i>LEUCOCOTIS</i> (Tosquinet) (p. 57) |
| 10(8) | Forewing with CI greater than 1.50; <i>Cu</i> ₁ between <i>1m-cu</i> and <i>Cu</i> _{1a} weakly bowed posteriorly (Fig. 309). Metapleuron matt, finely and very closely punctate (Fig. 116); propodeum with fine transverse wrinkling; hind trochantellus dorsally about 0.5 times as long as broad | <i>PROLIXUS</i> sp. n. (p. 58) |
| - | Forewing with CI less than 1.25; <i>Cu</i> ₁ between <i>1m-cu</i> and <i>Cu</i> _{1a} more or less straight or bowed anteriorly (Figs. 310-325) | 11 |
| 11(10) | <i>Rs+2r</i> with proximal 0.1 bearing a small angular projection before margin of fenestra; <i>1m-cu</i> with a trace of a ramellus present (Fig. 310). Mesopleuron punctate, this sculpture pattern overlaid by striations | <i>CUBITALIS</i> (Szépligeti) (p. 59) |
| - | <i>Rs+2r</i> without an angular projection; <i>1m-cu</i> often without a trace of ramellus discernible | 12 |
| 12(11) | Forewing with CI less than 0.45 (Fig. 311); alitrunk reddish with scutellum and subalar prominences yellowish-white. Fenestra large, reaching anterior corner of disco-submarginal cell | <i>FATALIS</i> sp. n. (p. 60) |
| - | Forewing with CI greater than 0.45; alitrunk more or less unicolorous, never with scutellum paler than mesoscutum | 13 |
| 13(12) | Forewing with ICI less than 0.55, usually less than 0.50 (Figs 312-316); epicnemial carina reaching at least to level of lower corner of pronotum | 14 |
| - | Forewing with ICI greater than 0.55, usually greater than 0.60 (Figs 317-325); epicnemial carina present or absent | 18 |

- 14(13) Forewing with AI greater than 2.40; inter-ocellar area black.
Rs+2r weakly sinuate with fenestra reaching anterior corner of discosubmarginal cell (Fig. 312) *PRESSURATUS* sp. n. (p. 60)
 — Forewing with AI less than 2.00; inter-ocellar area yellowish 15
- 15(14) *Rs+2r* strongly sinuate; *1m-cu* with a median geniculation or medially thickened (Figs 313-314) 16
 — *Rs+2r* weakly sinuate; *1m-cu* sinuous or arcuate, without a median geniculation and not medially thickened (Figs 315-316) 17
- 16(15) Head when viewed dorsally with genae evenly rounded behind eyes (Fig. 124); mesopleuron polished, punctate to punctostriate; vertex and inter-ocellar area orange; CI greater than 0.65 *MARJORIEAE* sp. n. (p. 61)
 — Head when viewed dorsally with genae strongly constricted (Fig. 125); mesopleuron matt, punctate with fine reticulations between punctures; vertex and inter-ocellar area usually whitish; CI less than 0.70 *CAMERUNENSIS* (Enderlein) (p. 61)
- 17(15) Outer hind tarsal claw of ♀ with central pectinae conspicuously longer than apical point of claw (Fig. 484); upper mandibular tooth strongly flattened (Fig. 133) *NUGALIS* (Schulz) (p. 62)
 — Outer hind tarsal claw of ♀ with all pectinae of similar size, all conspicuously shorter than the apical point of the claw (Fig. 486); upper mandibular tooth weakly flattened (Fig. 132) *PSEUDONUGALIS* sp. n. (p. 63)
- 18(13) Forewing with *Rs+2r* proximally straight; fenestra small, but reaching anterior corner of discosubmarginal cell (Fig. 317); posterior area of propodeum flat, laterally abruptly turned about 90° and with strong transverse striae extending from dorsal surface to metapleurae (Fig. 118).
 Anterior margin of propodeal spiracle swollen, in lateral aspect virtually occluding spiracular orifice; wings infumate *EQUATUS* sp. n. (p. 64)
 — Forewing with *Rs+2r* angled somewhat before joining pterostigma; fenestra moderately large, generally not reaching anterior corner of discosubmarginal cell (Figs 318-325); posterior area of propodeum various, often laterally evenly rounded and usually irregularly wrinkled 19
- 19(18) Pronotum mediodorsally with a strongly raised transverse crest and with anterior margin strongly up-turned (Fig. 129); *1m-cu* centrally angled often with a vestigial ramellus present (Fig. 318).
 Longitudinal lateral carina of scutellum obsolete on posterior 0.5; head subquadrate with occipital carina in the form of a narrow flange *JUNCTUS* sp. n. (p. 65)
 — Pronotum mediodorsally without a strongly raised crest (Fig. 128), sometimes with a weak transverse ridge and with anterior margin either weakly up-turned or thickened; *1m-cu* from arcuate to sinuate to centrally angled, sometimes with a vestigial ramellus discernible 20
- 20(19) *Rs+2r* strongly arcuate, bowed forwards; posterior margin of fenestra medially indented and bordered by a double row of closely inter-spaced short hairs; *1m-cu* proximally indented with a slight thickening or short ramellus directed into 2nd discal cell (Fig. 319).
 Propodeum strongly coriaceous; Madagascan species *ANGUSTATUS* (Brullé) (p. 65)
 — *Rs+2r* from almost straight to sinuate, rarely with vein weakly arcuate but then with fenestra bordered by very long hairs; posterior margin of fenestra evenly curved, bordered by hairs of various lengths; *1m-cu* various, never with thickening or ramellus directed into 2nd discal cell 21
- 21(20) Forewing with *Rs+2r* more or less straight except at extreme proximal end (Fig. 320).
 Fenestra moderately large with weak quadra discernible; propodeum with strong irregular wrinkles; large species, forewing length 17mm+; Madagascar *COHACARUS* sp. n. (p. 66)
 — Forewing with *Rs+2r* sinuate (Figs 321-325) 22
- 22(21) Mesopleural impression in the form of a more or less circular pit (Fig. 115); part of *2m-cu* above bulla slightly longer than bulla; proximal margin of fenestra with a dense cluster of long, closely inter-spaced hairs; fenestra with at least sclerite discernible as a weak quadra (Fig. 321).
 Large species, forewing length 15mm+; Madagascar *EVANESCENS* sp. n. (in part) (p. 67)
 — Mesopleural impression usually in the form of an elongate trough which is progressively shallower dorsally (Fig. 117); part of *2m-cu* above bulla from conspicuously shorter than bulla to very slightly shorter than bulla; proximal margin of fenestra without a dense cluster of elongate hair; quadra vestigial or absent 23
- 23(22) Forewing with AI less than 0.80 (Fig. 322).
Rs+2r weakly sinuate; CI = 0.50-0.75; submetapleural carina anteriorly abruptly expanded into a blunt lobe *OWENI* sp. n. (p. 67)
 — Forewing with AI greater than 0.90 (Figs 323-325) 24
- 24(23) Epicnemial carina present only on mesosternum, not dorsally continued onto mesopleuron (Fig 117); *Rs+2r* weakly sinuate (Fig. 323); hind tarsal claws with rather irregularly spaced assorted shaped pectinae (Figs. 497, 498) *HYAILOSUS* sp. n. (p. 68)
 — Epicnemial carina present on both mesosternum and mesopleuron at very least to level of lower corner of pronotum; *Rs+2r* strongly sinuate (Figs. 324, 325); hind tarsal claw with more uniform pectinae (Figs. 499, 500) 25
- 25(24) Propodeum coarsely reticulate or coriaceous (Fig. 130); mandibles with teeth of similar size (Fig. 134); clypeus 1.6-1.7 times as broad as long *SENESCENS* (Tosquinet) (p. 69)
 — Propodeum finely wrinkled, usually with the wrinkling more or less concentric (Fig. 131); mandibles with upper tooth broader than the lower (Fig. 135); clypeus 1.4-1.5 times as broad as long *GLYPHANOSUS* sp. n. (p. 70)
- 26(6) Forewing bearing a very weakly pigmented sclerite, the margins of which are not clearly defined (Figs 326-332).
 Madagascar 27
 — Forewing with at least a single strongly pigmented sclerite which is at least for part of its periphery distinctly delineated (Figs 333-461) 34

- 27(26) Forewing with $Rs+2r$ more or less straight; weak sclerite very elongate, more or less parallel to $Rs+2r$ (Figs 326-328) 28
- Forewing with $Rs+2r$ sinuate; weak sclerite oval to cuniform, if elongate then not parallel to $Rs+2r$ (Figs 329-332) 30
- 28(27) Anterior margin of pronotum strongly up-turned (Fig. 136); weak sclerite bordering posterior margin of fenestra, paralleled anteriorly by a weak quadra of similar size and shape (Fig. 326); scutellum longitudinally concave.
Terminal segments of gaster black *EIRMOSUS* sp. n. (p. 71)
- Anterior margin of pronotum not up-turned, weak sclerite anterior to posterior margin of fenestra, not paralleled by a quadra of similar size and shape (Figs 327, 328); scutellum not concave 29
- 29(28) Forewing with CI less than 0.50; ♂ with sternites 6-8 bearing fine decumbent hair (Fig. 137); fenestra not reaching anterior corner of discosubmarginal cell (Fig. 327) *MAMATSUS* sp. n. (p. 71)
- Forewing with CI greater than 1.00; ♂ with sternites 6-8 bearing long stout erect hairs in addition to fine decumbent ones (Fig. 138); fenestra reaching anterior corner of discosubmarginal cell (Fig. 328) *DECARYI* sp. n. (p. 72)
- 30(27) Forewing with ICI less than 0.50; central flagellar segments very elongate, 20th segment more than 2.5 times as long as broad (Fig. 145).
Discosubmarginal cell infumate; pale yellow species with alitrunk and terminal segments of gaster badius *UMBRATUS* sp. n. (p. 72)
- Forewing with ICI greater than 0.60; central flagellar segments less than 2.1 times as long as broad (Figs. 146, 147) 31
- 31(30) Posterior margin of fenestra medially indented (Fig. 329); mesopleuron ventrally impunctate, finely striate, metapleuron coarsely reticulate (Fig. 139); posterior part of inter-ocellar area black.
Large orange species, forewing length 22mm+; posterior margin of tergite 3 and tergite 5 onwards black *PLAGIATUS* (Saussure) (p. 73)
- Posterior margin of fenestra more or less evenly convex (Figs 331, 332); mesopleuron punctate to punctostriate, metapleuron punctate to alutaceous (Fig. 140); posterior part of inter-ocellar area reddish-orange 32
- 32(31) Forewing with ICI greater than 0.95; alar sclerite entirely glabrous, positioned centrally in the fenestra (Fig. 321); submetapleural carina strongly but evenly broadened anteriorly (Fig. 115) *EVANESCENS* sp. n. (in part) (p. 67)
- Forewing with ICI = 0.60-0.75; alar sclerite partially hirsute, positioned across margin of fenestra (Figs. 331, 332); submetapleural carina abruptly expanded into a triangular flange (Fig. 140) 33
- 33(32) $Rs+2r$ very strongly sinuate, alar sclerite elongate (Fig. 331); mesopleuron punctostriate; flagellum with 60+ segments, the central segments about 1.3 times as long as broad (Fig. 147) *TALAORUS* sp. n. (p. 73)
- $Rs+2r$ only moderately sinuate, alar sclerite ovoid (Fig. 332); mesopleuron punctate; flagellum with about 50 segments, central segments about 1.1 times as long as broad (Fig. 146) *SEYRIGI* sp. n. (p. 74)
- 34(26) Pronotum with epomia strongly developed (Fig. 149); mandibles weakly narrowed, not twisted with lower tooth slightly the longer (Fig. 153); malar space about 1.0 times as long as basal mandibular width; forewing with a single sclerite; SDI about 0.8.
 $Rs+2r$ slightly bowed; inter-ocellar area black, face white *DIRO* sp. n. (p. 74)
- Pronotum without epomia (Fig. 150); mandibles usually strongly narrowed and twisted; malar space usually less than 1.0, or if rarely about 1.0 then forewing with 2 sclerites; SDI usually greater than 0.9 35
- 35(34) Alar sclerite more than 10.0 times as long as broad, parallel to posterior margin of fenestra (Fig. 334).
Mesopleuron alutaceous; CI less than 0.30; ICI = 0.30-0.35; inter-ocellar area black; Madagascar *REHANARIUS* sp. n. (p. 75)
- Alar sclerite(s) of various shapes, generally less than 6.0 times as long as broad, if rarely elongate then either with more than 1 distinct sclerite present or sclerite not parallel to posterior margin of fenestra 36
- 36(35) $Rs+2r$ strongly and evenly bowed forwards so that anterior margin of vein is an evenly convex curve (thus if a hypothetical tangent is drawn for any point on this curve, excluding the extreme ends, the tangent will not cross the vein) (Figs 335-340).
ICI less than 0.70; Madagascar 37
- $Rs+2r$ more or less sinuate or virtually straight; anterior margin of vein thus varies from a straight line to a sinuous curve (so that if a hypothetical tangent is drawn for any point on this line then the tangent will usually cross the vein) (Figs 341-460) 42
- 37(36) Forewing with ICI = 0.60-0.70; proximal sclerite ovate; central sclerite oval, weakly pigmented and positioned in centre of fenestra (Fig. 335).
Occipital carina mediodorsally wanting *JANAKUS* sp. n. (p. 75)
- Forewing with ICI less than 0.59; alar sclerites various, never as above (Figs 336-340) 38
- 38(37) Fenestra with a single elongately oval sclerite close to distal margin (Fig. 336); proximal sclerite absent; pronotal margin moderately up-turned (Fig. 150).
AI about 3.00; mandibles strongly tapered, upper tooth very much the longer (Fig. 157) *VOLITIUS* sp. n. (p. 76)
- Fenestra with at least one sclerite positioned near the proximal margin; distal sclerite present or absent, not oval (Figs 337-340); pronotal margin simple 39
- 39(38) Forewing with CI about 0.30; proximal sclerite more or less triangular, postero-distally confluent with narrow distal sclerite bordering the posterior margin of the fenestra (Fig. 337).
Epicnemial carina not reaching above lower corner of pronotum; thyridia large, separated from anterior margin of tergite by about 1.5 times its own length *INDOVUS* sp. n. (p. 76)
- Forewing with CI greater than 0.50; 2 separate, rather irregular shaped sclerites present in fenestra (Figs 338-340) 40

- 40(39) Alar sclerites positioned so that one is anterior to the other; posterior sclerite more or less J-shaped, anterior one poorly delineated, cuniform (Fig. 338).
Forewing with ICI = 0.35-0.50 *ANTIMENA* (Saussure) (p. 77)
- Alar sclerites positioned so that one is distal to the other, both being more or less cuniform, ellipsoidal or ovate, never J-shaped (Figs 339-340) 41
- 41(40) Distal sclerite cuniform, its most acute corner directed antero-proximally; proximal sclerite oval (Fig. 339); upper mandibular tooth slightly the longer (Fig. 154) *CARIOSUS* (Enderlein) (p. 78)
- Distal sclerite ellipsoidal with more acute corner directed proximally (Fig. 340); proximal sclerite triangular; mandibular teeth subequal, or with lower tooth slightly the longer (Fig. 152) *DAMIUS* sp. n. (p. 79)
- 42(36) Fenestra with a single, very small, circular or oval sclerite positioned more or less centrally (Figs 341, 342).
 $Rs+2r$ moderately to strongly sinuate; CI greater than 0.70 43
- Fenestra with one or more sclerites, if with a single sclerite then this is linear, reniform or subtriangular, if very rarely it is oval then it is close to or adjacent with the fenestral margin 45
- 43(42) Alar sclerite more or less circular; ICI less than 0.50 (Fig. 341); hind trochantellus often mediodorsally more than 0.3 times as long as broad (Fig. 161) *ABESSYNIENSIS* (Szépligeti) (p. 79)
- Alar sclerite oval; ICI more than 0.60 (Fig. 342); hind trochantellus mediodorsally less than 0.2 times as long as broad (Fig. 162) 44
- 44(43) Propodeum with strong concentric striae; mesopleuron punctostriate (Fig. 159); alar sclerite distal to sector by about 3.0 times its own maximum diameter (Fig. 342) *LANCASTERI* sp. n. (p. 80)
- Propodeum with weak irregular wrinkling; mesopleuron finely alutaceous (Fig. 158); alar sclerite distal to sector by at most 1.0 times its maximum diameter (Fig. 343) *MICROSPILUS* sp. n. (few specimens) (p. 81)
- 45(42) Forewing with 2 proximal sclerites, an ellipsoidal one positioned anteriorly to a triangular one (Fig. 344); hind tarsal claws of ♀ asymmetrical, the inner geniculate and basally lobate, the outer normal (Figs 537, 538).
ICI less than 0.20; distal sclerite distinct, not confluent with proximal sclerites; mesoscutum dark brown with longitudinal yellow stripes *NEFARIUS* sp. n. (p. 81)
- Forewing with only a single proximal sclerite; hind tarsal claws various 46
- 46(45) Inter-ocellar area and terminal segments of gaster black; alitrunk reddish; clypeus in profile convex 47
- Inter-ocellar area or terminal segments of gaster not black unless, rarely, entire insect is black, or in one species which has the inter-ocellar area black and the terminal segments of the gaster slightly infuscate the clypeus in profile is flat; clypeus in profile otherwise various; alitrunk variously coloured 51
- 47(46) Fore tibia flattened with numerous moderately long spines on anterior surface; flagellum rather short, 50-51 segmented, the central segments less than 2.1 times as long as broad.
Mandibular teeth very unequal, the upper conspicuously the longer; mesopleuron punctostriate (Fig. 164) *LUEBBERTI* (Enderlein) (in part) (p. 82)
- Fore tibia not strongly flattened and with weak scattered spines on anterior surface; flagellum usually elongate, central segments often more than 2.1 times as long as broad 48
- 48(47) Hind tarsal claws with 8 widely interspaced very short pectinae (Figs 540, 541); malar space 0.4-0.7 times as broad as basal mandibular width (Fig. 171); mesopleuron closely punctate (Fig. 165); flagellum with 50-52 segments *AGROPHUS* sp. n. (p. 83)
- Hind tarsal claws with more than 8 fairly closely inter-spaced rather long pectinae (Figs. 542-547); malar space usually less than 0.5 times as broad as basal mandibular width; mesopleuron punctostriate to striate (Figs. 166-168); flagellum with 54+ segments 49
- 49(48) Lower face subquadrate, 0.9-1.1 times as broad as long (Fig. 177); mesopleuron impunctate, highly polished, finely striate (Fig. 167) metapleuron with obsolescent alutaceous sculpturing; flagellum 55-62 segmented *APICALIS* (Szépligeti) (p. 83)
- Lower face elongate, less than 0.85 times as broad as long (Fig. 178); mesopleuron usually punctostriate, very rarely virtually impunctate (Fig. 168); metapleuron punctate to striate; flagellum 60-70 segmented 50
- 50(49) Upper tooth of mandible about 1.8 times as long as the lower (Fig. 173); metapleuron regularly and moderately sparsely punctate (Fig. 168).
South African species *DRAKENSBERGI* sp. n. (p. 84)
- Upper tooth of mandible about 1.3 times as long as the lower tooth (Fig. 170); metapleuron punctostriate to coarsely closely punctate (Fig. 166) *JUSTUS* (Seyrig) (p. 85)
- 51(46) Central sclerite entirely absent, or in a few species with it represented by an indistinctly delineated and almost entirely unpigmented spot 52
- Central sclerite or sclerites present, clearly delineated for at least part of their periphery, pigmented and often thickened 91
(Intermediate specimens may be traced through either half of the couplet)
- 52(51) Proximal sclerite linear, confluent with distal sclerite, the two together forming a narrow U-shaped sclerite bordering the fenestra (Fig. 350).
ICI less than 0.40; abscissa of *M* between $2m-cu$ and $3rm$ slightly bowed forward; mandibular teeth slender, the upper tooth flattened dorsoventrally *TAXUS* sp. n. (p. 86)
- Proximal sclerite variously shaped, if rarely linear then never confluent with distal sclerite 53
- 53(52) Hind leg with trochantellus very long, mediodorsally as long as or longer than broad (Fig. 175).
Metapleuron obsoletely punctate, often longitudinally striate; alitrunk often badius; flagellum with central segments more than 2.0 times as long as broad; East African mountains 54
- Hind leg with trochantellus rather short, mediodorsally conspicuously shorter than broad (Fig. 176) 56
- 54(53) Insect almost entirely badius, only posterior orbits pale marked; abscissa of *M* between $2m-cu$ and $3rm$ less than 1.0 times as long as $2m-cu$; lower face elongate, less than 0.85 times as broad as long.
Mesoscutum in profile with a distinct concavity before anterior margin; flagellum very long, ♀ with 62+, ♂ with 64+ segments *DIABOLICUS* sp. n. (p. 86)

- Insect with at least tergites 1-3 of gaster red; abscissa of *M* between *2m-cu* and *3rm* 1.05 times as long as *2m-cu*; lower face often more than 0.80 times as broad as long 55
- 55(54) Alitrunk entirely badius, the mesopleuron matt, obsoletely punctate to finely alutaceous; malar space about 0.4 times as long as basal mandibular width *ENICOSPILUS* SPECIES 5 (p. 87)
- Alitrunk almost entirely reddish-brown, the mesopleuron subpolished and striate; malar space 0.6 times as long as basal mandibular width *COMMUNIS* Szépligeti (p. 129) (few specimens)
- 56(53) Inter-ocellar area black, generally contrasted with remainder of vertex 57
- Inter-ocellar area reddish, yellowish or white, generally concolorous with remainder of vertex 61
- 57(56) Anterior margin of pronotum strongly up-turned, the medial margin impressed, turned backwards to almost meet an anterior extension of the mesoscutum (Fig. 181); forewing with AI greater than 2.00 (Fig. 352).
Rs+2r almost straight; sclerite small and oval *MAHALONIUS* sp. n. (p. 87)
- Anterior margin of pronotum not mediodorsally up-turned, at most very slightly thickened; forewing with AI less than 1.40 58
- 58(57) *Rs+2r* very strongly sinuate; fenestra very large, extending distal to level of *2m-cu* and with distal margin closer to base of *Rs* than length of *3rm* (Fig. 353) *MAURITHI* (Saussure) (p. 88)
- *Rs+2r* straight, weakly sinuate or centrally "kinked"; fenestra moderately large, not extending distal to level of *2m-cu* and with distal margin usually further from base of *Rs* than length of *3rm* (Figs 354-356) . . . 59
- 59(58) Forewing with *Rs+2r* centrally with a pronounced "kink"; proximal sclerite of irregular shape, distally somewhat bilobate (Fig. 354); ♂ with sternites 6-8 bearing sparse fine decumbent hair (Fig. 182) *SLIOCHUS* sp. n. (p. 90)
- Forewing with *Rs+2r* virtually straight; proximal sclerite triangular (Figs 355, 356); ♂ with sternites 6-8 bearing long thickened erect hair (Fig. 183) 60
- 60(59) Clypeus in profile strongly swollen, apical margin blunt (Fig. 185); meso- and metapleurae punctate (Fig. 187); genae broad, weakly posteriorly constricted.
Dark reddish-brown species *PESCATOR* (Seyrig) (p. 90)
- Clypeus in profile weakly convex, margin in-turned, acute (Fig. 184) meso- and metapleurae striate (Fig. 186); genae narrow, posteriorly strongly constricted *DOLOSUS* (Tosquinet) (p. 91)
- 61(56) Forewing with a single elongate sclerite which is more than 4.0 times as long as wide and with longest two sides sub parallel (Figs 357-359).
Madagascan species 62
- Forewing with proximal sclerite triangular, cuniform, oval or reniform 64
- 62(61) *Rs+2r* very straight; forewing with CI less than 0.30 (Fig. 357); small species, forewing length about 10mm *BELOSUS* sp. n. (p. 92)
- *Rs+2r* centrally angled to sinuate; forewing with CI greater than 0.60; large species, forewing length 16mm+ 63
- 63(62) Distal part of discosubmarginal cell slightly constricted by *Rs+2r* approaching *1m-cu*; sclerite long and narrow but virtually straight (Fig. 358) *PUNCTIPINNIS* (Saussure) (p. 93)
- Distal part of discosubmarginal cell fairly evenly tapered; sclerite very long and narrow, slightly crescentic. (Fig. 359) *FANANUS* sp. n. (p. 93)
- 64(61) Pronotum mediodorsally with anterior margin strongly up-turned and with the extreme edge turned backwards; anterior margin of mesoscutum in the mid line projecting slightly beyond margin of pronotum (Figs. 188, 189).
Madagascan species 65
- Pronotum simple, mediodorsally with anterior margin very weakly up-turned or thickened or flat; anterior margin of mesoscutum not extending beyond margin of pronotum 66
- 65(64) Mesopleuron highly polished with deep punctures (Fig. 188); *Rs+2r* almost straight; proximal sclerite triangular, distally extended along margin of fenestra but not joining vestigial distal sclerite (Fig. 360) *RETSIFOIUS* sp. n. (p. 94)
- Mesopleuron matt, punctostriate (Fig. 189); *Rs+2r* sinuate rather strongly; proximal sclerite oval, distal sclerite absent (Fig. 361) *LANAFIUS* sp. n. (p. 94)
- 66(64) Forewing with CI greater than 0.75; large Madagascan species with forewing length greater than 13mm; epicnemial carina usually vestigial above lower corner of pronotum 67
- Forewing with CI less than 0.74, usually less than 0.65, very rarely in few specimens of one species with CI more than 0.75 but then forewing length less than 12mm; species otherwise of various size and from various regions; epicnemial carina often (but not always) reaching well above lower corner of pronotum 71
- 67(66) Forewing with AI less than 0.90; fenestra postero-distally occluded by an area of short dense hairs which are separated from the slightly longer sparser pubescence of the wing membrane by a vestigial distal sclerite (Fig. 362) *XANDARUS* sp. n. (p. 95)
- Forewing with AI more than 0.95; fenestra glabrous 68
- 68(67) Proximal sclerite small, ovate; distal portion of discosubmarginal cell strongly constricted immediately distal to fenestra (Fig. 343).
Mesopleuron matt with more or less contiguous obsolescent punctures overlaid by fine reticulation *MICROSPILUS* sp. n. (p. 81) (most specimens)
- Proximal sclerite of moderate size, triangular; distal portion of discosubmarginal cell generally not constricted beyond fenestra except in one species which has the mesopleuron punctate and polished 69
- 69(68) Proximal sclerite not distally extended; *Rs+2r* from almost straight to somewhat sinuate (Figs. 363-364); upper mandibular tooth not at all dorsally flattened (Fig. 193) *VORIKUS* sp. n. (p. 95)
- Proximal sclerite distally extended into a tail; *Rs+2r* strongly sinuate (Figs. 365, 366); upper mandibular tooth slightly dorsoventrally depressed (Fig. 192) 70
- 70(69) Meso- and metapleurae matt, obsoletely punctate, overlaid by fine aluto-striation; propodeum dorsally with weak transverse striations (Fig. 191); SDI = 1.80 *FAMANTRUS* sp. n. (p. 96)

- Meso- and metapleurae polished with strong deep punctures and no trace of striation; propodeum dorsally reticulate (Fig. 190); SDI = 1.10-1.40 *OSWALDI* (Saussure) (p. 96)
- 71(66) *Rs+2r* exceptionally strongly sinuate, bowed forwards; fenestra very large and extending distal to level of *2m-cu* with distal margin separated from base of *Rs* by only slightly more than length of hair bordering fenestra (Fig. 367) *RECAVUS* sp. n. (p. 97)
- *Rs+2r* weakly to moderately sinuate; fenestra of moderate size, always with distal margin much farther from base of *Rs* than length of hair bordering fenestra (Figs 368-385) 72
- 72(71) Proximal sclerite comma-shaped or reniform (Figs 368, 369, 430) 73
- Proximal sclerite triangular or oval (Figs 370-385) 75
- 73(72) Clypeus 1.8 or more times as broad as long, in profile strongly swollen, subapically impressed marginally out-turned; mandibles elongate, for distal 0.6 parallel sided, upper tooth more than 2.5 times lower (Fig. 195). Mesopleuron punctostriate *NUBECULATUS* Seyrig (p. 98)
- Clypeus less than 1.7 times as broad as long, in profile weakly convex, apically in-turned; mandibles moderately long, usually more or less evenly tapered with upper tooth less than 2.0 times length of lower . . . 74
- 74(73) Forewing with AI greater than 1.00; distal sclerite entirely absent; fenestra about 1.5 times as broad as long (Fig. 369) *ICTERUS* sp. n. (p. 98)
- Forewing with AI less than 1.00; distal sclerite present, confluent with proximal sclerite; fenestra about 2.0 times as broad as long (Fig. 430) *PACIFICUS* (Holmgren) (p.) (few aberrant individuals)
- 75(72) Clypeus in profile weakly to strongly convex, apically either in-turned or subapically impressed with margin out-turned (Fig. 218) 76
- Clypeus in profile flat with apical margin neither impressed, out-turned nor in-turned (Fig. 219) 85
- 76(75) Lower mandibular tooth very slightly the longer (Fig. 194).
Forewing with AI greater than 0.95 and with CI greater than 0.40 *BANTU* (Schulz) (p. 99)
- Lower mandibular tooth from as long as to conspicuously shorter than the upper tooth (Figs. 213-217) . . . 77
- 77(76) Forewing with AI greater than 1.00, usually greater than 1.05, if very rarely 1.00-1.05 then with CI greater than 0.60; CI otherwise 0.45-0.70 78
- Forewing with AI less than 1.00, usually less than 0.80, if very rarely 0.80-1.00 then with CI less than 0.50; CI otherwise 0.15-0.55 80
- 78(77) Posterior side of proximal sclerite about 2.0 times as long as antero-proximal side and with distal corner becoming progressively more weakly sclerotized distally (Fig. 371); propodeum with strong transverse striae on posterior part of posterior area *SPHENUS* sp. n. (in part)(p. 100)
- Posterior side of proximal sclerite at most 1.5 times as long as antero-proximal side and with distal corner more or less sharply delineated (Figs 372-378); propodeum with weak to moderately strong irregular wrinkling 79
- 79(78) Mandible fairly short, evenly and weakly narrowed, subequally bidentate and with a groove running from the upper proximal corner to between teeth, this groove bearing a band of closely packed long hairs (Fig. 214); metapleuron aluto-striate with scattered punctures (Fig. 200) *HELVOLUS* sp. n.(p. 100)
- Mandible moderately long, proximally strongly constricted and distally weakly narrowed with upper tooth distinctly the longer; outer mandibular surface without a groove, with scattered hairs (Fig. 217); metapleuron virtually impunctate, longitudinally striate (Fig. 198) *DUBIUS* (Tosquinet)(p. 101)
- 80(77) Mandibles weakly and rather evenly narrowed from base to apex, outer surface with isolated hairs, the teeth subequal in length (Fig. 213); metapleuron strongly inflated; CI less than 0.30.
Mesopleuron punctostriate; central flagellar segments less than 2.0 times as long as broad *BREVICORNIS* (Masi)(p. 103)
- Mandibles proximally strongly narrowed with at least distal 0.5 more or less parallel sided (Figs 215, 216); outer mandibular surface usually with a median band of dense hair; mandibular teeth from subequal to very unequal; metapleuron weakly inflated; CI usually greater than 0.30 81
- 81(80) Upper mandibular tooth less than 1.5 times as long as lower; head when viewed dorsally subquadrate (Fig. 211); malar space 0.5-0.6 times as long as basal mandibular width (Fig. 207) *HENRYI* sp. n.(p. 103)
- Upper mandibular tooth more than 2.0 times as long as the lower; head when viewed dorsally transverse (Fig. 210); malar space less than 0.4 times as long as basal mandibular width (Fig. 206) 82
- 82(81) Notauli strongly impressed, reaching 0.4 of length of mesoscutum; fenestra with central sclerite represented by a large weakly pigmented spot *CAPENSIS* (Thunberg)(p. 143) (few aberrant specimens)
- Notauli vestigial to weakly impressed only on anterior 0.2 of mesoscutum; central sclerite small and vestigial or absent 83
- 83(82) Mandible without a strongly impressed diagonal furrow (Fig. 216); 20th flagellar segment 2.1-2.4 times as long as broad; lower face unicolorous, yellowish or brownish.
Mesopleuron punctostriate; mid tibial spurs not exceptionally unequal, the shorter more than 0.6 of the length of the longer *LEIONOTUS* (Tosquinet)(p. 106)
- Mandible with a strongly impressed diagonal furrow extending from upper proximal corner to between teeth (Fig. 215); 20th flagellar segment less than 2.0 times as long as broad; lower face centrally dark, orbits paler 84
- 84(83) Mesopleuron on lower half punctate regularly (Fig. 199); mid tibial spurs not strongly unequal, the shorter more than 0.65 times the length of the longer and of similar thickness (Fig. 204); central sclerite usually entirely absent (Fig. 377) *HERERO* (Enderlein)(p. 104)
- Mesopleuron punctostriate on lower part (Fig. 201); mid tibial spurs strongly unequal, the shorter less than 0.60 times as long as the longer and conspicuously thinner (Fig. 205); central sclerite represented by a small vestige (Fig. 376) *ENICOSPILUS* SPECIES 6 (p. 104)
- 85(75) Forewing with ICI greater than 0.80 (Fig. 381); propodeum with posterior area coarsely rugose (Fig. 224).
Pale yellow species; propodeal spiracle anterior to transpropodeal furrow *GRANDIFLAVUS* Townes & Townes(p. 107)

- Forewing with ICI less than 0.75 (Figs 382-385); propodeum with posterior area reticulate or finely wrinkled (Figs 222-223) 86
- 86(85) Forewing with proximal sclerite proximally evenly rounded with anterior and posterior sides subparallel, distally indistinctly delineated (Fig. 382).
Scutellum ivory or yellowish; *Rs+2r* medially swollen; head with genae rather weakly constricted *ALBINGER* (Kriechbaumer) (p. 108)
- Forewing with proximal sclerite more or less triangular, never exactly as above (Figs 379, 380, 383-385) 87
- 87(86) Scutellum ivory; lower face very narrow, less than 0.65 times as broad as long, with broad ivory orbital stripes.
Dark reddish brown species with ivory markings on head and alitrunk *ENICOSPILUS* SPECIES 4
- Scutellum reddish to yellowish-brown; lower face 0.65 times or more as broad as long, usually without pale orbital stripes 88
- 88(87) Forewing with SDI greater than 1.60; proximal sclerite small, distally elongately extended (Fig. 371)
CI = 0.60+; Madagascar *SPHENUS* sp. n. (in part) (p. 100)
- Forewing with SDI less than 1.60; proximal sclerite large, more or less evenly triangular 89
- 89(88) Anterior propodeal area mediodorsally longer than spiracular area, the transpropodeal furrow which separates them runs behind the spiracles (Fig. 222); proximal corner of proximal sclerite evenly rounded (Fig. 383) *PROSPIRACULARIS* sp. n. (p. 109)
- Anterior propodeal area mediodorsally shorter than spiracular area, the transpropodeal furrow running in front of the spiracles (Fig. 223); proximal corner of proximal sclerite angled (Figs 384-385) 90
- 90(89) ♂ with gonosquama bearing a small acute protuberance on postero-distal corner (Fig. 227); subterminal flagellar segments about 2.0 times as long as broad (Fig. 226); scutellum 1.8-2.0 times as long as broad anteriorly *RUFUS* (Brullé) (p. 109)
- ♂ with gonosquama simply terminally rounded; subterminal flagellar segments about 1.7 times as long as broad (Fig. 225) scutellum usually less than 1.8 times as long as broad anteriorly *QUIETUS* (Seyrig) (p. 111)
- 91(51) Fenestra with 2 or more central sclerites differentiated (Figs 386-402), rarely with the most posterior of these weakly pigmented 92
- Fenestra with only 1 central sclerite distinguishable 105
- 92(91) Fenestra with 3 or more central sclerites present (Figs 386, 387) 93
- Fenestra with only 2 central sclerites present (Figs 388-402) 94
- 93(92) Fenestra with 3 central sclerites, the anterior and posterior ones ovate, the middle one reniform (Fig. 386); mandible rather weakly and evenly narrowed (Fig. 228) *BABAULTI* (Seyrig) (p. 112)
- Fenestra with 5 or 6 central sclerites, the anterior one linear, the middle one almost J-shaped and the posterior 3 oval or circular, sometimes with the most distal of these ovate, or with this sclerite subdivided into 2 circular sclerites (Fig. 387); mandible proximally constricted, distally almost parallel sided (Fig. 229) *POLYSPILUS* sp. n. (p. 112)
- 94(92) Central sclerites long and narrow, together forming a more or less U-shaped sclerite with a narrow medio-ventral discontinuity between the sclerites (Fig. 388)
Mesopleuron striate *DIVISUS* (Seyrig) (p. 113)
- Central sclerite of various shape, never together forming a U-shaped sclerite 95
- 95(94) Proximal and 2 central sclerites of approximately the same surface area (Fig. 389); hind tarsal claws asymmetrical, the outer normally curved, the inner strongly geniculate, basally lobate (Figs 599, 600).
Upper mandibular tooth flattened; coxae, most of alitrunk and gaster except tergite 2 badius *DRYMOSUS* sp. n. (p. 114)
- Proximal sclerite always very much larger than one or other of the central sclerites; hind tarsal claws usually more or less symmetrical 96
- 96(95) One central sclerite closer to proximal sclerite than it is to the other central sclerite; forewing with ICI and CI less than 0.50 (Figs. 390-391) 97
- Either with central sclerites closer to each other than either is to the proximal sclerite, or with an elongate sclerite close to and parallel with the margin of proximal sclerite, or with ICI and CI greater than 0.60 98
- 97(96) Clypeus in profile almost flat, apical margin weakly inturned (Fig. 233); insect uniformly brownish-red *MELEDONOSUS* sp. n. (p. 114)
- Clypeus in profile convex, apical margin very strongly inturned (Fig. 232); insect pale yellowish with profuse badius markings on face, gaster, alitrunk and coxae *VATIUS* sp. n. (p. 115)
- 98(96) Forewing with CI less than 0.25; fenestra with a moderately large central sclerite positioned distal to a minute second central sclerite (Fig. 392).
Alitrunk profusely pale marked; Madagascan species *KADIOSUS* sp. n. (p. 115)
- Forewing with CI more than 0.30; central sclerites generally placed so one is anterior to the other and usually both of moderate or large size 99
- 99(98) Insect more or less entirely badius, clothed with obvious fine white pubescence; meso- and metapleurae submatt, impunctate, finely and evenly micro-reticulate (Fig. 236).
Hind tarsal claws asymmetrical, the inner somewhat more angularly curved than the outer *RUWENZORIUS* sp. n. (p. 116)
- Insect not entirely badius and generally with inconspicuous pubescence; meso- and metapleurae various, usually polished and punctate to striate, never evenly micro-reticulate 100
- 100(99) Most anterior of central sclerites quadrate, proximally indistinctly delineated; postero-central sclerite more or less J-shaped (Fig. 394).
Propodeum with fine irregular wrinkling *CITTUS* sp. n. (p. 116)
- Anterior central sclerite usually linear, crescentic or L-shaped, never quadrate; postero-central sclerite linear, circular or crescentic (Figs 395-402) 101

- 101(100) Proximal sclerite more or less L-shaped, its proximal corner angled at 80°-90° (Figs 395, 397, 398) 102
 - Proximal sclerite more or less triangular, its proximal corner either rounded or very acutely angled (Figs 396, 399-402) 103
- 102(101) Postero-central sclerite minute and circular (Fig. 395); propodeum rugose (Fig. 239); hind tarsal claws more or less symmetrical; forewing with ICI about 0.70 *HECASTUS* sp. n.(p. 117)
 - Postero-central sclerite from small and crescentic to long and "sausage-shaped" (Figs 397, 398); propodeum finely transversely wrinkled (Fig. 240); hind tarsal claws somewhat asymmetrical, the inner more abruptly curved; ICI = 0.40-0.50 *SIMANDRIUS* sp. n.(p. 117)
- 103(101) Forewing with ICI and CI both less than 0.45; hind tarsal claws asymmetrical; postero-central sclerite very weakly sclerotized, indistinctly delineated (Fig. 396).
 Clypeus in profile moderately convex; gaster badius, tergite 2 pale yellow *DRASMOSUS* sp. n. (in part)(p. 118)
 - Forewing with ICI and CI usually greater than 0.50, if rarely with one slightly less than 0.50 then the other is conspicuously greater than 0.50; hind tarsal claws symmetrical; postero-central sclerite sometimes strongly pigmented and partially distinctly delineated (Figs 399-402, 404) 104
- 104(103) Proximal angle of proximal sclerite very acute, 30°-40° (Figs 399-402); postero-central sclerite often long and narrow, parallel to posterior margin of fenestra *BIIMPRESSUS* (Brullé) (in part)(p. 119)
 - Proximal angle of proximal sclerite from rounded to moderately acute, 50°-60° (Fig. 404); postero-central sclerite usually oval or crescentic, often subparallel to distal margin of fenestra *SEMINIGER* (Szépligeti)(p. 120)
- 105(91) Proximal sclerite crescentic or D-shaped, widely separated from central sclerite and with the space between these sclerites bearing a more or less detached infumate quadra (Figs 405-407); clypeus in profile convex, with apical margin strongly in-turned 106
 - Proximal sclerite usually more or less triangular, if rarely crescentic or D-shaped then either it is very close to the central sclerite or it is moderately widely separated from it but the intervening area does not bear an obvious detached quadra (Figs 408-461); clypeus from flat to strongly convex 108
- 106(105) Distal sclerite entirely absent; ICI greater than 0.45; AI less than 0.90 (Fig. 405).
 Proximal and central sclerites small, of similar size and shape *AMARUS* sp. n.(p. 121)
 - Distal sclerite present; ICI less than 0.45; AI greater than 1.00 (Figs 406, 407) 107
- 107(106) Proximal sclerite very much larger than central sclerite, the former comma-shaped (Fig. 406); propodeum transversely wrinkled (Fig. 237); dark reddish-brown species *RUBENS* (Tosquinet)(p. 122)
 - Proximal sclerite only slightly larger than central sclerite, the former stoutly crescentic (Fig. 407); propodeum coarsely reticulate (Fig. 238); orange-red species *CORRUGANS* (Enderlein)(p. 122)
- 108(105) Fore tibia and basitarsus and usually also the 2nd tarsal segment bearing on antero-distal surfaces numerous large thickened spines which are basally separated by less than their own length (Fig. 245); head when viewed dorsally with genae somewhat inflated 109
 - Fore tibia and tarsi with at most a relatively few scattered spines on anterior surfaces (Fig. 246); head when viewed dorsally various, often with genae not at all inflated 110
- 109(108) Inter-ocellar area black; proximal sclerite more or less equilaterally triangular (Fig. 345); distal 0.5 of fore tibia in transverse section more or less circular; outer surface of mandible with a median longitudinal groove which is not extended to upper proximal corner (Fig. 242) *LUEBBERTI* (Enderlein) (in part) (p. 82)
 - Inter-ocellar area yellowish-brown; proximal sclerite with proximal angle about 40°, posterior side longer than either of the other two sides (Fig. 403); distal 0.5 of fore tibia in section oval, the anterior side flattened; outer surface of mandible with a groove extending from upper proximal corner to between bases of teeth (Fig. 241) *BATUS* sp. n.(p. 123)
- 110(108) Malar space very broad, at least 0.7 times the width of the mandibular base (Figs. 247, 248); head with genae swollen in dorsal aspect 111
 - Malar space 0.6 times or less, generally very much less, times as long as basal mandibular width 113
- 111(110) Clypeus in profile more or less flat, but with apical margin in-turned (Fig. 248); ICI less than 0.50; outer surface of mandible more or less flat; terminal segments of gaster reddish *OVIUS* sp. n.(p. 123)
 - Clypeus in profile convex with apical margin impressed (Fig. 247); ICI more than 0.60; outer surface of mandible with a groove extending from proximal upper corner towards bases of mandibular teeth; terminal segments of gaster infusate
- 112(111) Upper tooth of mandible at least 3.0 times as long as the lower, the mandible twisted about 10° (Fig. 247) *ENICOSPILUS* SPECIES 1(p. 124)
 - Upper tooth of the mandible less than 2.0 times as long as lower, the mandible twisted at least 40° (Fig. 243) *RETI* sp. n.(p. 124)
- 113(110) Clypeus medially exceptionally strongly swollen into a large nasute promontory (Fig. 244); tarsal claws of ♀ with central pectinae as long as apex of claw (Fig. 648).
 Inter-ocellar area blackish; upper mandibular tooth dorso-ventrally flattened; central sclerite small *VONTALIS* sp. n.(p. 125)
 - Clypeus flat to strongly swollen but never with swelling in form of a large nasute promontory; central pectinae of tarsal claws usually shorter than claw apex 114
- 114(113) Inter-ocellar area uniformly black 115
 - Inter-ocellar area reddish or yellowish, rarely somewhat infusate close to ocellar margins 121
- 115(114) Propodeum in profile exceptionally long, dorsally virtually without sculpture, highly polished (Fig. 249); scutellum only laterally carinate for 0.5 of its length; anterior transcarina of propodeum reduced to a central vestige
 Ruwenzori mountains *ANAXEUS* sp. n.(p. 125)
 - Propodeum in profile short to moderately long, dorsally with posterior area strongly sculptured (Figs 250-251); scutellum laterally carinate for at least 0.8 of its length; anterior propodeal transcarina complete 116
- 116(115) Apex of hind tarsal claw turned through an angle of about 110° with pectinae very short (Figs 634, 635) *BEBELUS* sp. n.(p. 126)

- Apex of hind tarsal claw turned through about 90°, with pectinae of normal length (Figs 636-644) 117
- 117(116) Forewing with AI greater than 0.90 118
- Forewing with AI less than 0.85 119
- 118(117) Central sclerite small, separated from R_{s+2r} by more than its greatest diameter; proximal sclerite ellipsoidal, distally poorly sclerotized (Fig. 413) *CEDNUS* sp. n. (p. 126)
- Central sclerite large, separated from R_{s+2r} by about its maximum diameter or less; proximal sclerite triangular, evenly sclerotized (Fig. 415) *DAULUS* sp. n. (p. 127)
- 119(117) Central sclerite represented by a strongly sclerotized oval which is separated from R_{s+2r} by less than its maximum diameter (Fig. 416).
Alitrunk reddish to badius *FURIUS* (Seyrig) (p. 127)
- Central sclerite represented by a weak ellipsoidal fleck which is separated from R_{s+2r} by more than its maximum diameter (Figs 417, 420) 120
- 120(119) Head in dorsal view with genae short, strongly narrowed (Fig. 253); mesopleuron almost impunctate, finely striate (Fig. 250); upper mandibular tooth about 1.5 times, or less, as long as lower (Fig. 256); alitrunk badius *ENICOSPILUS* SPECIES 2 (p. 128)
- Head in dorsal view with genae longer, slightly inflated (Fig. 252); mesopleuron puncto-striate (Fig. 251); upper mandibular tooth more than 1.6 times as long as the lower (Fig. 255); alitrunk reddish brown *COMMUNIS* (Szépligeti) (p. 129) (most specimens)
- 121(114) Proximal sclerite narrowly crescentic, positioned distal to sector (Fig. 419).
Central sclerite small, ovate; lower face in profile almost flat; AI more than 1.00; Madagascar *FETUS* sp. n. (p. 130)
- Proximal sclerite not as above, usually triangular, rarely reniform or L-shaped, but in such cases it is opposite or proximal to apex of marginal angle 122
- 122(121) Proximal sclerite more or less thorn-shaped, that is with proximal corner very acute and with distal margin slightly concave (Figs 399-402).
Anterior margin of central sclerite parallel to R_{s+2r} ; quadra very large, proximally either bilobed or with transparent area, often with postero-proximal margin of quadra thickened *BIIMPRESSUS* (Brullé) (in part) (p. 119)
- Proximal sclerite not thorn-shaped, usually triangular, less commonly reniform or L-shaped 123
- 123(122) Hind tarsal claws conspicuously asymmetrical, the outer normal, the inner exceptionally strongly curved and basally lobate and with a short pecten (Figs 651-654); AI always greater than 0.80 124
- Hind tarsal claws more or less symmetrical both of similar curvature and pectenation; AI various 129 (Intermediate specimens will key through either half of couplet.)
- 124(123) Lower edge of mandible with a distinct angulation close to base of lower tooth (Fig. 257); mid and hind trochantelli apically produced into an acute tooth; forewing with CI greater than 0.70 (Fig. 418) *GLARUS* sp. n. (p. 130)
- Lower edge of mandible evenly curved, without an angulation; mid and hind trochantelli simple; forewing with CI less than 0.65 125
- 125(124) Scutellum matt, finely alutaceous; meso- and metapleurae finely alutaceous (Figs 259, 261); propodeum finely wrinkled 126
- Scutellum polished, usually punctate; meso and metapleurae punctate, puncto-striate or striate (Figs 258, 260); propodeum coarsely wrinkled 127
- 126(125) Submetapleural carina anteriorly broadened, at widest point about 3.0 times as broad as minimum propodeal spiracular diameter (Fig. 259); meso and metapleurae polished; inner hind tarsal claw basally lobate, ♀ with short stout pectinae, ♂ with similar but with more numerous closely packed pectinae *HOPLUS* sp. n. (p. 131)
- Submetapleural carina more or less parallel sided, at widest point about 1.0 times as broad as minimum diameter of propodeal spiracle (Fig. 261); meso- and metapleurae matt; inner hind tarsal claw with small basal lobe, ♀ with 8-10 pectinae that are of moderate length and stout, ♂ similar but with pectinae slightly shorter.
Hind tarsal claws only weakly asymmetrical *EXPEDITUS* (Tosquinet) (in part) (p. 131)
- 127(125) Central sclerite bar-shaped, more or less parallel with R_{s+2r} (Fig. 396); mesopleuron, at least on lower 0.5, finely striate; flagellum with 63-68 segments.
Coxae pale yellowish, alitrunk black marked *DRASMOSUS* sp. n. (in part) (p. 118)
- Central sclerite more or less crescentic; mesopleuron punctate or puncto-striate; flagellum with 60-63 segments 128
- 128(127) Mesopleuron ventrally closely and evenly punctate (Fig. 258); central sclerite stoutly crescentic; proximal corner of proximal sclerite about 70° (Fig. 427) *OCTUS* sp. n. (p. 132)
- Mesopleuron ventrally puncto-striate (Fig. 260); central sclerite narrowly crescentic to oval; proximal corner of proximal sclerite about 90° (Fig. 428) *NESIUS* sp. n. (p. 133)
- 129(123) Central sclerite bar-shaped, close to and parallel with R_{s+2r} (Fig. 429); clypeus in profile flat (Fig. 264); forewing with CI greater than 0.55 and AI greater than 0.85; proximal sclerite somewhat L-shaped.
Large species, forewing length 16mm+ *LICTUS* sp. n. (p. 133)
- Central sclerite of various shape, never bar-shaped and parallel to R_{s+2r} ; either with clypeus convex or CI less than 0.50 or AI less than 0.80; proximal sclerite usually triangular, rarely comma-shaped 130
- 130(129) Proximal sclerite more or less comma-shaped (Figs 426, 430) 131
- Proximal sclerite more or less triangular (Figs 431-461) 132
- 131(130) Clypeus in profile flat (Fig. 263); AI about 1.00; central sclerite poorly defined, large, separated from R_{s+2r} by less than its minimum diameter (Fig. 426); central flagellar segments about 1.6 times as long as broad *MNOUS* sp. n. (p. 134)
- Clypeus in profile convex (Fig. 262); forewing with AI less than 0.90; central sclerite small, distinctly delineated, separated from R_{s+2r} by more than its own minimum diameter (Fig. 430); central flagellar segments more than 2.0 times as long as broad *PACIFICUS* (Holmgren) (p. 134) (most specimens)

- 132(130) Outer mid tibial spur very short, less than 0.4 times as long as the inner, sometimes also with outer hind tibial spur reduced (Fig. 266).
Lower face subquadrate, more than 0.9 times as broad as long; alitrunk profusely pale marked; Arabian species *NERVELLATOR* Aubert(p. 136)
- Outer mid tibial spur at least 0.5 times as long as inner (Fig. 265); outer hind tibial spur never reduced . . . 133
- 133(132) Proximal sclerite uniform, not confluent with distal sclerite, and with its posterior side more than 1.5 times length of distal side; proximal angle very acute, far more so than either of the other two angles (Figs 432, 433); clypeus in profile flat; mesopleuron punctate 134
- Proximal sclerite usually more or less equilaterally triangular, sometimes confluent with distal sclerite, if rarely slightly uniform then *either* with distal angle the most acute *or* with the clypeus in profile very convex *or* with mesopleuron striate; clypeus otherwise various; mesopleuron otherwise variously sculptured 135
- 134(133) Propodeum coriaceous (Fig. 269); central sclerite large, separated from *Rs+2r* by less than its own maximum diameter; distal sclerite virtually absent, represented only by an area of discoloration (Fig. 432); mesopleuron coarsely punctate *EMCEDIUS* sp. n.(p. 136)
- Propodeum concentrically wrinkled (Fig. 268); central sclerite small, separated from *Rs+2r* by more than its own maximum diameter; distal sclerite exceptionally strong, crescentic (Fig. 433); mesopleuron finely punctate *NOPS* sp. n.(p. 137)
- 135(133) Distal margin of fenestra very close to base of *Rs*, separated from it by less than 0.5 times the length of *3rm* (Figs 434-436) 136
- Distal margin of fenestra separated from base of *Rs* by more than, or a distance about equal to, the length of *3rm* (Figs 437-461) 138
- 136(135) Anterior angle of proximal sclerite about 20°; central sclerite weakly pigmented, triangular (Fig. 434).
Quadra discernible, separate from central sclerite; Aden *ODAX* sp. n.(p. 137)
- Anterior angle of proximal sclerite more than 30°; central sclerite D-shaped or oval (Figs 435, 436) 137
- 137(136) Central sclerite separated from proximal sclerite by about 2.5 times length of posterior margin of proximal sclerite; *Rs+2r* weakly bowed (Fig. 435); propodeum irregularly reticulate (Fig. 275); reddish-brown species *PLUVIUS* sp. n.(p. 138)
- Central sclerite separated from proximal sclerite by less than 1.5 times length of posterior margin of proximal sclerite; *Rs+2r* strongly sinuate (Fig. 436); propodeum transversely wrinkled (Fig. 276); pale yellow species *RUIDUS* sp. n.(p. 138)
- 138(135) *Rs+2r* straight, but often with ventral margin submedially swollen (Fig. 437) *and* with clypeus in profile flat *and* with mesopleuron with large discrete punctures (Fig. 285).
Small species, forewing length less than 11mm; alitrunk red-brown with profuse ivory markings; central sclerite minute; CI less than 0.25; posterior transverse carina of mesosternum centrally obsolescent *OCULATOR* Seyrig(p. 139)
- *Rs+2r* somewhat sinuate, rather evenly tapered from proximal 0.4 to distal apex *or* with clypeus in profile convex *or* with the mesopleuron puncto-striate and generally otherwise not as above 139
- 139(138) Propodeum, meso- and metapleurae highly polished, smooth, virtually without sculpture except for isolated punctures; lateral carinae of scutellum present only on anterior 0.2 (Fig. 270).
Hind trochantellus dorsally as long as broad; distal sclerite strongly pigmented, not confluent with proximal sclerite *ARDUUS* sp. n.(p. 139)
- Propodeum, at least on postero-dorsal surface, sculptured, usually markedly wrinkled, striate or reticulate; meso- and metapleurae from alutaceous to striate to punctate; lateral carinae of scutellum present on at least anterior 0.5 (Fig. 271) 140
- 140(139) Clypeus in profile flat *and* 20th flagellar segment less than 1.6 time as long as broad centrally.
Central sclerite large and comma-shaped (Fig. 439); pale species . . . *PALLIDUS* (Taschenberg)(p. 140)
- Clypeus in profile convex *or* 20th flagellar segment more than 1.9 times as long as broad centrally 141
- 141(140) Central sclerite narrowly crescentic, parallel to distal margin of fenestra (Fig. 440); clypeus in profile virtually flat (Fig. 278); alitrunk badious.
Mesopleuron striate; forewing with CI greater than 0.60, AI more than 1.00; propodeum transversely striate; marginal angle infumate, pterostigma piceous *MENISCUS* sp. n.(p. 141)
- Central sclerite from oval to D-shaped, trapezoidal or C-shaped, if the latter then with clypeus in profile convex; clypeus in profile otherwise from flat to convex; alitrunk usually reddish 142
- 142(141) Lower face in profile with clypeus demarcated by a furrow, but with the distal 0.5 of the clypeus flat, the apical margin sharp and in most specimens conspicuously out-turned (Fig. 267).
CI less than 0.40; central sclerite small, generally separated from *Rs+2r* by more than its own maximum diameter (Fig. 441); propodeum weakly and irregularly wrinkled, anterior transcarina weak *SESAMIAE* Delobel(p. 141)
- Clypeus in profile either not separated from face by a furrow *or* very convex and generally otherwise not as above 143
- 143(142) Mandible with a furrow (which may be rather weak) extending from upper proximal corner to between the bases of the teeth, often with long hairs arising from the furrow (Figs 279, 281, 282) 144
- Mandible with outer surface flat or rarely with a weak longitudinal concavity that is confluent with proximal impression (Figs 277, 280, 283, 284) 150
- 144(143) Upper tooth of mandible more than 2.0 times as long as the lower (Fig. 282); lower face often subquadrate, usually more than 0.85 times as broad as long; 20th flagellar segment less than 2.1 times as long as broad 145
- Upper tooth of mandible less than 1.8 times length of lower (Figs 279, 281); lower face elongate, 0.85 times or less as broad as long; 20th flagellar segment more than 2.2 times as long as broad 148
- 145(144) Proximal sclerite glabrous; hairs on centre of discosubmarginal cell separated from each other by about their own length (Fig. 442).
Central sclerite large, separated from *Rs+2r* by about its own diameter *BAJULUS* sp. n.(p. 142)

- Proximal sclerite hirsute, at least on ventral surface; hairs on centre of discosubmarginal cell separated from each other by less than their own length 146
- 146(145) Head posteriorly constricted (Fig. 272); forewing with ICI less than 0.40 (Fig. 447); very small species, forewing less than 10mm.
Sudan to Saudi Arabia *PSAMMUS* sp. n. (p. 147) (most specimens)
- Head posteriorly with genae somewhat swollen (Fig. 273); forewing with ICI greater than 0.40 (Fig. 443); small to moderately large species, forewing length often 11mm+ 147
- 147(146) Outer hind tarsal claw of ♀ with 6 short, more or less triangular, pectinae; labrum short, 0.2 times as long as basally broad.
Metapleuron exceptionally coarsely punctate; anterior transcarina of propodeum absent; forewing length about 8mm; ♂ unknown *ENICOSPILUS* SPECIES 3 (p. 143)
- Outer hind tarsal claw of ♀ with at least 8 moderately long and slender pectinae (Fig. 679); labrum of moderate length, 0.3-0.4 times as long as basally broad *CAPENSIS* (Thunberg) (p. 143)
- 148(144) Distal sclerite strongly pigmented, not confluent with proximal sclerite (Fig. 444); ♂ with sternites 6-8 bearing scattered long hairs and numerous short, fine, decumbent hairs.
Mandible with a strongly developed brush of hairs; flagellum 60-63 segmented; mandibular groove sometimes rather weak and difficult to discern *RUSCUS* sp. n. (p. 145)
- Distal sclerite confluent with proximal sclerite or very weakly pigmented and then not clearly separated from proximal sclerite (Figs 445, 446); ♂ with sternites 6-8 bearing numerous closely spaced long hairs only 149
- 149(148) Terminal segments of gaster black; central sclerite small, separated from *Rs+2r* by more than its own maximum diameter (Fig. 445) *BICOLORATUS* Cameron (p. 145)
- Terminal segments of gaster reddish; central sclerite moderately large, often separated from *Rs+2r* by less than its own maximum diameter (Fig. 446) *ANTEFURCALIS* (Szépligeti) (p. 146)
- 150(143) Upper mandibular tooth more than 2.0 times length of the lower; mandible proximally constricted but with distal 0.5 more or less parallel sided (Fig. 280); mesopleuron puncto-striate or punctate (Fig. 286); clypeus in profile weakly convex.
20th flagellar segment less than 2.1 times as long as broad; head when viewed laterally often with genae rather long 151
- Upper mandibular tooth less than 1.5 times as long as lower (Figs 283, 294-296); or if rarely between 1.5 and 2.0 times the length of the lower then either clypeus in profile flat or mesopleuron impunctate, finely striate; mandible generally evenly tapered; clypeal profile various; mesopleuron variously sculptured . . . 153
- 151(150) Flagellum with less than 50 segments; head when viewed dorsally with genae constricted (Fig. 272); small species, forewing length 6-9mm *PSAMMUS* sp. n. (p. 147) (few specimens)
- Flagellum with more than 55 segments; head with genae slightly swollen in dorsal aspect (Fig. 274); moderately large species, forewing length 12mm+ 152
- 152(151) Clypeus in profile with apical margin acute, simply in-turned (Fig. 280); hind tarsal claws with short, stout pectinae (Figs 687, 688); forewing with CI greater than 0.40 . . . *RUNDIENSIS* Bischoff (in part) (p. 148)
- Clypeus in profile with apical margin bluntly rounded (Fig. 277); hind tarsal claws with rather slender pectinae (Figs 689, 690); forewing with CI = 0.25-0.35 *KTESUS* sp. n. (p. 149)
- 153(150) Mandible weakly narrowed, distally about 0.5 times as broad as basally and with outer surface flat except for a strongly impressed proximal concavity, apically twisted about 5° (Fig. 283); clypeus in profile flat *LATUS* sp. n. (p. 150)
- Mandible not exactly as above, moderately to strongly narrowed, distally less than 0.5 times as broad as basally, sometimes with outer surface concave, usually without strong basal concavity and often twisted more than 20° (Figs 294-296); clypeus in profile from flat to convex 154
- 154(153) Central sclerite about 3 times as broad as long, distally strongly sclerotized, progressively less sclerotized proximally and with posterior margin parallel with posterior margin of fenestra and separated from it by about its own length (Figs 448, 451); hind trochantellus often more than 0.7 times as long as broad dorsally 155
- Central sclerite more or less oval and otherwise not as above; hind trochantellus dorsally often less than 0.6 times as long as broad 156
- 155(154) Mesopleuron matt or very weakly polished, coarsely punctate, sometimes on lower half grading to puncto-striate; metapleuron closely punctate (Fig. 286) *RUNDIENSIS* Bischoff (in part) (p. 148)
- Mesopleuron strongly polished, striate with fine punctures; metapleuron with obsolescent sculpture and isolated punctures (Fig. 287) *FENESTRALIS* (Szépligeti) (p. 150)
- 156(154) Central sclerite small, separated from *Rs+2r* by a distance equal to or greater than its own minimum diameter (Figs 452-454) 157
- Central sclerite large, separated from *Rs+2r* by less than its own minimum diameter (Figs 455-461) . . . 159
- 157(156) Forewing with AI greater than 1.80; hind tarsal claws distally curved through about 100°, with 7-8 short stout pectinae of which the central ones are the longest (Fig. 694).
CI about 0.25; ICI about 0.25; inter-ocellar area slightly infusate; submetapleural carina anteriorly abruptly expanded; posterior transverse carina of mesosternum centrally obsolescent *INFLEXOCARINATUS* (Enderlein) (p. 151)
- Forewing with AI less than 1.10; hind tarsal claws distally curved about 90° or less with 9 or more pectinae, the distal ones of which are of similar size (Figs 695-698) 158
- 158(157) Labrum short, about 0.2 times as long as basally broad; forewing with CI = 0.25-0.35; distal sclerite virtually absent (Fig. 452) *NATALENSIS* (Kriechbaumer) (p. 152)
- Labrum longer, about 0.4 times as long as basally broad; forewing with CI greater than 0.40 except in Madagascan specimens; distal sclerite usually strong (Fig. 454) *BRAUNSHII* (Kriechbaumer) (p. 154)
- 159(156) Mesopleuron matt, alutaceous with isolated striae; propodeum alutaceous with fine irregular wrinkles (Fig. 261).
Forewing with CI = 0.50-0.65; upper tooth of mandible dorso-ventrally compressed *EXPEDITUS* (Tosquinet) (in part) (p. 131)

- Mesopleuron subpolished to polished, aluto-striate, puncto-striate or punctate; propodeum never alutaceous, usually moderately coarsely irregularly wrinkled 160
- 160(159) Submetapleural carina anteriorly abruptly expanded into a broad triangular flange (Fig. 290); clypeus in profile flat and meso- and metapleurae punctate to puncto-striate.
Distal sclerite present; scutellum almost impunctate *KROSSUS* sp. n. (p. 155)
- Submetapleural carina more or less parallel sided or very slightly evenly anteriorly broadened (Figs 288, 289, 291-293); clypeus usually convex in profile, if flat, then meso- and metapleurae are finely striate; meso- and metapleurae otherwise punctate to striate 161
- 161(160) Head when viewed dorsally with genae rather long, the whole head thus being subquadrate (Fig. 297); internal orbits not paler than face centrally.
Mesopleuron puncto-striate to striate; central sclerite moderately large, proximally indistinctly delineated (Fig. 456) *ADDENDUS* sp. n. (p. 155)
- Head when viewed dorsally with genae short, the whole head thus being very transverse (Fig. 298); internal orbits often paler than face centrally 162
- 162(161) Distal sclerite present, clearly sclerotized, separate from proximal sclerite (Figs 457-459); central sclerite often less strongly sclerotized proximally than it is distally 163
- Distal sclerite absent or very weakly pigmented and not sclerotized (Figs 460, 461); central sclerite uniformly sclerotized, generally thick 166
- 163(162) Meso- and metapleurae uniformly striate with few scattered punctures (Fig. 288); upper tooth of mandible conspicuously flattened (Fig. 295) 164
- Meso- and metapleurae punctate, puncto-striate or almost alutaceous (Figs 291, 292); upper tooth of mandible not conspicuously flattened (Fig. 296) 165
- 164(163) Hind trochantellus mediodorsally 0.1 or less times as long as broad (Fig. 300); propodeum quite coarsely wrinkled *VORAX* Seyrig (p. 156)
- Hind trochantellus mediodorsally 0.3 times as long as broad (Fig. 299); propodeum finely wrinkled *BONABERIENSIS* Strand (p. 158)
- 165(163) Central sclerite kite-shaped, proximally tapered to a point (Fig. 458); metapleurae puncto-striate (Fig. 292) *HOVA* sp. n. (p. 158)
- Central sclerite more or less D-shaped, proximally truncated (Fig. 459); metapleurae punctate (Fig. 291) *TRANSVAALENSIS* Cameron (p. 159)
- 166(162) Meso- and metapleurae subpolished, finely striate (Fig. 289); central sclerite generally closer to $Rs+2r$ than it is to posterior margin of fenestra (Fig. 461); large rather pale yellowish species rarely with black alitrunk markings, forewing length 14-22mm *BETANIMENUS* (Saussure) (p. 160)
- Meso- and metapleurae polished, puncto-striate (Fig. 293); central sclerite usually equidistant from $Rs+2r$ and posterior margin of fenestra (Fig. 460); smaller, reddish-orange species with forewing length 12-15mm *FINALIS* sp. n. (p. 161)

***ENICOSPILUS UNIDENS* Seyrig**
(Figs 113, 301, 462)

Enicospilus unidens Seyrig, 1935 : 70. Holotype ♀, KENYA (MNHN) [examined].
Enicospilus? unidens Seyrig; Townes & Townes, 1973 : 184.

Description. Mandibles evenly narrowed, twisted about 10°, with upper tooth minute, lower tooth long; outer mandibular surface convex, punctate with scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face subquadrate, 0.90 times as broad as long with large punctures. Genae slightly swollen behind eyes; posterior ocellus separated from eye by 0.3 times its own maximum diameter; $F1 = 45\%$; occipital carina complete. Antennae moderately long with 52 flagellar segments; 1st flagellar segment 1.3-1.5 times as long as 2nd, 20th segment 1.8 times as long as broad.

Pronotum mediodorsally long, rather flat, with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, striate; epicnemial carina weak but reaching anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.5 times as long as anteriorly wide, punctate. Metapleuron with fine scattered punctures; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded with dorsal surface convex; anterior transcarina absent; anterior area striate; spiracular area smooth, posterior area reticulately wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 9-13mm; discosubmarginal cell as in Fig. 301; $AI = 0.65-0.75$; $CI = 0.20-0.25$; $ICI = 0.40-0.45$; $SDI = 0.85-0.90$; *cu-a* opposite *Rs&M*. Hindwing with 7 hamuli on R_1 ; $1A$ proximally almost straight.

Foreleg with many short spines on a slightly flattened tibia; hind coxa in profile 1.6 times as long as deep; hind trochantellus mediodorsally 0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 462.

Gaster elongate; sternite 2 with posterior margin at spiracle of tergite 2; thyridia ellipsoidal separated from anterior margin of tergite by 1.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with isolated erect long hair and a few scattered short hairs; gonosquama distally evenly rounded.

Colour generally orange-yellow; lower face yellow, flagellum orange, inter-ocellar area black.

Variation. The South African specimen is smaller than the holotype.

Remarks. This species, together with the following three, form a distinct species-group characterized by the unusual mandibles, similar alitrunk structure, black inter-ocellar area and low value of SDI. *E. unidens* is distinct from the other species in this group in having the mesopleuron striate and in possessing a central sclerite.

Distribution. This species is the only one of this species-group occurring on the African mainland. It is recorded from Kenya and South Africa.

Material examined. *Encospilus unidens* Seyrig, holotype ♀, KENYA: Landjoro (MNHN).
Non-type material. SOUTH AFRICA: 1♂, Port St. John, x.23 (Turner) (BMNH).

***ENCOSPILUS GONIDIUS* sp. n.**

(Figs 114, 302, 463)

Description. Mandibles evenly narrowed, twisted about 10°, with upper tooth minute, lower tooth long; outer mandibular surface convex, punctate with scattered pubescence. Labrum 0.4 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile convex, margin strongly out-turned, acute; clypeus in anterior aspect 2.1 times as broad as long, terminally convex. Lower face quadrate 1.05 times as broad as long with isolated punctures. Genae not swollen behind eyes; posterior ocellus separated from eye by less than 0.1 times its own maximum diameter; FI = 45-50%; occipital carina complete. Antennae moderately long with 50-51 flagellar segments; 1st flagellar segment 1.2-1.3 times as long as 2nd, 20th segment about 2.0 times as long as broad.

Pronotum mediodorsally long, rather flat, with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished with isolated punctures; epicnemial carina vestigial above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.3 times as long as anteriorly wide, with isolated punctures. Metapleuron punctate; submetapleural carina parallel sided, very narrow. Propodeum in profile abruptly rounded with dorsal surface convex; anterior transcarina absent; anterior area striate, spiracular area smooth, posterior area finely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 7-10mm; discosubmarginal cell as in Fig. 302; AI = 1.50-1.80; CI = 0.20-0.25; ICI = 0.30-0.50; SDI = 0.80-0.85; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on *R*₁; 1A proximally almost straight.

Foreleg with tibia subcylindrical with numerous short spines on outer surface; hind coxa in profile 1.5-1.6 times as long as deep; hind trochantellus mediodorsally 0.4 times as long as broad; hind tarsal claw symmetrical, pectinate as in Fig. 463.

Gaster elongate; sternite 2 with posterior margin at spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 1.5 times its own length.

Ovipositor concealed. Sternites 6-8 of ♂ with long slender scattered erect hairs; gonosquama distally evenly rounded. Colour generally orange-yellow; lower face white; flagellum blackish-red; inter-ocellar area black.

Remarks. The unusual form of *Rs+2r* distinguishes this species from *E. amygdalis* and *E. akainus*.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Region Sud de l'Île, Bekily, xii.36 (Seyrig) (MNHN); paratype 1♂, same locality and collector, i.33 (MNHN).

***ENCOSPILUS AMYGDALIS* sp. n.**

(Figs 119, 303, 464)

Description. Mandibles evenly narrowed, twisted about 10° with upper tooth minute, lower tooth long; outer mandibular surface convex, punctate, with scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile rather flat, margin in-turned; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face transverse 0.80-0.90 times as broad as long, with fine punctures. Genae constricted behind eyes; posterior ocellus separated from eye by 0.2 times its own maximum diameter; FI = 40-45%; occipital carina complete. Antennae moderately long with 53 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd; 20th segment 2.0-2.1 times as long as broad.

Pronotum mediodorsally moderately long, anterior margin flat but centrally somewhat swollen with a moderately impressed transverse furrow. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, with fine scattered punctures; epicnemial carina weak, reaching above level of lower corner of pronotum but with upper end not reaching anterior margin of pleuron. Scutellum in profile weakly convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.2-1.3 times as long as anteriorly wide, finely alutaceous. Metapleuron with few scattered punctures; submetapleural carina evenly anteriorly broadened. Propodeum in profile convexly rounded, dorsally strongly convex; anterior transcarina absent; anterior area striate, spiracular area smooth, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 10-11mm; discosubmarginal cell as in Fig. 303; AI = 2.00-2.20; CI = 0.20-0.25; ICI = 0.25-0.40; SDI = 0.75-0.80; *cu-a* opposite to *Rs&M*. Hindwing with 5-6 hamuli on *R*₁; 1A proximally almost straight.

Foreleg with tibia flattened, bearing numerous long spines on outer surface; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.3-0.4 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 464.

Gaster elongate; sternite 2 with posterior margin slightly before spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 1.5-2.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with isolated erect long hairs.

Colour generally reddish-brown; lower face whitish, centrally red; flagellum brown; inter-ocellar area black.

Variation. One ♀ from Sandrangato has a very weak trace of a distal sclerite.

Remarks. This species is similar to *E. akainus* from which it can be distinguished by the shape of the proximal sclerite and usually by the absence of a distal sclerite.

Distribution. This species is apparently confined to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Morondava forêt, sud de Befasy, i.56 (MRAC); paratypes 1♂, same data as holotype; 2♀, 1♂, Bekily, xii.36 (*Seyrig*) (MNHN); 1♀, Sandrangato (BMNH).

***ENICOSPILUS AKAINUS* sp. n.**

(Figs 304, 465, 466)

Description. Mandibles evenly narrowed, twisted about 10°, with upper tooth minute, lower tooth long; outer mandibular surface convex, punctate, with scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile flat, margin blunt, neither impressed nor out-turned; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face quadrate 0.95-1.05 times as broad as long with deep punctures. Genae weakly swollen behind eyes; posterior ocellus separated from eye by 0.2 times its own maximum diameter; FI = 45-50%; occipital carina complete. Antennae of moderate length with 57-59 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment about 2.0 times as long as broad.

Pronotum mediodorsally moderately long, flat with transverse furrow weak. Mesoscutum in profile evenly rounded, anterior margin slightly out-turned; notauli absent. Mesopleuron polished, punctate; epicnemial carina strongly curved to reach anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally longitudinally carinate to posterior margin; scutellum dorsally 1.4-1.5 times as long as anteriorly wide, punctate. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina present to vestigial or absent; anterior area striate, spiracular area smooth, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 12-14mm; discosubmarginal cell as in Fig. 304; AI = 1.60-1.70; CI = 0.30-0.35; ICI = 0.30-0.40; SDI = 0.80-0.90; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia flattened bearing numerous spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.4 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 465, 466.

Gaster elongate, sternite 2 with posterior margin at spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long fine hairs; gonosquama distally evenly rounded.

Colour generally orange-yellow; lower face whitish; flagellum reddish-brown; inter-ocellar area black.

Remarks. The narrow, anteriorly acute proximal sclerite distinguishes this from other members of this species-group.

Distribution. This species is confined to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, ii.33 (*Seyrig*) (MNHN); paratypes 2♂, Bekily, xii.32 (*Seyrig*) (MNHN); 6♀, 12♂, Bekily, i-ii.33 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, ii.33 (*Seyrig*) (BMNH); 2♂, Bekily, xii.33 (*Seyrig*) (MNHN); 3♀, 3♂, Bekily, i-ii.34 (*Seyrig*) (MNHN); 2♀, 2♂, Bekily, xii.36 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, ii.37 (*Seyrig*) (MNHN); 2♀, Ihosy, ii.33 (*Seyrig*) (MNHN); 1♂, Rogez, iv. 31 (*Seyrig*) (MNHN).

***ENICOSPILUS CONGOENSIS* (Cameron) comb. n.**

(Figs 305, 467, 468, 713)

Ophiomorpha concolor Szépligeti, 1905 : 35. Lectotype ♀, GHANA (TMB) designated by Townes & Townes, 1973 : 179 [examined]. [Junior secondary homonym of *Enicospilus concolor* (Cresson) 1865 : 56.] [Synonymized by Townes & Townes, 1973 : 179.]

Ophion major Morley, 1912a : 61. Holotype ♀, SOUTH AFRICA (BMNH) [examined]. [Junior secondary homonym of *Enicospilus major* Morley, 1912a : 36.] [Synonymized by Townes & Townes, 1973 : 179.]

Ophion congoensis Cameron, 1912 : 387. Holotype ♀, ZAIRE (MRAC) [examined].

Ophiomorpha concolor Szépligeti; Benoit, 1953 : 545.

Enicospilus major (Morley) Townes & Townes, 1973 : 179.

Description. Mandibles weakly and evenly narrowed, twisted about 30° with teeth subequal in length; outer mandibular surface flat with long fine pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute; clypeus in anterior aspect 1.8-1.9 times as broad as long, terminally truncate. Lower face elongate 0.70-0.80 times as broad as long with fine punctures. Genae not swollen; posterior ocellus contiguous with eye; FI = 75-80%; occipital carina complete. Antennae long and slender with 60-65 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.4-2.8 times as long as broad.

Pronotum mediodorsally short, swollen, with transverse furrow strong. Mesoscutum in profile abruptly rounded, not anteriorly out-turned; notauli absent. Mesopleuron polished, upper half punctate, ventrally grading into puncto-striate; epicnemial carina approaching anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as anteriorly broad, transversely wrinkled to finely punctate. Metapleuron puncto-striate to alutaceous; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly declivitous; dorsal surface almost flat; anterior transcarina present; anterior area striate, spiracular area smooth, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-20mm; discosubmarginal cell as in Fig. 305 : AI = 0.60-0.80; CI = 0.65-0.75; ICI = 0.60-0.75; SDI = 1.50-1.70; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with few scattered spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 467, 468.

Gaster elongate; sternite 2 with margin at or behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long hairs; gonosquama distally evenly rounded; ♂ genitalia as in Fig. 713.

Colour generally orange-brown; lower face yellowish-orange; flagellum brownish; inter-ocellar area yellow.

Variation. In most specimens the discosubmarginal cell is evenly hirsute and bears a small indistinctly delineated sclerite parallel to *Rs+2r*. In a few specimens this sclerite is absent. In some specimens a small glabrous area is present, parallel to *Rs+2r* but separated from it by an hirsute region. A few individuals have this glabrous area and lack the sclerite.

Remarks. This species is immediately recognizable by its lack of a distinct fenestra. In all other respects it is typically enicospiloid. If one were to separate this species as a distinct monotypic genus, one should also erect about ten other monotypic genera for individual species of *Enicospilus* with single unique character state differences. The affinities of this species are not clear but it is possibly related to the *E. leucocotis* species-group.

Host records. This species has been reared from *Anomis leona* Schaus (Lep., Noctuidae) on cocoa (*Theobroma cacao*), from *Rhodogastria atrivena* Hampson (Lep., Arctiidae), from an unknown lepidopterous larva on cotton (*Glossypium* sp.) and from a lepidopterous pupa on groundnut (*Arachis hypogaea*).

Distribution. This species is widely distributed throughout mainland Africa (Map 23). It is possibly associated with forests.

Material examined. *Ophiomorpha concolor* Szépligeti, lectotype ♀, GHANA: Amu River (TMB). *Ophion major* Morley, holotype ♀, SOUTH AFRICA: Durban (=Port Natal) (BMNH); paratypes 1♀, 2♂, SIERRA LEONE (*Morgan*) (BMNH); 1♀, NIGERIA: Oban district, 1910 (*Talbot*) (BMNH). *Ophion congoensis* Cameron, holotype ♀, ZAIRE: Congo de Lemba (MRAC).

Non-type material. ANGOLA: 1♂, Cacolo, xii.57 (TC); 1♀, Dundo, v.48 (*Machado*) (MRAC). CAMEROUN: 1♀, Kumba, x.49 (*Oldroyd*) (BMNH). CENTRAL AFRICAN REPUBLIC: 3♀, Bambari, i.64 (*Pierrard*) (MRAC). DAHOMEY: 1♂, Atakora, Koussou, Koingou (*Benoit*) (MRAC). ETHIOPIA: 2♀, Jimma, xi.69 (*Cobben*) (WAU). IVORY COAST: 6♀, Bingerville, x.62 (*Decelle*) (MRAC); 1♀, Bingerville, iii.63, ex *A. leona* on cocoa (*Decelle*) (MRAC). KENYA: 1♀, Nairobi, x.69 (ZC). MADAGASCAR: 15♀, 12♂, Bekily, ii.34 (*Seyrig*) (MNHN); 1♀, Fianarantsoa (Plat. Cent.), xi.36 (*Seyrig*) (MNHN); 1♂, Maroantsetra, xi.34 (*Seyrig*) (MNHN); 1♀, 1♂, Perinet, no further data (MRAC); 2♀, 2♂, Rogez, xii.31 (*Seyrig*) (MNHN); 2♀, 2♂, Rogez, vii.46 (*Lamberton*) (TC); 1♀, Tamatave, Ivondro River, ii.46 (*Seyrig*) (TC); 2♀, Tananarive, xii.33 (*Seyrig*) (MNHN). NIGERIA: 1♀, Ilora, W. State, viii.74 (*Medler*) (TC); 1♀, Oban (*Talbot*) (BMNH). SIERRA LEONE: 2♀, 1♂, Freetown, x-xi.67 (*Owen*) (TC); 3♀, Freetown, 1969 (*Owen*) (TC); 9♀, Freetown, i-v.70 (*Owen*) (TC); 1♀, Njala, x.30 (*Hargreaves*) (BMNH); 1♀, no further data (BMNH). SOUTH AFRICA: 1♀, 1♂, Durban, viii.52 (*Clark*) (BMNH); 3♀, Kenton on Sea, ii.71 (*Jubb*) (TC); 1♂, Port St. John, vi.23 (*Turner*) (BMNH); 1♀, Port St. John, xii.70 (*H. & M. Townes*) (TC). TANZANIA: 1♂, Shinyanga, v.52 (*Burtt*) (BMNH); 1♀, Zanzibar, 1890 (*Alexandre*) (MNHN). UGANDA: 1♂, Kampala, xii.17 (*Gowdey*) (BMNH); 1♀, Kampala, v.65 (*Owen*) (TC); 2♀, Kampala, ii.66 (*Owen*) (TC); 1♀, Kawanda, iii.42 (*Taylor*) (BMNH); 1♀, Kigezi, vi.26 (*Carpenter*) (BMNH); 1♂, Nkose Is., L. Victoria, v.28 (*Hale & Carpenter*) (BMNH); 1♀, Makerere, ii.65 (*Unamba*) (TC); 2♂, Mengo, Entebbe, v.64 (*Lancaster*) (TC); 2♀, Ruwenzori, Ibanda, viii.52 (*Fletcher*) (BMNH); 1♀, Sese Is., i.11, ex *Rhodogastria atrivena* (*Carpenter*) (BMNH). ZAIRE: 1♀, Bukavu, v.38 (*Ghesquière*) (MRAC); 1♀, Eala, ii.36 (*Ghesquière*) (MRAC); 3♀, Eala, viii.36 (*Ghesquière*) (MRAC); 1♀, Gandajika, iv.59 (*Decelle*) (MRAC); 1♀, Isiro (Paulis), 1948 (*Pinte*) (MRAC); 1♂, Gandajika, x.58 (*Maréchal*) (MRAC); 1♀, Gandajika, iv.59 (*Decelle*) (MRAC); 1♀, Isiro (Paulis), 1948 (*Pinte*) (MRAC); 1♀, Ituri, Kaporta, vii.32 (*Burgeon*) (MRAC); 1♀, Kasenye, viii.37 (*Brédo*) (MRAC); 1♀, Kisangi, iii.26 (*Ghesquière*) (MRAC); 1♀, Kisangi (*Muller*) (MRAC); 1♀, Kivu, ix.29 (*Luja*) (MRAC); 6♀, 4♂, Kivu, Kadjudju, 1932 (*Babault*) (MNHN); 1♀, Kivu, Kasunga, 1954 (*Beulens*) (MRAC); 1♀, Mayumbé, Kiniati, vi.11 (*Mayné*) (MRAC); 1♀, Mpese, vi.37 (*Cooreman*) (IRSNB); 2♀, 3♂, Nyangwe, vi.18 (*Mayné*) (MRAC); 1♀, Tshuapa, xii.61 (*Hulstaert*) (MRAC); 1♀, Yamgambi, forest, i.26 (*Ghesquière*) (MRAC); 1♀, 'Ta Lodi' viii.29, ex lepidopterous larva on cotton (*Whitfield*) (BMNH). 1♀, no further data, ex pupa on Groundnut.

ENICOSPILUS STREBLUS sp. n.

(Figs 126, 306, 469, 470, 714, 788)

Description. Mandible evenly narrowed, twisted 75° with upper tooth 1.3 times as long as lower; outer mandibular surface flat with isolated hairs. Labrum 0.1-0.2 times as long as broad; malar space 0.2 times basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long with fine punctures. Genae constricted behind eyes; posterior ocellus long with 52-54 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.0-2.1 times as long as broad.

Pronotum mediodorsally short with deep broad transverse furrow. Mesoscutum in profile weakly and evenly rounded, anterior margin not out-turned; notauli vestigial. Mesopleuron polished, upper half closely punctate, ventrally with punctures less well defined, becoming granulate; epicnemial carina vestigial above level of lower corner of pronotum. Scutellum in profile weakly convex; laterally carinate for 0.9 of its length; scutellum dorsally 1.3-1.4 times as long as anteriorly broad, finely punctate. Metapleuron shallowly punctate; submetapleuron anteriorly weakly expanded into a small triangular flange. Propodeum in profile evenly rounded, dorsally flattened; anterior transcarina vestigial; anterior area smooth, spiracular area alutaceous, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 14-19mm; discosubmarginal cell as in Fig. 306; AI = 0.70-0.80; CI = 0.70-0.80; ICI = 0.80-0.90; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by about 0.2 of its own length. Hindwing with 8 hamuli on *R*₁; 1A proximally with a strong sinuous bend.

Foreleg with tibia cylindrical, without spines on outer surface; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally virtually obscured by trochanter; hind tarsal claws symmetrical, pectinate as in Figs 469, 470.

Gaster elongate, posterior margin of sternite 2 before spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense short fine pubescence; gonosquama distally truncate; genitalia as in Fig. 714; aedeagus unusual in having small projecting lateral lobes.

Colour generally orange-red; lower face orange-yellow; flagellum orange; inter-ocellar area orange.

Remarks. This species belongs to the *E. senescens* species-group which it resembles in lacking alar sclerites, venation and form of the clypeus. It is distinct from all other *Enicospilus* species in the peculiar angulation of 1A in the hindwing. It differs from the other members of the *E. senescens* species-group in having the mandibles more strongly twisted and in having lateral lobes on the aedeagus.

Immature stages. Cephalic capsule of final instar larva as in Fig. 788. Hypostoma moderately sclerotized, fairly slender, curved through 90°; hypostomal spur long and very slender; epistoma and pleurostoma long and slender; mandible with blade arising from centre, weakly curved; sclerotized oral bar absent; labial sclerite normal; posterior hypostomal process long and stout; stipital sclerite curved.

The distinctive mandibles and stipital sclerites enable this species to be recognized.

Cocoon 17-18mm long, about 2.0 times as long as broad; finely fibrous with a pale stramineous equatorial white band.

Host records. Seyrig reared this species from *Dasychira* sp. (Lep. Lymantriidae).

Material examined. Holotype ♀, MADAGASCAR: Bekily, x.33 (Seyrig) (MNHN); paratypes 28♀, 26♂, same data as holotype (MNHN); 1♀, 1♂, same data as holotype (BMNH).

ENICOSPILUS CAMBOUI sp. n.

(Figs 121, 308, 471)

Description. Mandible evenly narrowed, twisted about 10°; subequally bidentate; outer mandibular surface flat with fine scattered hairs. Labrum 0.2 times as long as broad; malar space 1.0 times as long as basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face transverse 1.1 times as broad as long with coarse punctures. Genae strongly inflated; posterior ocellus separated from eye by 0.9 times its own diameter; FI = 30%; occipital carina complete. Antennae short and stout with 56 flagellar segments; 1st flagellar segment 1.6 times as long as 2nd, 20th segment 1.1 times as long as broad.

Pronotum mediodorsally short, anteriorly swollen and with transverse furrow very strongly impressed. Mesoscutum in profile evenly rounded, anteriorly not out-turned; notauli impressed on anterior 0.2 of scutum; Mesopleuron sub-polished, coarsely and closely punctate; epicnemial carina vestigial above level of lower corner of pronotum. Scutellum in profile convex, laterally carinate for only 0.3 of its length; scutellum dorsally 1.4 times as long as broad anteriorly, punctate. Metapleuron closely and deeply punctate; submetapleural carina narrow, parallel sided. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina absent; anterior area striate, spiracular area punctate, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 13mm; discosubmarginal cell as in Fig. 308; AI = 1.00; CI = 0.85; ICI = 1.00; SDI = 1.35; *cu-a* slightly proximal to *Rs&M*. Hindwing with 8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines on outer surface; hind coxa in profile 1.6 times as long as deep; hind trochantellus dorsally obscured by trochanter; hind tarsal claws symmetrical, pectinate as in Fig. 471.

Gaster stout; posterior margin of sternite 2 before spiracle of tergite 2; thyridia ovate, separated from anterior margin of tergite by 2 times its own length. Sternites 6-8 of ♂ with long fine hair; gonosquama distally fairly evenly rounded.

Colour generally dark reddish-brown with terminal segments of gaster black; lower face reddish-brown, flagellum red; inter-ocellar area reddish-brown.

♀ unknown.

Remarks. This species is probably closely related to *E. leucocotis* which it resembles in having genae inflated, a broad malar space, fairly straight *Rs+2r* with a small fenestra and a very convex scutellum. The two species together form a discrete species-group which is separate from other *Enicospilus* species lacking alar sclerites. It is possible that *E. congoensis* has affinities with this species-group for although it does not have all the above mentioned characters it is unusual (amongst *Enicospilus* species) in having a straight *Rs+2r*.

Distribution. This species is restricted to Madagascar.

Material examined. Holotype ♂, MADAGASCAR: Lake Alaotra, vii.21 (Decary) (MNHN); paratype 1♂, MADAGASCAR: no further data, 1894 (Camboué) (MNHN).

ENICOSPILUS LEUCOCOTIS (Tosquinet)

(Figs 120, 122, 123, 307, 472, 473, 715)

Ophion leucocotis Tosquinet, 1896 : 372. Holotype ♂, SOUTH AFRICA (MNHU) [examined].

Cymatoneura Algoensis Kriechbaumer, 1901 : 77. Holotype ♀, SOUTH AFRICA (ZSBS) [examined]. [Synonymized by Townes & Townes, 1973 : 179].

Pleuroneurophion pruinosis Cameron, 1906 : 82. Holotype ♀, SOUTH AFRICA (SAM) [examined]. [Synonymized by Townes & Townes, 1973 : 179.]

Pleuroneurophion pruinosis Cameron; Cameron, 1911 : 183.

Pleuroneurophion rotundistriatus Cameron, 1911 : 183. Holotype ♀, SOUTH AFRICA (BMNH) [examined]. **Syn. n.**

Allocamptus algoensis (Kriechbaumer) Morley, 1912a : 12.

Allocamptus africanus Morley, 1912a : 22. Holotype ♀, SOUTH AFRICA (BMNH) [examined]. [Junior secondary homonym of *Henicospilus africanus* Szépligeti, 1906.] [Synonymized by Townes & Townes, 1973 : 179.]

Pleuroneurophion pruinosis Cameron; Morley, 1926 : 479.

Enicospilus leucocotis (Tosquinet) Townes & Townes, 1973 : 179.

Enicospilus rotundistriatus (Cameron) Townes & Townes, 1973 : 183.

Description. Mandibles weakly narrowed, twisted about 30°, subequally bidentate; outer mandibular surface flat with short isolated hairs. Labrum 0.2 times as long as broad; malar space of ♀ 0.3-0.5, of ♂ 0.5-1.0 times as long as basal mandibular width. Clypeus in profile virtually flat, margin acute; clypeus in anterior aspect 1.8-2.0 times as broad as long, terminally truncate. Lower face transverse 1.05-1.15 times as broad as long, with scattered punctures. Genae strongly inflated, more so in ♂ than in ♀; posterior ocellus separated from eye by 0.1-0.3 times its own maximum diameter; FI = 45-50%; occipital carina complete. Antennae long with 56-59 flagellar segments; 1st flagellar segment 2.0-2.2 times as long as 2nd, 20th segment 1.4-1.7 times as long as broad.

Pronotum mediodorsally moderately long, anteriorly flat with a moderately strong impressed groove. Mesoscutum in profile evenly rounded, anterior margin out-turned; notauli discernible at anterior end of scutum. Mesopleuron subpolished, evenly punctate; epicnemial carina not reaching anterior margin of pleuron. Scutellum in profile very convex, laterally carinate from 0.4 to 0.9 of its length; scutellum dorsally 1.4-1.5 times as long as anteriorly broad, punctate. Metapleuron closely punctate; submetapleural carina parallel sided, anteriorly abruptly expanded into blunt lobe. Propodeum in profile evenly rounded, dorsally flat; anterior transcarina absent; anterior area striate, spiracular area punctate, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length (9) 17-23mm; discosubmarginal cell as in Fig. 307; AI = 0.85-1.10; CI = 0.50-0.65; ICI = 0.70-0.95; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 10-12 hamuli in *R*₁; 1*A* proximally almost straight.

Foreleg with tibia flattened slightly with scattered spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 472, 473.

Gaster elongate but rather stout; posterior margin of sternite 2 at or before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.5-2.5 times its own length.

Ovipositor slender, apically elongately acute. Sternites 6-8 of ♂ with short fine decumbent hair and scattered long erect hairs; gonosquama distally acute; genitalia as in Fig. 715.

Colour generally reddish with terminal segments of gaster infuscate; lower face pale yellow, centrally reddish; flagellum reddish-brown; inter-ocellar area reddish, genae whitish or stramineous.

Variation. 1♀ from Rwanda (MRAC) is unusual in being very small (forewing length 9mm) though in all other ways it is typical *leucocotis*. The degree to which *Rs+2r* is sinuate is somewhat variable. Most specimens have this vein fairly straight but a few individuals have the vein moderately sinuate. The ♂ were generally observed to have the genae far more swollen and the malar space longer than those of the ♀.

Remarks. This species is morphologically very similar to *E. camboui* from which it differs in having a more elongate flagellum, a larger fenestra and in the ♂ in having longer and more slender claws with denser pectination.

Distribution. This species is most common in the southern parts of Africa, particularly South Africa (Map 24).

Material examined. *Ophion leucocotis* Tosquinet, holotype ♂, SOUTH AFRICA: Cape of Good Hope (MNHU). *Cymatoneura Algoensis* Kriechbaumer, holotype ♀, SOUTH AFRICA: Algoa Bay (ZSBS). *Pleuroneurophion pruinosis* Cameron, holotype ♀, SOUTH AFRICA: Durban (BMNH). *Pleuroneurophion rotundistriatus* Cameron, holotype ♀, SOUTH AFRICA: Soutspanberg District, Kourulene (BMNH). *Allocampus africanus* Morley, holotype ♀, SOUTH AFRICA: Durban (= Port Natal) (*Gueinzus*) (BMNH); paratypes 2♂, same data as holotype (BMNH).

Non-type material. ANGOLA: 1♀, Quirimbo, v.34 (*Jordan*) (BMNH). BOTSWANA: 1♀, Tpsi, ii.21 (*Godman*) (BMNH). CONGO: 1♀, Ile de M'Bamou, xii.70 (*Grillot*) (MNHN). MALAWI: 1♂, Mt Mlange, xii.13 (*Neave*) (BMNH). RHODESIA: 1♀, Bulawayo, i.54 (*Norvall*) (MRAC); 1♀, Hope Fountain, xii.21 (*Jones*) (BMNH); 1♀, Salisbury, vii.01 (*Marshall*) (BMNH). RWANDA: 1♀, Ngarama, Gatsibu, xi.49 (*Laurent*) (MRAC). SOUTH AFRICA: 1♀, Cape, Betty's Bay, ix.70 (*H. & M. Townes*) (TC); 1♀, Cape, Garies, ix.70 (*H. & M. Townes*) (TC); 1♀, Cape, Katberg, xi.32 (*Turner*) (BMNH); 1♂, Cape, Mossel Bay, viii.21 (*Turner*) (BMNH); 1♂, Cape, Table Mt, xi.11 (*Barnard*) (BMNH); 1♀, Capetown, French Hoek, xii.30 (*Simmonds*) (BMNH); 1♀, Natal, 1896 (BMNH); 1♂, Natal, Durban, 1901 (*Cregoe*) (BMNH); 1♀, Natal, Durban, i.14 (*Haygarth*) (BMNH); 1♀, Natal, Howick (*Cregoe*) (BMNH); 1♂, Oudenbosch (*Sonder*) (TC); 1♀, Pietermaritzburg, xi.70 (*Stukenberg*) (TC); 1♀, Pietermaritzburg, xii.70 (*H. & M. Townes*) (TC); 1♀, Stellenbosch, Jonkershoek, xi.70 (*Whitehead*) (TC); 1♀, Transvaal, Pretoria, i.18 (*Grey*) (BMNH); 1♀, Transvaal, Pretoria, no further data (BMNH). UGANDA: 1♀, Jinga, viii.11 (*Neave*) (BMNH). ZAIRE: 1♀, Kinshasa, iv.15 (*Bequaert*) (MRAC); 1♀, Kivu, Ibanda, 1952 (*Vandelannoite*) (MRAC); 2♀, Kwango, Popokabaka, iii.52 (*Pierquin*) (MRAC); 1♀, Lualaba, Ruwe, xii.52 (*Gilbert*) (MRAC); 2♀, Lualaba, Ruwe, i.60 (*Allard*) (MRAC).

ENICOSPILUS PROLIXUS sp. n. (Figs. 116, 309, 474, 475, 716, 790)

Description. Mandibles evenly narrowed, twisted about 50° with upper tooth about 1.3 times as long as the lower; outer surface of mandible flat with isolated hair. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times basal mandibular width. Clypeus in profile very weakly convex, margin acute; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate 0.65-0.70 times as broad as long with fine punctures. Genae constricted behind eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long, flagellum with 53-56 flagellar segments; 1st flagellar segment 1.6-2.1 times as long as 2nd, 20th segment 2.8-3.0 times as long as broad.

Pronotum mediodorsally of moderate length with anterior margin swollen, transverse furrow strong. Mesoscutum in profile evenly rounded with anterior margin slightly out-turned; notauli absent. Mesopleuron matt, finely and closely punctate; epicnemial carina weak, not reaching anterior margin of pleuron, often vestigial above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 or more of its length; scutellum dorsally 1.8-1.9 times as long as anteriorly broad, finely alutaceous. Metapleuron alutaceous; submetapleural carina narrow, anteriorly abruptly expanded into a blunt lobe. Propodeum in profile elongately but evenly rounded, dorsally convex; anterior transcarina present; anterior area striate, spiracular area finely wrinkled, posterior area finely irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 309; AI = 0.90-1.35; CI = 3.50-4.30; ICI = 0.40-0.45; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, bearing only a few spines on outer surface; hind coxa in profile 2.0-2.1 times as long as deep; hind trochantellus mediodorsally 0.1-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 474, 475.

Gaster elongate; sternite 2 with posterior margin at or before level of spiracle of tergite 2; thyridia obovate, separated from anterior margin of tergite by 3.5-4.0 times its own length.

Ovipositor elongately apically acute. Sternites 6-8 of σ with erect dense elongate hair centrally; gonosquama distally somewhat obliquely truncate; genitalia as in Fig. 716; unusual in having the distivolsella reduced in size.

Colour entirely pale yellowish rarely with mesoscutum infusate.

Variation. Apart from variation in colour of mesoscutum, this is a rather uniform species.

Remarks. This species belongs to the *E. senescens* species-group. It is distinct from other species in the large value of CI and in its characteristic sculpture and colour.

Immature stages. Cephalic capsule of final instar larva as in Fig. 790. Hypostoma strongly sclerotized, slender, curved through 50°; hypostomal spur short, very stout; epistoma and pleurostoma moderately long, quite slender; mandible short, strongly narrowed, weakly curved; sclerotized oral bar absent; labial sclerite smaller than is usual; stipital sclerite curved, internally somewhat bifurcate; posterior hypostomal process short.

The odd stipital sclerite and stout hypostomal spur characterize this species.

Cocoon 14-15mm, about 2.2 times as long as broad with outer covering of fine fibre; uniformly pale or medium brown.

Host records. This species has been reared from *Anomis leona* Schaus (Lep. Noctuidae) on cocoa (*Theobroma cacao*) and from an unidentified Lymantriid larva.

Distribution. Widely distributed from Sierra Leone to South Africa (Map 25).

Material examined. Holotype ♀, GHANA: Kumasi, 1920 (Smith) (BMNH).

Paratypes. CONGO: 1♂, Mbila, Mt du Chailli, xii.63 (Villiers) (MNHN). IVORY COAST: 7♀, 4♂, Bingerville, x.62-i.63, ex *Anomis leona* on cocoa (Decelle) (MRAC). NIGERIA: 1♀, Ife-Ife, W. State, viii.74 (Medler) (TC). SIERRA LEONE: 1♂, Freetown, ii.67 (Owen) (TC); 1♂, Freetown, xii.67 (Owen) (TC); 2♀, Freetown, iv.70 (Owen) (TC); 1♂, Njala, vii.26 (Hargreaves) (BMNH). SOUTH AFRICA: 1♀, Kenton on Sea, iii.71 (Jubb) (TC); 1♀, 1♂, Port St. John, vii.23 (Turner) (BMNH); 1♀, Port St. John, xii.70 (H. & M. Townes) (TC). UGANDA: 1♀, Kampala, viii.74 (Owen) (TC); 5♀, 2♂, Mengo, Zika Forest, viii.63 (Lancaster) (TC); 2♀, 2♂, Mengo, Zika Forest, x.63 (Lancaster) (TC); 1♀, 1♂, Mengo, Zika Forest, xi.63 (Lancaster) (TC); 1♀, Sese Is., Bugala Is., x.12 ex Lymantriid larva (Carpenter) (BMNH). ZAIRE: 1♀, Bambesa, x.33 (Brédo) (MRAC); 1♀, Kisangi, iii.30 (Colin) (MRAC); 1♀, Lubumbashi, iv.67 (Bourgeois) (TC); 1♂, Tshuapa, Bokuma, 1952 (Lootens) (MRAC).

ENICOSPILUS CUBITALIS (Szépligeti)

(Figs 310, 476, 477, 717)

Allocamptus cubitalis Szépligeti, 1906 : 148. Holotype ♀, TANZANIA (TMB) [examined].

Enicospilus cubitalis (Szépligeti) Townes & Townes, 1973 : 176.

Description. Mandibles weakly narrowed, twisted about 25°, subequally bidentate; outer mandibular surface flat with fine scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate 0.70-0.75 times as broad as long with close weak punctures. Genae constricted behind eyes; posterior ocellus contiguous with eye; FI = 70-75%; occipital carina complete. Antennae moderately long, flagellum with 55-58 segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment about 2.0 times as long as broad.

Pronotum short with anterior margin swollen, transverse furrow strong. Mesoscutum in profile abruptly rounded with anterior margin at most very weakly out-turned; notauli absent. Mesopleuron slightly polished, coarsely punctate grading ventrally to puncto-striate; epicnemial carina inclined forward reaching above level of lower corner of pronotum but not reaching anterior margin of pleuron. Scutellum in profile weakly convex, laterally carinate its entire length; scutellum dorsally 1.4-1.5 times as long as anteriorly broad, alutaceous with vestigial punctures. Metapleuron closely punctate grading to striate; submetapleural carina broad, anteriorly moderately expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transverse carina complete; anterior area smooth to striate, spiracular area punctate, posterior area transversely wrinkled.

Forewing length 14-16mm; discosubmarginal cell as in Fig. 310; AI = 1.00-1.40; CI = 0.58-0.80; ICI = 0.45-0.65; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by about 0.3 times its own length. Hindwing with 6-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical bearing few scattered weak spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus dorsally 0.1-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 476, 477.

Gaster elongate; sternite 2 with posterior margin more or less opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.5-2.0 times its own length.

Ovipositor elongately apically acute. Sternites 6-8 of σ with dense long erect pubescence and numerous fine short decumbent hairs; gonosquama distally fairly acute; genitalia as in Fig. 717.

Colour generally pale yellowish-brown; lower face pale yellow; flagellum yellowish-brown.

Variation. There is some variation in the extent to which the punctures of the mesopleura are confluent and the extent

of the striation. Specimens with more striate pleura tend to be slightly more highly polished than specimens with more punctate pleura.

Remarks. This is a very distinct species on account of the unusual proximal projection at the anterior end of *Rs+2r*. It is otherwise similar to *E. marjorieae* from which it may easily be distinguished by its much paler colour. Although both these species have very strongly sinuate *Rs+2r* veins they otherwise resemble species of the *E. senescens* species-group in which they are at present placed.

Host records. This species has been reared from *Dasychira embrithes* Collenette (= *atrifiliata* Hampson) (Lep. Lymantriidae).

Distribution. This species is widely distributed throughout the African mainland (Map 26).

Material examined. *Allocamptus cubitalis* Szépligeti, holotype ♀, TANZANIA: Mto-ya-Kifaru (TMB).

Non-type material. GUINEA: 1♀, Kindia, 1927 (*Gromier*) (MNHN). IVORY COAST: 2♀, Bingerville, x.62 (*Decelle*) (MRAC). NIGERIA: 1♀, Ife-Ife, vii.73 (*Medler*) (TC); 1♀, 1♂, Ilora, W. State, viii.74 (*Medler*) (TC). SOUTH AFRICA: 4♀, Hluhluwe Game Res., xi.70 (*H. & M. Townes*) (TC); 1♀, King William's Town, Peeree Forest, iii.63 (TC); 1♀, Natal, Durban, ii.55 (*Clark*) (BMNH). UGANDA: 1♀, Entebbe, xi.11 (*Gowdey*) (BMNH); 1♀, Entebbe, v.64 (*Lancaster*) (TC); 1♀, Kampala, x.17 (*Gowdey*) (BMNH); 1♀, Kampala, ix.64 (*Owen*) (TC); 4♀, Kampala, xii.65 (*Owen*) (TC); 1♀, Kampala, xii.65 (*Unamba*) (TC); 1♀, Kampala, ii.66 (*Owen*) (TC); 4♀, 3♂, Kamuli, v.16 (*Gowdey*) (BMNH); 1♀, Mengo, Zika Forest, ix.63 (*Lancaster*) (TC). ZAIRE: 1♀, Lubumbashi, i.49 ex *Dasychira embrithes* (*Seydel*) (MRAC); 1♀, Lubumbashi, i.62 (*Maréchal*) (MRAC).

ENICOSPILUS FATALIS sp. n.

(Figs 311, 478, 718)

Description. Mandibles evenly narrowed, twisted about 35°; mandibular teeth very elongately acute, subequal in length but with upper tooth slightly dorsoventrally compressed; outer mandibular surface with a very weak impression extending from proximal upper corner to between bases of teeth and with a median longitudinal band of fine, dense pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times basal mandibular width. Clypeus in profile weakly convex, margin acute; clypeus in anterior aspect 1.6 times as broad as long, terminally convex. Lower face elongate 0.70 times as broad as long with fine scattered punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 60%; occipital carina complete. Antennae long with 58-59 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 3.0 times as long as broad.

Pronotum very short, anterior margin swollen, transverse furrow strong. Mesoscutum in profile abruptly rounded with anterior margin weakly out-turned; notauli absent. Mesopleuron polished, evenly finely striate; epicnemial carina curved to almost reach anterior pleural margin above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.3 times as long as anteriorly broad, more or less without sculpture. Metapleuron weakly striate; submetapleural carina parallel sided. Propodeum in profile elongately and evenly rounded dorsally weakly convex; anterior transcarina complete; anterior area smooth, spiracular area with fine irregular wrinkling. Posterior transverse carina of mesosternum complete.

Forewing length 12-13mm; discosubmarginal cell as in Fig. 311; AI = 1.90-2.40; CI = 0.35-0.40; ICI = 0.45-0.50; SDI = 1.10-1.20; *cu-a* subopposite or proximal to *Rs&M* by 0.1 of its length. Hindwing with 5 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.9 times as long as deep; hind trochantellus mediadorsally 0.4 times as long as broad; hind tarsal claws of ♂ as in Fig. 478.

Gaster elongate; posterior margin of sternite 2 before spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 4.0-6.0 times its own length.

Sternites 6-8 of ♂ with fine scattered decumbent pubescence; gonosquama distally rounded, genitalia as in Fig. 718.

Colour generally reddish-brown but with scutellum, subalar prominences and margin of mesoscutum pale yellow; lower face, genae and inter-ocellar area whitish-yellow; flagellum yellowish-red; terminal segments of gaster somewhat infusate.

♀ unknown.

Remarks. The large fenestra and small value of CI characterize this species. It is probably quite closely related to *E. pressuratus* but the phylogenetic position of these two species with respect to other Ethiopian *Enicospilus* is not as yet clear. The form of the claspers of *E. fatalis* and *E. pressuratus* are very similar and unlike most species lacking alar sclerites, the gonolacinal tooth is straight and the inner surface of the gonolacina is not swollen.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♂, MADAGASCAR: Rogez, xi.46 (*Lamberton*) (TC); paratypes 1♂, Rogez, 1935 (*Seyrig*) (MNHN); 1♂, Sandrangato, no further data (MRAC).

ENICOSPILUS PRESSURATUS sp. n.

(Figs 312, 480, 481, 719)

Description. Mandibles evenly narrowed, twisted about 30°; upper mandibular tooth slightly dorso-ventrally flattened, 1.3 times as long as lower; outer mandibular surface flat with isolated hairs. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile very weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.4 times as broad as long, terminally convex. Lower face elongate 0.70-0.80 times as broad as long with fine punctures. Genae weakly constricted behind eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae long and slender with 57-59 flagellar segments; 1st flagellar segment 1.9-2.0 times as long as 2nd, 20th segment 3.0-3.2 times as long as broad.

Pronotum mediodorsally short, anterior margin swollen, transverse groove strong. Mesoscutum in profile abruptly rounded, anterior margin slightly out-turned; notauli absent. Mesopleuron polished, upper part puncto-striate, lower part striate; epicnemial carina reaching above level of lower corner of pronotum, not turned forward. Scutellum in profile weakly convex, laterally longitudinally carinate for 0.9 of its length; scutellum dorsally 1.5 times as long as broad anteriorly, with isolated punctures. Metapleuron striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded dorsally slightly convex; anterior transcarina present; anterior area more or less smooth, spiracular area punctate, posterior area with fine transverse wrinkles. Posterior transverse carina of mesosternum complete.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 312; AI = 2.40-4.00; CI = 0.50-0.65; ICI = 0.18-0.36; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical, with isolated short spines on outer surface; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.5-0.6 times as long as broad; hind tarsal claw symmetrical, pectinate as in Figs 480, 481.

Gaster elongate; posterior margin of sternite 2 behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 5.0-6.0 times its own length.

Ovipositor concealed. Sternites 6-8 of ♂ with short fine decumbent hair; gonosquama distally rounded; genitalia as in Fig. 719.

Colour generally orange-yellow; lower face and genae whitish; flagellum brownish-orange; inter-ocellar area black.

Remarks. *E. pressuratus* is distinct from other species which lack alar sclerites in having the inter-ocellar area black. The venation is also rather unusual for these species. The large fenestra and characteristic genitalia indicate that this species is related to *E. fatalis*.

Distribution. *E. pressuratus* is only recorded from Madagascar.

Material examined. Holotype ♂, MADAGASCAR: Vatomandry, xii.29 (*Seyrig*) (MNHN); paratypes 1♀, Rogez, x.32 (*Seyrig*) (MNHN); 1♀, Rogez, iii.32 (*Seyrig*) (MNHN); 1♀, Rogez, 1935 (*Seyrig*) (MNHN); 1♀, Skorafenoba, no further data (MRAC).

ENICOSPILUS MARJORIEAE sp. n.

(Figs 124, 313, 482, 483)

Description. Mandible weakly tapered, twisted 15° with upper tooth 1.2 times as long as lower; outer mandibular surface with deep concavity proximally, distally flat with fine scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2-0.3 times basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate 0.75-0.80 times as broad as long with fine punctures. Genae weakly swollen; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae moderately long with 56-60 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 1.7-2.1 times as long as broad.

Pronotum mediodorsally short, margin swollen, transverse furrow strong. Mesoscutum in profile evenly rounded not apically out-turned; notauli absent. Mesopleuron polished, dorsally punctate, ventrally puncto-striate; epicnemial carina curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile moderately convex, carinate laterally for entire length; scutellum dorsally 1.6-1.7 times as long as broad, with isolated punctures. Metapleuron closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flattened or slightly concave; anterior transcarina present, sometimes weak; anterior area striate, spiracular area smooth, posterior area trans-striate. Posterior transverse carina of mesosternum complete or obsolescent centrally.

Forewing length 11-14mm; discosubmarginal cell as in Fig. 313; AI = 1.25-1.30; CI = 0.65-0.95; ICI = 0.44-0.55; SDI = 1.50-1.60; *cu-a* proximal to *Rs&M* by 0.1 its own length. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical, without obvious spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 482, 483.

Gaster elongate; posterior margin of sternite 2 more or less opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of ♂ with numerous long stout erect hairs and dense fine decumbent hairs; gonosquama distally rounded.

Colour generally brownish-orange, sometimes with mesoscutum and mesosternum infusate or blackish; lower face reddish-brown; inter-ocellar area reddish; flagellum reddish-brown; wing veins black with membrane evenly infumate.

Variation. The colour of the mesoscutum and mesosternum was observed to vary between brownish-orange and blackish.

Remarks. This species is named in honour of Dr Marjorie Townes. It is closely related to *E. camerunensis* from which it differs not only in characters mentioned in the key, but in being larger, darker in colour and having the ♀ hind tarsal claws more densely pectinate.

Distribution. This species is only known from South Africa (Map 27).

Material examined. Holotype ♀, SOUTH AFRICA: Natal, Ngome Forest, xi.70 (*H. & M. Townes*) (TC); paratypes 1♂, Grahamstown, xi.71 (*Gess*) (TC); 6♀, 1♂, Ngome Forest, Natal, xi.70 (*H. & M. Townes*) (TC); 1♂ Pietermaritzburg, xii.70 (*H. & M. Townes*) (TC); 1♀, Umhlanga Rocks, xi.70 (*H. & M. Townes*) (TC).

ENICOSPILUS CAMERUNENSIS (Enderlein)

(Figs 125, 314, 479)

Atoponeura camerunense Enderlein, 1921 : 36. Holotype ♀, CAMEROUN (IZPAN) [examined].

[*Enicospilus waterloti* Seyrig; Brenière 1965 : 347. Nomen nudum.]
Enicospilus camerunensis (Enderlein) Townes & Townes, 1973 : 174.

Description. Mandibles evenly narrowed, twisted about 15°, subequally bidentate; outer mandibular surface flat with fine scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.70 times as broad as long with obsolete punctures. Genae constricted behind eyes; posterior ocellus very close to eyes; FI = 60-65%; occipital carina complete. Antennae long and slender with 45-49 flagellar segments; 1st flagellar segment 1.5-1.7 times as long as 2nd, 20th segment 1.9-2.1 times as long as broad.

Pronotum mediodorsally narrow, anterior margin swollen, transverse groove impressed. Mesoscutum in profile abruptly rounded with anterior margin strongly out-turned; notauli absent. Mesopleuron subpolished, puncto-alutaceous; epicnemial carina reaching above level of lower corner of pronotum but with upper end distant from anterior pleural margin. Scutellum in profile almost flat, laterally carinate for 0.9 of its length; scutellum dorsally 1.7-1.8 times as long as anteriorly broad, alutaceous. Metapleuron alutaceous; submetapleural carina evenly broadened anteriorly. Propodeum in profile evenly rounded, dorsally flat; anterior transcarina absent, present only as a central vestige or complete; anterior area smooth, spiracular area smooth, posterior area finely irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 9-12mm; discosubmarginal cell as in Fig. 314; AI = 1.20-1.50; CI = 0.55-0.70; ICI = 0.40-0.50; SDI = 1.50-1.60; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical bearing isolated weak spines on outer surface; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 479.

Gaster elongate; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long erect hair and few scattered short decumbent hairs; gonosquama distally rounded.

Colour generally orange-yellow; lower face whitish-yellow; flagellum orange; inter-ocellar area whitish.

Remarks. The taxonomic position of this species is discussed with that of *E. marjorieae*.

Host record. This species has been reared from an unidentified lepidopterous larva feeding on cotton (*Glossypium* sp.). Brenière (1965) recorded it from *Euproctis producta** Walker (Lep., Lymantriidae).

Distribution. This species is widely distributed throughout Africa and in Madagascar (Map 28).

Material examined. Holotype ♀, CAMEROUN: Kribi, 1908 (*Lamey*) (IZPAN).

Non-type material. CENTRAL AFRICAN REPUBLIC: 1♀, Bambari, i.64 (*Pierrard*) (MRAC). MADAGASCAR: 11♀, 11♂, Bekily, iii.33 (*Seyrig*) (MNHN); 1♀, Maroantsetra, xi.34 (*Vadon*) (MNHN); 1♀, N.E. Forest Belt, 1946 (*Hutchins*) (BMNH); 1♀, Sandrangato (*Inst. Res. Mad.*) (MRAC); 2♀, Tananarive, 1914 (*Waterlot*) (MNHN). NIGERIA: 1♀, Zaria, Samaru, ix.73, on Cotton (*Yashim*) (BMNH). SIERRA LEONE: 1♀, Freetown, iv.67 (*Owen*) (TC). SOUTH AFRICA: 1♀, Grahamstown, x.70 (*Guillarmod*) (TC); 2♂, Grahamstown, x.70 (*H. & M. Townes*) (TC); 1♂, Kenton on Sea, x.70 (*Jubb*) (TC); 1♀, Transvaal, Pretoria, i.70 (*H. & M. Townes*) (TC); 1♂, Umhlanga Rocks, xi.70 (*H. & M. Townes*) (TC). TANZANIA: 2♀, Mt Meru, vii.62 (*Heinrich*) (TC). UGANDA: 1♀, 2♂, Mengo, Entebbe, vii.64 (*Lancaster*) (TC).

ENICOSPILUS NUGALIS Schulz

(Figs 133, 315, 484, 485, 720, 791)

Cymatoneura nugal Schulz, 1906 : 275. Holotype ♀, FERNANDO POO (BMNH) [examined].

Allocamptus nugal (Schulz) Morley, 1912a : 25.

Allocamptus nugal (Schulz); Morley, 1917 : 222.

Enicospilus nugal (Schulz) Townes & Townes, 1973 : 181.

Description. Mandibles evenly narrowed, twisted about 40°; upper mandibular teeth dorso-ventrally compressed, slightly longer than the lower; outer mandibular surface flat, with isolated hairs. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute, not impressed; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face transverse, 0.60-0.70 times as broad as long with scattered punctures. Genae constricted behind eyes; posterior ocellus very close to eye; FI = 75-80%; occipital carina complete. Antennae long and slender with 58-61 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.8-3.1 times as long as broad.

Pronotum mediodorsally short with margin swollen and transverse furrow strong. Mesoscutum in profile abruptly rounded, weakly apically out-turned; notauli absent. Mesopleuron weakly polished, finely and evenly longitudinally striate; epicnemial carina vestigial above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate entire length; scutellum dorsally 1.5-1.6 times as long as anteriorly broad, alutaceous. Metapleuron finely striate; submetapleural carina parallel sided. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete; anterior area smooth or striate, spiracular area smooth, posterior area transversely striate. Posterior transverse carina of mesosternum complete.

Forewing length 13-17mm; discosubmarginal cell as in Fig. 315; AI = 0.90-1.25; CI = 0.60-0.80; ICI = 0.25-0.50; SDI = 1.60-1.75; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 7-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened bearing scattered spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 484, 485.

Gaster elongate; sternite 2 with posterior margin at or before spiracle; thyridia oval, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense elongate erect stout pubescence and fine decumbent pubescence; gonosquama distally subtruncate; genitalia as in Fig. 720.

Colour generally pale yellowish-brown; terminal segments of gaster infuscate or black; mesoscutum with 3 dark longitudinal vittae; lower face and inter-ocellar area pale yellowish; flagellum reddish-yellow, proximally infuscate; wing often proximally infumate generally with veins blackish.

Variation. The intensity of the dark markings on the mesoscutum and gaster was observed to vary. Specimens from Madagascar tend to be uniformly slightly more reddish in colour.

Remarks. This species has remarkably sexually dimorphic claws; those of the ♂ are not unlike the claws of many other species in this group but the claws of the ♀ are exceptional in having the central pectinae very long and stout. The ♂ is difficult to separate from *E. pseudonugalis* although the ♀ is very easily distinguished by differences in the claws. There is a difference between the mandibular teeth of the two species although this character requires some experience of both species to enable one to reliably separate the two.

Immature stages. Cephalic capsule of final instar larva as in Fig. 791. Hypostoma strongly sclerotized, slender, abruptly angled through 75°; hypostomal spur very long and slender; epistoma and pleurostoma exceptionally long and slender; mandibles short, strongly curved; sclerotized oral bar absent; labial sclerite rather short and broad; posterior hypostomal process short and stout; stipital sclerite large.

The very long pleurostoma epistoma and curved mandibles characterize this species.

Cocoon 18-21mm long, 2.2 times as long as broad; outer surface almost smooth, dark brown with pale equatorial band.

Host records. This species has been reared from an unidentified lepidopterous larva feeding on the leaves of coffee (*Coffea arabica*).

Distribution. Widely distributed throughout Africa and Madagascar. (Map 29).

Material examined. *Cymatoneura nugalis* Schulz, holotype ♀, FERNANDO POO (BMNH).

Non-type material. ANGOLA: 1♀, 1♂, Salazar, iii.72 (*Day*) (BMNH). CENTRAL AFRICAN REPUBLIC: 2♀, La Maboque, 1968 (MNHN). IVORY COAST: 1♀, Bingerville, x.62 (*Decelle*) (MRAC). MADAGASCAR: 1♂, Bekily, 1932 (*Seyrig*) (MNHN); 9♀, 4♂, Bekily, 1933 (*Seyrig*) (MNHN); 2♀, Bekily, 1934 (*Seyrig*) (MNHN); 4♀, 1♂, Bekily, 1936 (*Seyrig*) (MNHN); 1♀, Bekily, iv.42 (*Seyrig*) (MRAC); 1♀, Tamatave, Ivondro, xii.40 (*Seyrig*) (MRAC). MALAWI: 1♀, Mlanje, x.13 (*Neave*) (BMNH). SIERRA LEONE: 1♂, Freetown, ix.67 (*Owen*) (TC); 1♀, Freetown, iv.69 (*Owen*) (TC); 1♀, Freetown, iii.70 (*Owen*) (TC). SOUTH AFRICA: 1♀, Kenton on Sea, ii.71 (*Jubb*) (TC); 1♂, Port St. John, vii.23 (*Turner*) (BMNH). TANZANIA: 1♀, Amani, iv.62 (*Heinrich*) (TC); 1♀, Morogoro, ii.62 (*Heinrich*) (TC); 2♀, Mt Meru, vi.62 (*Heinrich*) (TC); 2♀, Uluguru, xii.61 (*Heinrich*) (TC). UGANDA: 1♀, Kilembe, Ruwenzori Region, xi.34 (*Edwards*) (BMNH); 1♀, Masaka, xi.13 (*Gowdey*) (BMNH); 13♀, 4♂, Mengo, Zika Forest, viii-x.63 (*Lancaster*) (TC); 1♀, no locality, vii.22, ex lepidopterous larva on coffee (*Hargreaves*) (BMNH). ZAIRE: 2♀, Bambesa, ii.34 (*Brédo*) (MRAC); 1♀, Bunia, vii.34 (*Leroy*) (MRAC); 1♂, Eala, x.34 (*Ghesquière*) (MRAC); 1♀, Kabali-Ituri, xi.35 (*Scops*) (MRAC); 1♂, Kisangi, xi.59 (*Decelle*) (MRAC); 1♀, Lac Kivu, Rwanki, ix.47 (*Leroy*) (MRAC); 1♀, Mayumbé, ii.12 (*Verschueren*) (MRAC); 1♂, Rutshuru, v.37 (*Ghesquière*) (MRAC).

ENICOSPILUS PSEUDONUGALIS sp. n.

(Figs 132, 316, 486, 487, 721)

Description. Mandibles evenly narrowed, twisted about 30-40°; upper mandibular tooth slightly the longer, at most barely dorsoventrally flattened; outer mandibular surface flat with scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat, margin acute not impressed; clypeus in anterior aspect 1.6-1.7 times as broad as long terminally truncate. Lower face elongate 0.65-0.75 times as broad as long with scattered punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70-75%; occipital carina complete. Antennae long and slender with 57-60 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.3-2.6 times as long as broad.

Pronotum mediodorsally short, margin swollen, transverse furrow strong. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, puncto-striate; epicnemial carina reaching above level of lower corner of pronotum but not extending to anterior pleural margin. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.5-1.7 times as long as broad anteriorly, alutaceous with obsolete punctures. Metapleuron finely striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area trans-striate. Posterior transverse carina of mesosternum complete.

Forewing length 14-19mm; discosubmarginal cell as in Fig. 316; AI = 0.95-1.60; CI = 0.55-0.90; ICI = 0.20-0.50; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7-8 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia slightly flattened with few spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 486, 487.

Gaster elongate; sternite 2 with posterior margin before spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hairs and isolated short decumbent pubescence; gonosquama distally subtruncate; genitalia as in Fig. 721.

Colour generally reddish-brown, often with mesoscutum infuscate; lower face yellowish-red; inter-ocellar area reddish; flagellum reddish-orange.

Variation. Some specimens were observed to be somewhat paler, being generally yellowish-red. The extent of the mesoscutal infuscation was observed to vary from being slight – almost imperceptible, to being almost black.

Remarks. Extremely similar to *E. nugalis* with which it has probably been confused in collections. The differences between the two species are discussed above in *E. nugalis*. The most distinctive feature of the species is that the distal pectina projects very slightly beyond the apex of the hind tarsal claw. It is, however, a difficult character to observe unless a slide is made of the claw.

Distribution. Widely distributed throughout Africa and Madagascar but usually a rare insect (Map 30).

Material examined. Holotype ♀, UGANDA: Kampala, xi.16 (*Gowdey*) (BMNH).

Paratypes. CAMEROUN: 1♂, Yaoundé, 1938 (MNHN). CENTRAL AFRICAN REPUBLIC: 2♀, La Maboke, 1968 (*Schwartz*) (MNHN). GUINEA: 1♀, Victoria, vii.16 (*Fitzroy*) (BMNH). IVORY COAST: 1♀, Mt Nimba, viii. 58 (WAU). MADAGASCAR: 1♂, Bekily (*Seyrig*) (MRAC). NIGERIA: 1♀, Ibadan, no further data (BMNH). SIERRA LEONE: 1♀, Freetown, ii.68 (*Owen*) (TC). ZAIRE: 1♀, Haut Uelé, Paulis, viii.47 (*Benoit*) (MRAC); 1♀, Lusambo, 1950 (*Hostie*) (MRAC).

ENICOSPILUS EQUATUS sp. n.

(Figs 118, 317, 488, 489, 722, 792)

[*Allocamptus infuscatus* (Tosquinet) Morley, 1912a : 23. Misidentification.]
 [*Allocamptus infuscatus* (Tosquinet); Benoit, 1953 : 545. Misidentification.]
 [*Enicospilus infuscatus* (Tosquinet); Short, 1978 : 380. Misidentification.]
Enicospilus equatus sp. n. Holotype ♀, GHANA (BMNH).

Description. Mandibles evenly narrowed, twisted about 40°, upper tooth slightly the longer, slightly dorso-ventrally flattened; outer mandibular surface concave with scattered long hairs. Labrum 0.1-0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.6-1.8 times as broad as long terminally truncate. Lower face elongate, 0.65-0.70 times as broad as long with obsolescent punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70-75%; occipital carina complete. Antennae very long with 59-72 flagellar segments; 1st flagellar segment 1.9-2.1 times as long as 2nd, 20th segment 2.5-2.8 times as long as broad.

Pronotum mediodorsally short with anterior margin swollen and transverse furrow strong. Mesoscutum in profile abruptly rounded, apically with margin out-turned; notauli discernible on anterior margin. Mesopleuron polished, striate; epicnemial carina reaching above level of lower corner of pronotum but with upper end not reaching pleural margin. Scutellum in profile convex, laterally carinate 0.8 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, transversely rugulose. Metapleuron striate; submetapleural carina anteriorly abruptly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina present; anterior area striate, spiracular area smooth, posterior area with very coarse transverse striae extending onto metapleuron. Posterior transverse carina of mesosternum complete.

Forewing length 19-22mm; discosubmarginal cell as in Fig. 317; AI = 1.05-1.40; CI = 0.70-0.80; ICI = 0.85-1.05; SDI = 1.50-1.70; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 8-9 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 488, 489.

Gaster elongate; sternite 2 with posterior margin at or before spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by about 3.0 times its own length.

Ovipositor apically very elongately acute. Sternites 6-8 of ♂ with long dense erect pubescence; gonosquama distally somewhat acute; genitalia as in Fig. 722.

Colour generally orange-yellow; gaster brownish-yellow with tergites 3 and 4 dorsally and tergites 5+ entirely, black; lower face and inter-ocellar area orange; flagellum brownish-red, proximally infuscate; wings infumate.

Variation. This is a very uniform species both in morphology and colour.

Remarks. This is one of the more distinctive species on account of the small fenestra and relatively straight *Rs+2r*. The strongly trans-striate propodeum has the anterior margin of the propodeal spiracles swollen, so in profile the spiracular orifice is virtually obscured. Its affinities with other species are not as yet clear. It may be related to the *E. senescens* species-group or possibly even to the *E. leucocotis* species-group but at present it is placed on its own pending further research on the phylogeny of the genus.

Immature stages. Cephalic capsule of final instar larva as in Fig. 792. Hypostoma strongly sclerotized, slender, curved through 95°; hypostomal spur of moderate size; epistoma and pleurostoma long and slender; mandibles short, curved; sclerotized oral bar present; labial sclerite quite short and broad; posterior hypostomal process long; stipital sclerite slender.

This species is similar to *E. nugalis* from which it differs in the shorter pleurostoma/epistoma and more strongly curved hypostoma.

Cocoon 20-22mm long, 1.9-2.0 times as long as broad; outer surface with few coarse fibres, dark brown with trace of pale equatorial band.

Host records. This species has been reared from *Othreis divitiosa* Walker and *O. fullonia* Clerck. (Lep., Noctuidae).

Distribution. This species is not uncommon in forested areas of central and west Africa. A single ♂ has been taken in Madagascar where it appears to be very rare (Map 31).

Material examined. Holotype ♀, GHANA: Aiyiribi, near Oola, ix.40 (*Box*) (BMNH).

Paratypes. CAMEROUN: 1♀, Yaoundé, vii.67 (*Matile*) (MNHN). GHANA: 1♀, Aiyiribi, near Oola, x.40, ex larva of *Othreis divitiosa* (*Box*) (BMNH); 3♀, 1♂, Asuansi, ix.41 ex *Othreis divitiosa* (*Box*) (BMNH). MADAGASCAR: 1♂, Bekily, iv.42 (*Seyrig*) (MRAC). NIGERIA: 1♀, Ibadan, vi.51 (*Gregory*) (BMNH); 5♂, Ife-Ife, vii.73 (*Medler*) (TC); 2♂, Ife-Ife, viii.73 (*Medler*) (TC); 1♀, 5♂, Ife-Ife, viii.74 (*Medler*) (TC).

(TC); 1♂, Ilaro Forest, vi.73 (Riley) (BMNH); 1♀, Mamu, iv.61, in forest (Riley) (BMNH); 1♀, 1♂, Oshogbo, xi.10 (Mayer) (BMNH). SIERRA LEONE: 2♀, Freetown, viii.67 (Owen) (TC); 2♀, Njala, vii.34, ex *Othreis fullonica* (Hargreaves) (BMNH); 1♀, Njala, vi.35 (Hargreaves) (BMNH). TOGO: 1♀, Klouto Mt, vi.50 (MRAC). TANZANIA: 1♀, Uluguru Mt near Morogoro, i.62 (Heinrich) (TC). UGANDA: 2♀, 1♂, Mengo, Zika Forest, vi-x.63 (Lancaster) (TC). ZAIRE: 1♀, 1♂, Bambesa, ix.33 (Brédo) (MRAC); 1♂, Bas Congo, Kimpese, vii.51 (Bequaert) (MRAC); 1♀, Bas Uelé, vii.20 (Burgeon) (MRAC); 1♀, Beni, Ituri Forest, viii.46 (BMNH); 3♀, 2♂, Eala, vii.35 (Ghesquière) (MRAC); 1♀, Equateur, Bokuma, vii.52 (Lootens) (MRAC); 1♀, Equateur, Flandria, ii.48 (Hulstaert) (MRAC); 1♀, Kibali-Ituri, Kilomines, v.57 (Smoor) (MRAC); 1♂, Lubumbashi, i.37 (Brédo) (IRSNB); 1♂, Mayumbé, 1917 (Mayné) (MRAC); 1♀, Mayumbé, Dingi, x.24 (Collart) (MRAC); 1♀, Ngowa, v.38 (Mertens) (IRSNB); 1♀, Nyunzu, 1935 (de Saeger) (MRAC); 1♀, Salonga (?Bonifutu), vi.36 (Ghesquière) (MRAC); 4♀, 2♂, Uelé, Bambesa, viii.33 (Leroy) (MRAC); 1♀, Uelé, Bambesa, v.38 (Henrard) (MRAC).

ENICOSPILUS JUNCTUS sp. n.

(Figs 127, 129, 318, 490)

Description. Mandibles evenly narrowed, twisted about 10°, with upper tooth 1.2 times as long as the lower; outer mandibular surface flat with scattered hairs. Labrum 0.2 times as long as broad; malar space 0.6 times as long as basal mandibular width. Clypeus in profile very weakly convex, margin acute; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long with fine punctures. Genae moderately constricted behind eyes; posterior ocellus very close to eye; FI = 50-55%; occipital carina complete. Antennae incomplete; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.5-1.6 times as long as broad.

Pronotum mediodorsally moderately long with anterior margin raised and curved back over pronotum to approach a strong transverse crest running along hind pronotal margin, the two together enclosing a deep furrow. Mesoscutum in profile evenly rounded, apically not out-turned; notauli impressed on anterior 0.2. Mesopleuron polished, punctate; epicnemial carina reaching above lower corner of pronotum but dorsal end remote from pleural margin. Scutellum in profile convex, laterally carinate for 0.7 of its length; scutellum dorsally 1.6 times as long as broad anteriorly, with isolated punctures. Metapleuron punctate; submetapleural carina anteriorly expanded into a blunt triangular lobe. Propodeum in profile evenly declivitous, dorsally convex; anterior transcarina obsolescent; anterior area striate, spiracular area punctate, posterior area strongly transversely striate. Posterior transverse carina of mesosternum complete.

Forewing length 15-19mm; discosubmarginal cell as in Fig. 318; AI = 0.85-1.30; CI = 0.60-0.65; ICI = 0.80-0.95; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 9 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, bearing few isolated spines on outer surface; hind coxa in profile 1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 490.

Gaster elongate; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute.

Colour generally orange-red; lower face and inter-ocellar area orange; flagellum reddish; wings weakly infumate.

♂ unknown.

Remarks. This species is distinct in the form of the pronotum which is quite unlike that of other species of *Enicospilus* that lack alar sclerites. The affinities of this species are quite unknown but it is not likely that it is related to other species of *Enicospilus* with a similarly modified pronotum as there are numerous morphological differences between these species. It is quite probable that the elaborate system of pronotal crests has evolved in several different evolutionary lines of *Enicospilus* as it has in other genera such as *Laticoleus* and *Orientospilus*.

Distribution. This species is apparently confined to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, xii.32 (Seyrig) (MNHN); paratypes 1♀, same data as holotype (MNHN); 1♀, Bekily, i.33 (Seyrig) (MNHN); 1♀, Madagascar, no further locality data, i.37 (Seyrig) (BMNH).

ENICOSPILUS ANGUSTATUS (Brullé)

(Figs 319, 491, 492, 723)

Ophion angustatus Brullé, 1846 : 148. Holotype ♀?, MAURITIUS (MNHN) [examined].

Allocampus? angustatus (Brullé) Morley, 1912a : 60.

Enicospilus angustatus (Brullé) Townes & Townes, 1973 : 172.

Description. Mandibles evenly narrowed, twisted about 10°, upper tooth about 2.0 times length of lower tooth; outer mandibular surface flat with isolated pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat, margin blunt; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, with obsolescent punctures. Genae moderately constricted behind the eyes; posterior ocellus contiguous with eye; FI = 60-65%; occipital carina complete. Antennae long and stout with 63-65 flagellar segments; 1st flagellar segment 1.4-1.5 times as long as 2nd, 20th segment 1.6-1.7 times as long as broad.

Pronotum mediodorsally short, anteriorly strongly swollen, almost crest-like and with transverse furrow very strong. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, punctate; epicnemial carina curved to almost reach pleural margin above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for entire length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, smooth. Metapleuron coriaceous; submetapleural carina anteriorly expanded into a triangular flange. Propodeum in profile evenly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 18-20mm; discosubmarginal cell as in Fig. 319; AI = 1.60-1.65; CI = 0.90-0.95; ICI = 0.80-0.85; SDI = 1.50-1.60; *cu-a* subopposite *Rs&M*. Hindwing with 9-10 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with scattered weak spines on anterior surface; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 491, 492.

Gaster elongate; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine dense decumbent pubescence; gonosquama distally convex or obliquely truncate with an acute prolongation; genitalia as in Fig. 723.

Colour generally orange-red with terminal segments of gaster weakly infuscate; lower face and inter-ocellar area orange; flagellum orangish-brown.

Variation. The size of the internal thickening of 1*m-cu* varies from a slight broadening of the vein to a distinct ramellus-like structure.

Remarks. This species is closely related to *E. plagiatus*. These species both have the posterior margin of the fenestra indented and bordered by very short hairs. *E. angustatus* differs from *E. plagiatus* in lacking alar sclerites.

Distribution. This species is recorded from Madagascar and Mauritius.

Material examined. Holotype ♀ (terminal segments of gaster lacking) MAURITIUS: no further data (MNHN).

Non-type material. MADAGASCAR: 28♀, 2♂, Bekily, xii.33 (*Seyrig*) (MNHN); 2♀, Bekily (*Benoit*) (MRAC); MAURITIUS: 1♀, no further data, 1894 (*Carie*) (MNHN); 1♀, 1♂, no further data, 1901 (*Alluaud*) (MNHN).

ENICOSPILUS COHACARUS sp. n.

(Figs 320, 493, 494, 724, 787)

Enicospilus species 8 Madagascar; Short, 1978 : 91, 383.

Description. Mandibles proximally strongly narrowed, twisted about 20°, upper tooth about 1.2 times as long as lower; outer mandibular surface flat with isolated pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile more or less flat, margin blunt; clypeus in anterior aspect 1.8-1.9 times as broad as long, terminally truncate. Lower face elongate, 0.85-0.95 times as broad as long with fine punctures. Genae moderately constricted behind the eyes; posterior ocellus very close to eye; FI = 50-55%; occipital carina complete. Antennae long, rather stout with 65-67 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.2-1.4 times as long as broad.

Pronotum mediodorsally short, anterior and posterior margins swollen with deep transverse furrow. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli strong on anterior 0.2. Mesopleuron polished, punctate; epicnemial carina curved to reach anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.5 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly without sculpture. Metapleuron punctate; submetapleural carina anteriorly abruptly expanded into triangular flange. Propodeum in profile evenly rounded, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely trans-striate. Posterior transverse carina of mesosternum complete.

Forewing length 17-22mm; discosubmarginal cell as in Fig. 320; AI = 1.15-1.30; CI = 0.55-0.60; ICI = 0.75-0.85; SDI = 1.50-1.70; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 9 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia strongly flattened with isolated spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep, hind trochantellus mediodorsally 0.1 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 493, 494.

Gaster elongate; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by about 3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense long erect pubescence; gonosquama distally convex or acute; genitalia as in Fig. 724.

Colour generally orange-red; lower face and inter-ocellar area orange; flagellum dark brown.

Remarks. This large species belongs to the *E. cohacarus* species-group, a group of large Madagascan species characterized by the very elongate 2nd discal cell, large strongly curved claws and lack of, or presence of, a weak alar sclerite. Morphologically this species-group is closely related to the *E. angustatus* species-group. *E. cohacarus* is distinct from other species in having *Rs+2r* straight and a propodeum with strong transverse striations.

Immature stages. Cephalic capsule of final instar larva as in Fig. 787. Hypostoma very strongly sclerotized, stout, curved through 80°; hypostomal spur slender, proximally rather abruptly broadened; epistoma and pleurostoma confluent with sclerotized region above hypostoma; mandible evenly tapered, weakly curved; sclerotized oral bar present; labial sclerite large, strongly sclerotized, rugulose, ventrally expanded; posterior hypostomal process long; stipital sclerite fairly long and slender.

The head capsule of this species is distinctive on account of the extensive sclerotization of the various elements.

Cocoon 22-26mm long, 1.7-1.8 times as long as broad; outer surface with scattered fibres; dark brown with pale equatorial band.

Distribution. This species is apparently confined to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, xii.33 (*Seyrig*) (MNHN); paratypes 12♀, 20♂, Bekily, xii.33 (*Seyrig*) (MNHN); 6♀, Bekily, i.34 (*Seyrig*) (MNHN); 1♀, Bekily, no further data (MNHN).

ENICOSPILUS EVANESCENS sp. n.

(Figs 115, 321, 495, 496, 725, 789)

Description. Mandibles evenly narrowed, twisted about 40°, teeth subequal in length; outer mandibular surface flat with fine scattered hairs. Labrum 0.3 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat, margin flat; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long with small punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and stout with 68-72 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 1.3-1.4 times as long as broad.

Pronotum mediodorsally short with anterior and posterior margin strongly swollen. Mesoscutum in profile evenly rounded, apically not out-turned; notauli weak to strong on anterior 0.2. Mesopleuron weakly polished, aluto-punctate; epicnemial carina vestigial above level of lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.7 or more of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, alutaceous. Metapleuron aluto-punctate; submetapleural carina strongly and evenly broadened anteriorly. Propodeum in profile evenly rounded, dorsally flattened; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 15-23mm; discosubmarginal cell as in Fig. 321; AI = 1.10-1.30; CI = 0.80-1.00; ICI = 0.95-1.30; SDI = 1.50-1.70; *cu-a* proximal to *Rs&M* by 0.3-0.4 times its own length. hindwing with 9-10 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines on outer surface; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 495, 496.

Gaster elongate; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by about 4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hair and short fine decumbent hair; gonosquama distally convex; genitalia as in Fig. 725; aedeagus unusual in having a strongly sclerotized dorsal rod and apical blunt tubercles.

Colour generally orange-brown, terminal segments of gaster ventrally infuscate; lower face, inter-ocellar area and flagellum brownish-orange.

Variation. It is possible that 2 species are confused here. Some specimens have a weakly formed sclerite present and have the pleura more strongly polished than normal. Most specimens have only a vague quadra discernible and have the pleura sub-polished. Several specimens are intermediate so we have chosen to retain all as a single species for the present.

Remarks. Because of variation in the sclerite it was necessary to take this species out in two places in the key. It is morphologically very closely related to *E. cohacarus* from which it differs in propodeal sculpture and form of vein *Rs+2r*. It clearly belongs to the *E. cohacarus* species-group.

Immature stages. Cephalic capsule of final instar larva as in Fig. 789. Hypostoma strongly sclerotized, stout, curved through 90°; hypostomal spur moderately slender; epistoma and pleurostoma stout, quite short; mandible evenly tapered, weakly curved; sclerotized oral bar present; labial sclerite normal; posterior hypostomal process long, stout; stipital sclerite long, fairly stout.

The short pleurostoma/epistoma characterize this species.

Cocoon 20-25mm long, 1.6-1.7 times as long as broad; outer surface with covering of long fine 'wool-like' fibre, uniformly light brown.

Host records. Reared from larvae of *Borocera madagascariensis* Boisduval (Lep., Lasiocampidae).

Distribution. Only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, iii.33 (*Seyrig*) (MNHN).

Paratypes. MADAGASCAR: 3♀, Addanarito, 1919 (*Decary*) (MNHN); 1♀, Ambodivoangy, x.61 (*Vadon*) (MRAC); 1♀, Ambolo Valley, 1901 (*Alluaud*) (MNHN); 1♂, 'd'Ambre', xii.31 (*Seyrig*) (MNHN); 1♂, Ankarata, i.52 (*Rakovas*) (MRAC); 1♂, Antsirabé, xi.36 (*Seyrig*) (MNHN); 18♀, 17♂, Bekily, 1933 (*Seyrig*) (MNHN); 2♀, 2♂, Bekily, 1934 (*Seyrig*) (MNHN); 1♀, Bekily, 1937 (*Seyrig*) (MNHN); 2♀, Fianarive, iv.52, ex *Borocera madagascariensis* (*Inst. Scient. Mad.*) (MRAC); 1♀, Fianarantsoa, ix.30 (*Seyrig*) (MNHN); 1♀, 'd'Isalo', xi.51, ex *Borocera madagascariensis* (*Inst. Scient. Mad.*) (MRAC); 1♀, Perinet, no further data (MRAC); 1♀, Ranomafana, no further data (MRAC); 1♀, Rogez, i.37 (*Seyrig*) (MNHN); 1♀, Sandrangato, no further data (MRAC); 1♀, Tamatave, Ivondro, xii.40 (*Seyrig*) (MRAC); 1♂, Tananarive, 1919 (*Decary*) (MNHN); 1♀, 1♂, Tananarive, 1919 (*Waterlot*) (MNHN).

ENICOSPILUS OWENI sp. n.

(Figs 322, 501, 502, 726)

Description. Mandibles evenly narrowed, twisted about 40°, subequally bidentate; outer mandibular surface slightly concave with scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile more or less flat, margin acute; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.85 times as broad as long with weak close punctures. Genae constricted behind the eyes; posterior ocellus separated from eye by 0.1 times maximum diameter; FI = 55-60%; occipital carina complete. Antennae long and slender with 56-58 flagellar segments; 1st flagellar segment 1.9-2.0 times as long as 2nd, 20th segment 1.9-2.1 times as long as broad.

Pronotum mediodorsally short with anterior margin weakly swollen and transverse furrow moderately impressed. Mesoscutum in profile weakly convex, apically not out-turned; notauli absent. Mesopleuron polished, dorsally punctate grading ventrally to striate; epicnemial carina curved to but not quite reaching anterior pleural margin above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.8-1.9 times as long as broad anteriorly, vestigially punctate, posteriorly wrinkled. Metapleuron puncto-striate; submetapleural carina narrow, abruptly expanded into a blunt flange. Propodeum in profile fairly abruptly rounded, dorsally

slightly concave; anterior transcarina complete; anterior area striate; spiracular area smooth, posterior area irregularly transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-15mm; discosubmarginal cell as in Fig. 322; AI = 0.60-0.80; CI = 0.51-0.75; ICI = 0.65-0.85; SDI = 1.10-1.20; *cu-a* from opposite *Rs&M* to proximal to it by 0.2 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia weakly flattened, with isolated spines on outer surface; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 501, 502.

Gaster elongate; sternite 2 with posterior margin at or before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by about 2.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with sparse fine decumbent pubescence and few long erect hairs; gonosquama distally convex or truncate; genitalia as in Fig. 726.

Colour generally reddish-orange to yellowish-red; lower face and inter-ocellar area reddish-yellow; flagellum reddish-brown.

Variation. A little variation in colour was observed as stated above.

Remarks. This species is named in honour of its collector, Professor D. Owen. This species is morphologically very similar to *E. senescens* from which it differs in value of AI, in having *Rs+2r* less strongly sinuate and in having fenestra larger.

Host records. This species has been raised from *Anomis leona* Schaus (Lep., Noctuidae) on cocoa (*Theobroma cacao*) and from the larva of *Diacrisia investigatorum* Karsch (Lep., Arctiidae). Judging from the material collected by Decelle in west Africa, this species is one of the commonest *Enicospilus* species in cocoa plantations.

Distribution. Widely distributed throughout central and west Africa. The single ♀ from the Yemen could well be mislabelled. (Map 32).

Material examined. Holotype ♀, SIERRA LEONE: Freetown, xii.67 (Owen) (TC).

Paratypes. IVORY COAST: 50♀, 11♂, Bingerville, vii-xii.62 (Decelle) (MRAC); 3♀, Bingerville, iii.63, ex *Anomis leona* on cocoa (Decelle) (MRAC). NIGERIA: 1♀, Ikoyi, Lagos, iv.71 (Riley) (BMNH). SIERRA LEONE: 8♀, 1♂, Freetown, ix.67 (Owen) (TC); 1♀, Freetown, i.68 (Owen) (TC); 7♀, 2♂, Freetown, ii-x.69 (Owen) (TC). YEMEN: 1♀, San'a, ix.37 (Rathjens) (BMNH). ZAIRE: 1♀, Equateur, Flandria, vii.34 (Hulstaert) (MRAC); 1♀, Gandajika, xi.47 ex *Diacrisia investigatorum* (Henrard) (MRAC); 1♀, Kisangi, iii.28 (Collert) (MRAC); 1♀, Luluabourg, iv.39 (Deheyn) (MRAC); 1♀, Mayidi, 1945 (van Eyen) (MRAC).

ENICOSPILUS HYAILOSUS sp. n.

(Figs 117, 323, 497, 498, 727)

Description. Mandibles weakly and evenly narrowed, twisted about 40°, subequally bidentate; outer mandibular surface more or less flat with isolated pubescence. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat, margin flat; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, obsolete punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 57-60 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.0-2.1 times as long as broad.

Pronotum mediodorsally short, anterior margin slightly swollen, transverse furrow weak. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli absent. Mesopleuron sub-polished, weakly puncto-striate; epicnemial carina vestigial on mesopleuron. Scutellum in profile moderately convex, laterally carinate for 0.7 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, alutaceous. Metapleuron alutaceous; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area from irregularly coriaceous to medianly longitudinally wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-20mm; discosubmarginal cell as in Fig. 323; AI = 0.95-1.05; CI = 0.80-1.10; ICI = 0.55-0.70; SDI = 1.60-1.70; *cu-a* proximal to *Rs&M* by 0.2-0.4 times its own length. Hindwing with 8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 497, 498.

Gaster elongate; sternite 2 with posterior margin at or before spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 2.5-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense elongate erect hair and scattered fine decumbent hair; gonosquama distally evenly convex or truncate; genitalia as in Fig. 727, unusual in having distivolsella rather reduced in size.

Colour generally brownish; lower face, flagellum and inter-ocellar area orangish-brown.

Variation. Some variation in the propodeal sculpture, as detailed above, was observed.

Remarks. This species belongs to the *E. senescens* species-group. It is closely related to *E. oweni* from which it differs in lacking the epicnemial carina laterally, having AI larger and having different genitalia. It also resembles *E. senescens* from which it may be distinguished by the characters mentioned in the key and also in the hind tarsal claws. Those of the ♀ are more sparsely pectinate than those of *E. senescens* and those of the ♂ are rather unevenly pectinate.

Distribution. This species occurs in east Africa and Madagascar (Map 33).

Material examined. Holotype ♀, UGANDA: Mengo, Zika Forest, xi.63 (*Lancaster*) (TC); paratypes 21♀, 11♂, Mengo, Zika Forest, viii-xi.63 (*Lancaster*) (TC). MADAGASCAR: 1♀, Sandrangato (*Inst. Scient. Mad.*) (MRAC).

ENICOSPILUS SENESCENS (Tosquinet)

(Figs 128, 130, 134, 324, 499, 500, 728)

- Ophion* (*Allocamptus*) *senescens* Tosquinet, 1896 : 375. Lectotype ♂, TOGO? (MNHU), designated by Townes & Townes, 1973 : 183 [examined].
- Ophion* (*Allocamptus*) *infuscatus* Tosquinet, 1896 : 373. Holotype ♂, GHANA (TOGO) (MNHU) [examined]. [Junior primary homonym of *Ophion infuscatus* Taschenberg, 1875.] Syn. n.
- Henicospilus infuscatus* (Tosquinet) Dalla Torre, 1901 : 182.
- Henicospilus senescens* (Tosquinet) Dalla Torre, 1901 : 184.
- Cymatoneura infuscatus* (Tosquinet) Schulz, 1906 : 96.
- Cymatoneura senescens* (Tosquinet) Schulz, 1906 : 96.
- Allocamptus senescens* (Tosquinet) Morley, 1912a : 22.
- Allocamptus senescens* (Tosquinet); Morley, 1917 : 222.
- Allocamptus rapax* Seyrig, 1935 : 50. Lectotype ♀, ETHIOPIA (MNHN), designated by Townes & Townes, 1973 : 184 [examined]. [Synonymized by Townes & Townes, 1973 : 184.]
- Allocamptus senescens* (Tosquinet); Benoit, 1953 : 545.
- Enicospilus infuscatus* (Tosquinet) Townes & Townes, 1973 : 178.
- Enicospilus senescens* (Tosquinet) Townes & Townes, 1973 : 184.

Description. Mandibles evenly narrowed, twisted about 35°, subequally bidentate; outer mandibular surface flat with isolated pubescence. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat or slightly convex; margin slightly in-turned; clypeus in anterior aspect 1.6-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long with scattered punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 58-62 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 2.5-2.7 times as long as broad.

Pronotum mediodorsally short, margin slightly swollen, transverse furrow rather weak or moderately impressed. Mesoscutum in profile evenly rounded, apically slightly out-turned; notauli absent. Mesopleuron sub-polished, closely punctostriate; epicnemial carina reaching above level of lower corner of pronotum, curved to but not reaching pleural margin. Scutellum in profile moderately convex, laterally carinate entire length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, coarsely punctate with tendency to form transverse wrinkles. Metapleuron puncto-striate; submetapleural carina evenly broadened anteriorly. Propodeum in profile abruptly declivitous, dorsally flattened; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area coriaceous to reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 11-17mm; discosubmarginal cell as in Fig. 324; AI = 1.00-1.65; CI = 0.80-1.00; ICI = 0.70-1.00; SDI = 1.60-1.80; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 5-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 499, 500.

Gaster elongate; sternite 2 with posterior margin at or before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense long stout erect hair and short fine decumbent hair; gonosquama distally convex or slightly acute; genitalia as in Fig. 728.

Colour generally orange-brown to dark brown; lower face, flagellum and inter-ocellar area similarly coloured.

Variation. The holotype of *E. infuscatus* differs from the lectotype of *E. senescens* in having the posterior 0.5 of the propodeum striate rather than reticulate. Various intermediate specimens have been seen and the two type-specimens are clearly conspecific but end forms of a continuum of variation. Colour variation was noted as detailed above.

Remarks. It should be noted that the species identified and referred to by Morley (1912a) and Benoit (1953) as *E. infuscatus* is in fact a misidentification. This species is correctly known as *E. equatus* sp. n.

E. senescens is closely related to three other species, *E. oweni*, *E. hyailosus* and *E. glyphanosus*, and it requires care to separate them. The small differences mentioned in the key are consistent over the range of material examined and it is quite reasonable to assume the four are separate species. The small differences between the claws of these species are remarkably constant and useful additional characters to those given in the key.

Host records. This species has been reared from *Anomis leona* Schaus (Lep., Noctuidae) on cocoa (*Theobroma cacao*).

Distribution. Very widely distributed throughout Africa and Madagascar but is most common in central and eastern Africa, becoming much rarer southwards (Map 34).

Material examined. *Ophion* (*Allocamptus*) *senescens* Tosquinet, lectotype ♂, TOGO? (MNHU). *Ophion* (*Allocamptus*) *infuscatus* Tosquinet, holotype ♂, GHANA: Dutukpene (TOGO: Bismarckburg) (MNHU). Tosquinet (1896) described a number of Ichneumonidae from Bismarckburg, Togo. According to Ambrosius (1924 : 184) Bismarckburg is the area of mountainous country around Dutukpene and is situated about 20km east of the River Volta to the west of the border dividing French Togo from British Togoland. British Togoland was subsequently incorporated in Ghana so the type locality therefore belongs in Transvolta Province, Ghana. *Allocamptus rapax* Seyrig,

lectotype ♀, ETHIOPIA (MNHN); paralectotypes 2♀, same data as lectotype (MNHN).

Non-type material. ANGOLA: 1♀, Luanda, x.65 (*Girauder*) (MRAC); 1♂, Quitondo, ix.57 (*Heinrich*) (TC); 1♂, Roça Canzele, iii.55 (*Heinrich*) (TC); 1♂, Salazar, iii.72 (*Day*) (BMNH). CENTRAL AFRICAN REPUBLIC: 1♂, La Maboque, viii.67 (*Matile*) (MNHN). GABON: 1♀, Mvoung, Mt Sable, xi.69 (*Villiers*) (MNHN). GHANA: 1♂, Obuasi, Ashanti, vi.08 (*Graham*) (BMNH). GUINEA: 1♂, Kindia, 1927 (*Gromier*) (MNHN). IVORY COAST: 1♀, Akoupe, 25km N Abidjan, ii.62 (*Decelle*) (MRAC); 8♀, Bingerville, x.62 (*Decelle*) (MRAC); 2♀, Bingerville, 1963 ex *Anomis leona* on cocoa (*Decelle*) (MRAC). KENYA: 1♀, Nyeri, x.21 (*Wilkinson*) (BMNH). MADAGASCAR: 1♀, Ankaratra, Manjakatome, i.52 (*Inst. Res. Mad.*) (MRAC); 1♂, Fampanambo, vii.59 (*Vadon*) (MRAC); 1♀, Fampanambo, ii.61 (*Vadon*) (MRAC). MALAWI: 1♀, Mlanje, v.13 (*Neave*) (BMNH); 1♀, Zomba (*Stannus*) (BMNH). NIGERIA: 1♀, Ibadan, iii.59 (*Riley*) (BMNH); 1♀, Ife-Ife, W. State, iii.73 (*Medler*) (TC); 2♀, 2♂, Ife-Ife, W. State, ix.74 (*Medler*) (TC); 11♀, 8♂, Ikerre, W. State, ix.74 (*Medler*) (TC); 1♀, Ilora, viii.74 (*Medler*) (TC); 1♀, Sapoba, M. W. State, viii.73 (*Medler*) (TC). RWANDA: 1♂, Butare, iv.68 (*Verriest*) (MRAC); 1♀, Kagera, Gahinga, iv.37 (*Brédo*) (MRAC); 1♀, Muhavura, i.53 (*Basilewsky*) (MRAC). SIERRA LEONE: 1♀, 1♂, Freetown, iv.66 (*Owen*) (TC); 12♀, 1♂, Freetown, x.66 (*Owen*) (TC); 2♂, Freetown, ix.67 (*Owen*) (TC); 3♀, Njala, iii.36 (*Hargreaves*) (BMNH). SOUTH AFRICA: 5♀, Grahamstown, xii.71 (*Gess*) (TC). TANZANIA: 1♂, Amani, iv.62 (*Heinrich*) (TC); 3♀, Morogoro, i.62 (*Heinrich*) (TC); 1♀, Mt Meru, vii.62 (*Heinrich*) (TC); 2♀, Uluguru, xii.61 (*Heinrich*) (TC). UGANDA: 1♀, Entebbe, ii.12 (*Wiggins*) (BMNH); 9♀, 2♂, Kampala, viii.17-i.18 (*Gowdey*) (BMNH); 13♀, 1♂, Kampala, ix-xii.64 (*Owen*) (TC); 6♀, 1♂, Kampala, xii.65 (*Unamba*) (TC); 1♀, Mabira Forest, vii.13 (*Gowdey*) (BMNH); 2♀, 1♂, Mengo, Entebbe, vii.64 (*Lancaster*) (TC); 6♀, 7♂, Mengo, Zika Forest, viii-xi.63 (*Lancaster*) (TC); 1♂, Ruwenzori, Semliki, ix.52 (*Fletcher*) (BMNH). ZAIRE: 1♀, Bambesa, i.33 (*Brédo*) (MRAC); 1♀, Bokula, iv.41 (*Hulstaert*) (MRAC); 1♀, Boma, xii.45 (*Vrydagh*) (MRAC); 1♂, Bumba, xii.39 (*de Saeger*) (MRAC); 2♀, 1♂, Eala, xi.36 (*Ghesquière*) (MRAC); 1♂, Gandajika, iv.47 (*Henrard*) (MRAC); 2♀, Gandajika, ii.59 (*Decelle*) (MRAC); 1♀, Kibombo, x.30 (*Brédo*) (MRAC); 1♀, Kivu, Fizi, i.57 (*Leleup*) (MRAC); 3♂, Kivu, Kadjudju, 1932 (*Babault*) (MNHN); 1♀, Kivu, Kadjudju, xi.32 (*Babault*) (MRAC); 1♀, Kivu, Kadjudju, (*Benoit*) (MRAC); 1♀, Kivu, Mulunga, vi.35 (*Leroy*) (MRAC); 2♀, Kivu, Rwanki, iv.48 (*Leroy*) (MRAC); 1♀, Lubumbashi, xii.28 (*Seydel*) (TC); 1♀, Lubumbashi, ix.51 (*Seydel*) (MRAC); 1♂, Mayumbé, Lemba, xii.15 (*Mayné*) (MRAC); 1♀, 3♂, Rutshuru, v.37 (*Ghesquière*) (MRAC). 2♀, 'Kil. 345 de Kindu' (*Russo*) (MRAC).

ENICOSPILUS GLYPHANOSUS sp. n.

(Figs 131, 135, 325, 503, 504, 729)

Description. Mandibles weakly narrowed, twisted about 30°, subequally bidentate; outer mandibular surface flat with scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, with scattered punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 70-75%; occipital carina complete. Antennae long and slender with 55-56 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.8-2.0 times as long as broad.

Pronotum mediodorsally short, margin slightly swollen, transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically out-turned; notauli absent. Mesopleuron polished, punctate ventrally grading to puncto-striate; epicnemial carina curved towards margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate entire length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, alutaceous. Metapleuron alutaceous; submetapleural carina narrow, anteriorly abruptly broadened. Propodeum in profile evenly rounded, dorsally flattened; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area weakly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-16mm; discosubmarginal cell as in Fig. 325; AI = 1.40-1.60; CI = 0.65-1.00; ICI = 0.55-0.65; SDI = 1.50-1.60; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered spines on outer surface; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.1 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 503, 504.

Gaster elongate; sternite 2 with posterior margin at or just before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically unusually short and stout with dorsal lobe compressed laterally before subapical notch. Sternites 6-8 of ♂ with moderately long dense semi-erect pubescence; gonosquama distally rounded; genitalia as in Fig. 729.

Colour generally reddish-brown, terminal segments of gaster weakly infusate, lower face, inter-ocellar area and flagellum reddish-orange.

Remarks. This species is closely related to *E. senescens* from which it may be distinguished not only by the characters mentioned in the key but also in the form of the ovipositor.

Host records. This species has been reared from an unidentified Liparid larva.

Distribution. Widely distributed throughout central Africa (Map 35).

Material examined. Holotype ♀, UGANDA: Kampala, viii.64 (*Owen*) (TC).

Paratypes. ANGOLA: 1♂, Cacolo, xii.57 (TC). MALAWI: 1♀, Mt Mlanje, xi.12 (*Neave*) (BMNH). NIGERIA: 1♀, Ife-Ife, W. State, viii.74 (*Medler*) (TC); 1♀, 1♂, Ilora, W. State, viii.74 (*Medler*) (TC). UGANDA: 1♂, Damba I. (Lake Victoria), x.11, ex Liparid larva (*Carpenter*) (BMNH); 1♀, 5♂, Entebbe, v.64 (*Lancaster*) (TC); 1♀, Kampala, i.18 (*Gowdey*) (BMNH); 2♀, Kampala, viii.64 (*Owen*) (TC); 1♀, 2♂, Kampala, v.65 (*Unamba*) (TC); 3♀, Mengo, Zika Forest, x.63 (*Lancaster*) (TC); 1♀, Mengo, Zika Forest, viii.64 (*Lancaster*) (TC). ZAIRE: 1♂, Mayumbé, Dimonika, i.64 (*Villiers*) (MNHN).

ENICOSPILUS EIRMOSUS sp. n.

(Figs 136, 326, 505)

Description. Mandibles evenly narrowed, twisted about 20° , with upper tooth 1.3 times as long as lower tooth and conspicuously the broader; outer mandibular surface flat with scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.2 times as broad as long, terminally truncate. Lower face elongate, 0.75 times as broad as long, with fine punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 55%; occipital carina complete. Antennae stout, incomplete; 1st flagellar segment 1.5 times as long as 2nd, 20th segment 1.3 times as long as broad.

Pronotum mediodorsally moderately long with anterior margin strongly up-turned and with the posterior margin paralleled by a ridge. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, puncto-striate; epicnemial carina vestigial above lower corner of pronotum. Scutellum in profile flat, lateral carina absent; scutellum dorsally 1.4 times as long as broad anteriorly, unusual in being strongly concave and coarsely punctate. Metapleuron strongly inflated, coriaceous; submetapleural carina evenly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 18mm; discosubmarginal cell as in Fig. 326; AI = 0.85; CI = 0.73; ICI = 0.55; SDI = 1.40; *cu-a* proximal to *Rs&M* by 0.3 times its own length. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, bearing isolated spines on outer surface; hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 505.

Gaster slender; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia long and ellipsoidal, separated from anterior margin of tergite by 2.5 times its own length.

Sternites 6-8 of δ with numerous long stout erect hairs and fine scattered decumbent pubescence; gonosquama distally acute.

Colour generally orange-brown; lower face, flagellum and inter-ocellar area orange; wings slightly infumate.

Remarks. This species belongs to the *E. cohacarus* species-group. Amongst the species of this group, this is the only one with a specialized pronotum. The form of the scutellum is also very characteristic of this species.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype δ , MADAGASCAR: Nord, Massif du Tsaratanana en dessous de L'Andohanisambirano Matsabory, 1900m, xii.64 (*Soga*) (MNHN). Paratype 1 δ , MADAGASCAR: Sandrangato, (*Inst. Res. Mad.*) (MRAC).

ENICOSPILUS MAMATSUS sp. n.

(Figs 137, 142, 327, 506, 507, 730)

Description. Mandibles evenly narrowed, twisted about 25° , upper tooth about 2.0 times as long as the lower; outer mandibular surface flat with isolated pubescence. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin slightly in-turned; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, with fine punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 57-59 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.9-2.1 times as long as broad.

Pronotum mediodorsally short, anterior margin slightly swollen, transverse furrow very strong. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli absent. Mesopleuron polished, dorsally punctate ventrally grading to puncto-striate; epicnemial carina curved to reach anterior pleural margin above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, obsolete punctate. Metapleuron striate; submetapleural carina anteriorly abruptly expanded into a triangular flange. Propodeum in profile evenly declivitous, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 16-19mm; discosubmarginal cell as in Fig. 327; AI = 1.30-1.80; CI = 0.25-0.35; ICI = 0.60-0.80; SDI = 1.60-1.70; *cu-a* proximal to *Rs&M* by about 0.2 times its own length. Hindwing with 7-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 506, 507.

Gaster long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of δ with fine decumbent rather short pubescence; gonosquama distally fairly acute; genitalia as in Fig. 730.

Colour generally reddish-orange, terminal segments of gaster slightly infusate; flagellum and inter-ocellar area orange.

Remarks. This species belongs to the *E. cohacarus* species-group. It resembles the following species, *E. decaryi*, in having a weak elongate sclerite but differs from this species not only in the characters mentioned in the key but also in having the mandibles longer, somewhat more slender and more unequally bidentate.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype δ , MADAGASCAR: Antsirabé, xi.36 (*Seyrig*) (MNHN); paratypes 1 δ , 1 δ , same data as holotype (BMNH); 3 δ , 1 δ , same data as holotype (MNHN).

ENICOSPILUS DECARYI sp. n.

(Figs 138, 141, 328, 508, 731)

Description. Mandibles evenly narrowed, twisted about 15°, upper tooth slightly longer than and conspicuously broader than the lower tooth; outer mandibular surface flat with fine scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae long and rather stout with 65-66 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 1.5-1.6 times as long as broad.

Pronotum mediodorsally very short with anterior margin feebly swollen, transverse furrow moderately strong. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, punctate; epicnemial carina obsolete on pleuron. Scutellum in profile convex, laterally carinate for 0.6 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, punctate. Metapleuron closely punctate; submetapleural carina from parallel sided to weakly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally flattened; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 18-23mm; discosubmarginal cell as in Fig. 328; AI = 1.20-1.30; CI = 1.00-1.20; ICI = 0.70-0.85; SDI = 1.60-1.70; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 9-10 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 508.

Gaster long; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long, stout, erect hairs and some fine decumbent hairs; gonosquama distally obliquely truncate; genitalia as in Fig. 731.

Colour generally orange-red; head and flagellum slightly more orange.

Remarks. This species is similar to and possibly closely related to *E. mamatus*. Seyrig partially sorted the Madagascan species in his collection and recognized this as a new species. He bestowed on it the manuscript name of *Decaryi* in honour of Monsieur Decary who first collected it. We have followed Seyrig's wish and named this species accordingly.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Perinet, x.30 (*Seyrig*) (MNHN); paratypes 1♀, Bekily, i.37 (*Seyrig*) (MNHN); 1♀, Perinet, x.30 (*Seyrig*) (MNHN); 1♀, Rogez, ix.30 (*Seyrig*) (MNHN); 8♂, no further locality, 1919 (*Decary*) (MNHN).

ENICOSPILUS UMBRATUS sp. n.

(Figs 145, 330, 509)

Description. Mandibles evenly narrowed, twisted about 25°, upper tooth about 1.5 times length of the lower tooth; outer mandibular surface flat with scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile very weakly convex, margin acute; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.70 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae long and slender with 56-58 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 2.5-2.9 times as long as broad.

Pronotum mediodorsally short, anterior margin almost flat, transverse furrow moderately weak. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli weak. Mesopleuron polished, dorsally puncto-striate grading to striate ventrally; epicnemial carina curved to reach anterior pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, finely wrinkled. Metapleuron striate; submetapleural carina evenly expanded anteriorly. Propodeum in profile evenly declivitous, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area with median longitudinal carina and fine wrinkles. Posterior transverse carina of mesosternum complete.

Forewing length 14-16mm; discosubmarginal cell as in Fig. 330; AI = 0.80-0.85; CI = 0.45-0.55; ICI = 0.35-0.45; SDI = 1.20-1.30; *cu-a* opposite *Rs&M*. Hindwing with 7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 509.

Gaster long; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by about 4.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally pale yellow; alitrunk dorsally and laterally and terminal segments of gaster badius; wings hyaline but with discosubmarginal cell infumate.

Variation. Some specimens have a weak trace of a distal sclerite present whilst this is lacking in others.

Remarks. Provisionally we have chosen to place this species in the *E. cohacarus* species-group although it resembles *E. plagiatus* in its sculpturing and slenderness. It differs from *E. plagiatus* in the distribution of hair around the fenestra and in this feature resembles other species in the *E. cohacarus* species-group.

This small species is immediately distinguishable from other species in the *E. cohacarus* species-group by its coloration. The venation and slender flagellum offer useful confirmatory characters.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Rogez, xii.31 (*Seyrig*) (MNHN); paratypes 1♀, Ambohimahaso, xi.63 (*Viette*) (BMNH); 1♀, Andreba, xi.33 (*Seyrig*) (MNHN); 1♀, Bekily, xi.30 (*Seyrig*) (MNHN); 1♀, Marojely, xii.60 (*Soga*) (BMNH); 1♀, Rogez, x.31 (*Seyrig*) (MNHN); 1♀, Rogez, i.32 (*Seyrig*) (MNHN); 1♀, Rogez, x.32 (*Seyrig*) (MNHN); 1♀, Rogez, xii.32 (*Seyrig*) (MNHN); 1♀, Rogez, 1935 (*Seyrig*) (MNHN); 1♀, Rogez, x.36 (*Seyrig*) (MNHN).

ENICOSPILUS PLAGIATUS (Saussure)

(Figs 139, 329, 510, 511, 736)

Ophion plagiatus Saussure, 1892 : 21. Holotype ♀, MADAGASCAR (MNHN) [examined].

Henicospilus plagiatus (Saussure) Schulz, 1906 : 102.

Ophion plagiatus Saussure; Risbec, 1960; 636.

Enicospilus plagiatus (Saussure) Townes & Townes, 1973 : 182.

Description. Mandibles evenly narrowed, twisted about 20°, with upper tooth about 1.5 times as long as lower tooth; outer mandibular surface weakly medially longitudinally concave with fine scattered pubescence. Labrum 0.1-0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.3-1.4 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.70 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 68-70 flagellar segments; 1st flagellar segment 1.9-2.1 times as long as 2nd, 20th segment 1.8-2.1 times as long as broad.

Pronotum mediodorsally short, margin slightly swollen, transverse furrow strong. Mesoscutum in profile evenly rounded, apically very weakly out-turned; notauli absent. Mesopleuron polished, fairly striate; epicnemial carina reaching to level of lower corner of pronotum but not inclined towards anterior pleural margin. Scutellum in profile moderately convex, laterally carinate its entire length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, coriaceous. Metapleuron reticulate or coriaceous; submetapleural carina very broad, evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area trans-rugose. Posterior transverse carina of mesosternum complete.

Forewing length 22-25mm; discosubmarginal cell as in Fig. 329; AI = 1.20-1.30; CI = 0.65-0.80; ICI = 0.80-1.10; SDI = 1.30-1.50; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 9-10 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, virtually without spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 510, 511.

Gaster long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by about 3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine sparse hair; gonosquama distally acute; genitalia as in Fig. 736.

Colour generally orange-yellow; gaster black marked on posterior margin of tergite 3 and with tergites 5+ entirely black. Lower face orange; inter-ocellar area black between posterior ocelli only; flagellum blackish.

Variation. Some specimens have a weak sclerite discernible in the most distal of the two fenestral convexities whilst in most species only a very weak quadra is present in such a position.

Remarks. This species is morphologically closely related to *E. angustatus* from which it differs in having a weak alar sclerite and a simple elongately sinuate gonolacinia. This large species is immediately recognizable on account of the colour pattern of the gaster.

Host records. Risbec (1960) records this species as a parasite of *Proceras sacchariphagus** Bojer (Lep., Pyralidae).

Material examined. *Ophion plagiatus* Saussure, holotype ♀, MADAGASCAR: Nossi-Bé, no further data (MNHN).

Non-type material. MADAGASCAR: 1♀, Amber Mts, no further data (ZC); 1♂, Ambodivoanga (*Inst. Res. Mad.*) (MRAC); 1♀, Ampijoroa, Tsaramandroso (*Inst. Res. Mad.*) (MRAC); 1♀, 1♂, Bekily, i.33 (*Seyrig*) (MNHN); 1♀, Manambato (*Inst. Res. Mad.*) (MRAC); 1♂, Ranomafana, x.38 (*Seyrig*) (MNHN); 4♀, 3♂, Rogez, 1931-35 (*Seyrig*) (MNHN); 1♂, Rogez, xi.46 (*Lamberton*) (TC); 1♂, Tulear Manombo (*Griveaud*) (MRAC).

ENICOSPILUS TALAORUS sp. n.

(Figs 140, 143, 147, 331, 512, 513, 732)

Description. Mandibles evenly narrowed, twisted about 10°, with upper tooth 1.2 times as long as lower; outer mandibular surface with weak longitudinal groove and fine scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely and closely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and stout with 62-65 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.2-1.4 times as long as broad.

Pronotum mediodorsally short, anterior margin swollen, transverse furrow very strongly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli impressed on anterior 0.2 of scutum. Mesopleuron polished, puncto-striate; epicnemial carina curved to anterior pleural margin above level of lower corner of pronotum. Scutellum in profile very convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, punctate. Metapleuron swollen, closely punctate to coriaceous; submetapleural carina anteriorly abruptly expanded into a triangular flange. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 17-20mm; discosubmarginal cell as in Fig. 331; AI = 0.80-0.95; CI = 0.75-0.90; ICI = 0.65-0.75; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 9 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical, without spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 512, 513.

Gaster long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ovate, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of δ with numerous long stout hairs and scattered fine decumbent pubescence; gonosquama distally somewhat obliquely truncate; genitalia as in Fig. 732.

Colour generally orange; lower face orange-yellow, laterally paler; flagellum and inter-ocellar area orange-red.

Remarks. This species is very easily recognized because of the characteristically sinuate vein *Rs+2r* in the forewing. It is quite similar morphologically to the following species *E. seyrigi*. Both species are referable to the *E. cohacarus* species-group.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, ii.33 (*Seyrig*) (MNHN); paratype 1♀, Bekily, iii.37 (*Seyrig*) (MNHN).

ENICOSPILUS SEYRIGI sp. n.

(Figs 144, 146, 148, 332, 516)

Description. Mandibles short, evenly narrowed, twisted about 40°; mandibular teeth subequal in length; outer mandibular surface flat with scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile flat, margin acute; clypeus in anterior aspect 1.45 times as broad as long terminally truncate. Lower face elongate, 0.70 times as broad as long with weak punctures. Genae weakly constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its maximum diameter; FI = 70%; occipital carina complete. Antennae short and stout with 51 flagellar segments; 1st flagellar segment 2.1 times as long as 2nd, 20th segment 1.1 times as long as broad.

Pronotum mediodorsally moderately long with margin swollen and transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli impressed on anterior 0.3 of scutum. Mesopleuron polished, punctate; epicnemial carina curved to pleural margin above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6 times as long as broad anteriorly with isolated punctures. Metapleuron punctate; submetapleural carina abruptly anteriorly broadened into a triangular flange. Propodeum in profile convexly rounded, dorsally convex; anterior transcarina vestigial; anterior area striate, spiracular area finely wrinkled, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 14mm; discosubmarginal cell as in Fig. 332; AI = 1.00; CI = 0.60; ICI = 0.73; SDI = 1.30; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 9 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.6 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 516.

Gaster moderately long; sternite 2 with posterior margin before spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0 times its own length.

Ovipositor apically elongately acute.

δ unknown.

Colour generally reddish, terminal segments of gaster infusate.

Remarks. This species is related to *E. talaorus* from which it differs not only in the characters mentioned in the key but also in having stouter mandibles and a shorter flagellum. The short flagellum distinguishes this species from all other species in the *E. cohacarus* species-group.

Distribution. This species is only known to occur in Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Behara, iv.37 (*Seyrig*) (MNHN).

ENICOSPILUS DIRO sp. n.

(Figs 149, 153, 333, 514, 515)

Description. Mandibles very weakly narrowed, not twisted, terminally from subequally bidentate to with lower tooth 1.4 times upper; outer mandibular surface flat, sparsely hairy. Labrum 0.3 times as long as broad; malar space 1.0 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face subquadrate, 0.90-0.95 times as broad as long with isolated punctures. Genae rounded evenly behind the eyes; posterior ocellus separated from eye by 0.6 times its own maximum diameter; FI = 40-45%; occipital carina complete. Antennae long, moderately stout with 62-64 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 1.3-1.5 times as long as broad.

Pronotum mediodorsally moderately long, anterior margin slightly up-turned with a weak central transverse ridge and weak transverse furrow; pronotum laterally exceptional in having epomia distinct. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, very sparsely punctate; epicnemial carina strongly curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, smooth. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina absent; anterior area striate, spiracular area smooth, posterior area vestigially wrinkled. Posterior transverse carina of mesosternum complete or obsolescent on mid-line.

Forewing length 10-11mm; discosubmarginal cell as in Fig. 333; AI = 1.00-1.10; CI = 0.20-0.25; ICI = 0.30-0.35; SDI = 0.80-0.85; *cu-a* opposite *Rs&M*. Hindwing with 6 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia flat bearing numerous spines on outer surface; hind coxa in profile 1.5-1.6 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 514, 515.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long stout erect hairs; gonosquama distally convex.

Colour generally brownish-red; lower face white; inter-ocellar area black; flagellum dark brown.

Remarks. This species apparently belongs to the *E. unidens* species-group. Unlike other species in this species-group it has the upper mandibular tooth only slightly shorter than the lower. However the venation, value of SDI and sculpture are strongly reminiscent of species of the *E. unidens* species-group.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, x.36 (*Seyrig*) (MNHN); paratypes 1♀, Behara, xi.38 (*Seyrig*) (MNHN); 12♀, 5♂, Bekily, x-xii.36 (*Seyrig*) (MNHN); 1♀, Bekily, xi.38 (*Seyrig*) (MNHN).

ENICOSPILUS REHANARIUS sp. n.

(Figs 334, 517, 518, 733)

Description. Mandibles evenly narrowed, twisted about 80°, upper tooth about 1.9 times as long as the lower and somewhat flattened; outer mandibular surface flat with isolated pubescence. Labrum 0.1 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.7 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.70 times as broad as long, aluto-punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae long and slender with 56-58 flagellar segments; 1st flagellar segment 2.3-2.4 times as long as 2nd, 20th segment 2.1-2.3 times as long as broad.

Pronotum mediodorsally short, anterior margin up-turned slightly; transverse furrow strong. Mesoscutum in profile evenly rounded, apically out-turned; notauli absent. Mesopleuron matt, alutaceous; epicnemial carina very strong, curved to pleural margin above level of lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.6 or more of its length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, alutaceous. Metapleuron alutaceous; submetapleural carina evenly broadened anteriorly. Propodeum in profile evenly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-16mm; discosubmarginal cell as in Fig. 334; AI = 1.10-1.20; CI = 0.20-0.30; ICI = 0.30-0.35; SDI = 1.20-1.30; *cu-a* opposite *Rs&M*. Hindwing with 7-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.6-1.7 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 517, 518.

Gaster moderately long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by about 4.0 times its own length.

Ovipositor laterally compressed, apically elongately acute. Sternites 6-8 of ♂ with numerous long erect hairs; gonosquama distally evenly rounded; genitalia as in Fig. 733.

Colour generally pale orange; inter-ocellar area black; lower face orange, laterally paler; flagellum brownish-orange.

Remarks. This species has similar venation and sclerites to *E. mamatus* and *E. eirmosus* to which it is possibly related. For the present this species is referred to the *E. cohacarus* species-group. Unlike other species in this species-group, the alar sclerite is strongly pigmented.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, ii.33 (*Seyrig*) (MNHN); paratypes 1♀, Bekily, xii.32 (*Seyrig*) (MNHN); 1♂, Bekily, v.35 (*Seyrig*) (MNHN); 5♀, Bekily xi-xii.36 (*Seyrig*) (MNHN); 2♀, Bekily, i-ii.37 (*Seyrig*) (MNHN).

ENICOSPILUS JANAKUS sp. n.

(Figs 151, 335, 519)

Description. Mandibles evenly narrowed, twisted about 10°, upper tooth 1.5 times length of lower tooth; outer mandibular surface flat with isolated hairs. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile very weakly convex, margin in-turned slightly; clypeus in anterior aspect 1.3-1.4 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to orbit; FI = 65-70%; occipital carina centrally obsolescent. Antennae long with 62-64 flagellar segments; 1st flagellar segment 1.4-1.5 times as long as 2nd, 20th segment 1.8-2.0 times as long as broad.

Pronotum mediodorsally very short, anterior margin weakly up-turned; transverse furrow weak. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli absent. Mesopleuron polished, aluto-punctate; epicnemial carina curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, alutaceous. Metapleuron aluto-coriaceous; submetapleural carina weakly anteriorly broadened. Propodeum in profile very evenly rounded, dorsally deplanate; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area irregularly coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 17-18mm; discosubmarginal cell as in Fig. 335; AI = 1.10-1.20; CI = 0.60-0.75; ICI = 0.60-0.70; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 8-9 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally about 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 519.

Gaster long and slender; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered stout erect hairs and dense fine decumbent pubescence; gonosquama distally evenly rounded.

Colour generally orange-red; lower face whitish; inter-ocellar area orange; flagellum brownish.

Remarks. The venation and form of discosubmarginal cell seem to indicate this species is related to *E. antimena*. This and the following 5 species have a particularly distinctive *Rs+2r* which is simply and strongly bowed forwards. For this reason we have placed them together as the *E. antimena* species-group. Several other species from different zoogeographical regions (eg *E. coarctatus* Brullé from Australia) have similar venation. Whether this venation is indicative of true phylogenetic affinity or merely the result of evolutionary convergence is not clear.

This species may be distinguished from others in this species-group by the large value of ICI, the form of the sclerites and in having the mandible weakly twisted with upper tooth about 1.5 times the lower.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, v.34 (*Seyrig*) (MNHN); paratypes 1♀, Ambohimanga, ii.36 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, i-v.34 (*Seyrig*) (MNHN).

ENICOSPILUS VOLITIUS sp. n.

(Figs 150, 157, 336, 520, 521, 735)

Description. Mandibles elongately tapered, twisted about 10°, with upper tooth very much longer and stouter than the lower; outer mandibular surface with a weak median longitudinal concavity bearing fine pubescence. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.1-1.2 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.90 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 50-55%; occipital carina complete. Antennae long and slender with 66-68 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 1.7-1.9 times as long as broad.

Pronotum mediodorsally moderately long, anterior margin strongly up-turned; transverse furrow moderately strong. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, dorsally punctate grading to puncto-striate; epicnemial carina curved to pleural margin above level of lower corner of pronotum. Scutellum in profile deplanate, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, obsoletely punctate. Metapleuron punctate; submetapleural carina expanded into a broad lobe anteriorly. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area smooth, spiracular area punctate, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 20-22mm; discosubmarginal cell as in Fig. 336; AI = 2.90-3.50; CI = 0.39-0.50; ICI = 0.38-0.55; SDI = 1.30-1.50; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 7-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened, without spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally about 0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 520, 521.

Gaster long; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia small, oval, separated from anterior margin of tergite by 5.0-6.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long erect hair and dense fine shorter hair; gonosquama distally evenly rounded; genitalia as in Fig. 735.

Colour generally orange-brown; lower face orange-yellow; inter-ocellar area orange or slightly infuscate; flagellum brownish.

Remarks. The lack of proximal sclerite, specialized pronotum and long mandibles distinguish this species from others of the *E. antimena* species-group. This species is remarkable on account of the sinuous gonolacinia which is similar to that of *E. plagiatus*.

Distribution. This species is only known from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Rogez, xi.46 (*Lamberton*) (TC); paratypes 1♂, Ambohimanakana, Manambato (*Inst. Res. Mad.*) (MRAC); 2♀, Rogez, xii.30 (*Seyrig*) (MNHN); 2♀, 1♂, Rogez, 1931 (*Seyrig*) (MNHN); 2♀, 2♂, Rogez, v-x.32 (*Seyrig*) (MNHN); 1♀, Rogez, 1935 (*Seyrig*) (MNHN); 3♀, Rogez, x.36 (*Seyrig*) (MNHN); 2♀, 2♂, Rogez, i-iv.37 (*Seyrig*) (MNHN); 1♂, Tsifajavona, ii.31 (*Seyrig*) (MNHN).

ENICOSPILUS INDOVUS sp. n.

(Figs 156, 337, 522, 523, 734)

Description. Mandibles evenly narrowed, twisted about 80°, with upper tooth flattened dorsoventrally, 1.4 times as long as the lower; outer mandibular surface flat with fine scattered hairs. Labrum 0.3 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile more or less flat, margin acute; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.70 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with orbit; FI = 70-80%; occipital carina complete. Antennae slender with 48-53 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.7-1.9 times as long as broad.

Pronotum mediodorsally short, anterior margin weakly up-turned; transverse furrow weak. Mesoscutum in profile abruptly but evenly rounded, apically out-turned; notauli absent. Mesopleuron polished, obsoletely striate; epicnemial carina not reaching above level of lower corner of pronotum and remote from pleural margin. Scutellum in profile moderately convex, laterally carinate about 0.9 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, obsoletely alutaceous. Metapleuron striate; submetapleural carina anteriorly abruptly expanded. Propodeum in profile evenly declivitous, dorsally flat; anterior transcarina present but weak; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11-12mm; discosubmarginal cell as in Fig. 337; AI = 1.00-1.30; CI = 0.20-0.25; ICI = 0.25-0.35; SDI = 1.10-1.20; *cu-a* more or less opposite *Rs&M*. Hindwing with 7-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with vestigial spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 522, 523.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically moderately long. Sternites 6-8 of ♂ with fine decumbent hair; gonosquama distally evenly rounded, fairly long; genitalia as in Fig. 734.

Colour generally pale orange-yellow; lower face, vertex and inter-ocellar area white; flagellum orange.

Remarks. The presence of a narrow distal sclerite bordering the posterior margin of the fenestra, the exceptionally strongly twisted mandibles and the small value of CI distinguish this species from others in the *E. antimena* species-group.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, xii.33 (*Seyrig*) (MNHN); paratypes 22♀, 21♂, Bekily, 1932-1936 (*Seyrig*) (MNHN); 1♀, Ranomafana, 1933 (*Seyrig*) (MRAC); 1♀, Sandrangato (*Inst. Res. Mad.*) (MRAC); 1♀, Tananarive, i.32 (*Seyrig*) (MNHN).

ENICOSPILUS ANTIMENA (Saussure)

(Figs 155, 338, 524, 525, 737)

Ophion antimena Saussure, 1892 : 21. Holotype ? sex, MADAGASCAR (MNHN) [examined].

Henicospilus incongruus Morley, 1912a : 43. Holotype ♂, MADAGASCAR (BMNH) [examined]. [Synonymized by Townes & Townes, 1973 : 172.]

[*Henicospilus madagascariensis* Szépligeti; Enderlein, 1921 : 29. Misidentification.]

Ophion antimena Saussure; Risbec, 1960 : 636.

Enicospilus antimena (Saussure) Townes & Townes, 1973 : 172.

Description. Mandibles evenly narrowed, twisted about 15-20°, subequally bidentate; outer mandibular surface flat with fine scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin blunt, slightly in-turned; clypeus in anterior aspect 1.2-1.3 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.76 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to orbit; FI = 70-80%; occipital carina mediodorsally weak or obsolescent. Antennae long and slender with 66-72 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 2.1-2.4 times as long as broad.

Pronotum mediodorsally short, anterior margin weakly up-turned; transverse furrow moderately impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, dorsally punctate grading to puncto-striate; epicnemial carina angled to pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate almost entire length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, obsoletely punctate. Metapleuron finely puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete; anterior area striate, spiracular area finely wrinkled, posterior area moderately coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 15-20mm; discosubmarginal cell as in Fig. 338; AI = 1.80-2.25; CI = 0.70-0.85; ICI = 0.35-0.46; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 524, 525.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by about 3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long erect hairs and few finer decumbent hairs; gonosquama distally slightly acute or obliquely truncate; genitalia as in Fig. 737.

Colour generally orange-brown; lower face orange-yellow; inter-ocellar area orange; flagellum brownish.

Remarks. This is one of the most easily distinguished species on account of the J-shaped alar sclerite. It is one of the most common Madagascan species but has not been recorded from the African mainland. It is morphologically quite closely related to *E. cariosus*.

Host records. Risbec (1960) has found this species as a parasite of *Proceras sacchariphagus** Bojer (Lep., Pyralidae).

Distribution. This species is restricted to Madagascar.

Material examined. *Ophion antimena* Saussure, holotype ? sex head and gaster missing, MADAGASCAR: no further data (MNHN). *Henicospilus incongruus* Morley, holotype ♂, MADAGASCAR: no further data (BMNH).

Non-type material. MADAGASCAR: 2♀, 3♂, Ambositra, x.28 (*Seyrig*) (MNHN); 3♀, 5♂, Ampandrandava, i.40 (*Seyrig*) (TC); 1♂, Ampijoroa, Tsaramandroso (*Inst. Scient. Mad.*) (MRAC); 1♂, Andreba, xi.33 (*Seyrig*) (MNHN); 1♂, Anivorano, iv.30 (*Seyrig*) (MNHN); 1♂,

Ankaratra, iv.44 (*Seyrig*) (MRAC); 1♀, Antsirabé, xi.36 (*Seyrig*) (MNHN); 1♀, 1♂, Antsirabé, iii.44 (*Seyrig*) (MRAC); 1♂, Behara, iv.37 (*Seyrig*) (MNHN); 3♀, 2♂, Behara, iv.37 (*Seyrig*) (MRAC); 2♀, 2♂, Bekily, iii-xii.30 (*Seyrig*) (MNHN); 1♀, Bekily, xii.31 (*Seyrig*) (MNHN); 3♀, 1♂, Bekily, iv-xii.32 (*Seyrig*) (MNHN); 2♀, 3♂, Bekily, xii.32 (*Seyrig*) (BMNH); 8♀, 4♂, Bekily, 1933 (*Seyrig*) (MNHN); 2♀, 2♂, Bekily, vi.34 (*Seyrig*) (MNHN); 1♀, Bekily, no date (*Seyrig*) (MNHN); 1♀, Fanpanambo, vii.59 (*Vadon*) (MRAC); 1♀, 1♂, Fanovana, vi.33 (*Seyrig*) (MNHN); 1♀, Fianarantsoa, xi.29 (*Seyrig*) (MNHN); 1♀, Fort Dauphin, x.31 (*Seyrig*) (MNHN); 1♀, Fort Dauphin, no date (*Inst. Scient. Mad.*) (MRAC); 1♀, Fort Sihanaka, ix.31 (*Seyrig*) (MNHN); 1♀, Merondava, S of Befasy, i.50 (*Inst. Scient. Mad.*) (MRAC); 1♀, Mt Bity, i.30 (*Seyrig*) (MNHN); 1♂, Perinet, xi.30 (*Seyrig*) (MNHN); 1♂, Perinet, ii.31 (*Seyrig*) (MNHN); 1♀, Perinet, no date (*Inst. Scient. Mad.*) (MRAC); 1♀, Ranomafana, ii.40 (*Seyrig*) (TC); 1♀, 4♂, Rogez, iv-xii.30 (*Seyrig*) (MNHN); 11♀, 2♂, Rogez, 1931 (*Seyrig*) (MNHN); 3♂, Rogez, i-vii.32 (*Seyrig*) (MNHN); 1♀, Rogez, iv.34 (*Seyrig*) (MNHN); 2♀, 1♂, Rogez, v-vii.46 (*Lamberton*) (TC); 2♀, St. Marie, no further data (MNHN); 1♀, Tananarive, i.30 (*Seyrig*) (MNHN); 5♀, 1♂, Tananarive, i.32 (*Seyrig*) (MNHN); 1♂, Tananarive, xii.33 (*Seyrig*) (MNHN); 1♀, 1♂, Tananarive (*Lamberton*) (MRAC); 1♀, Tsaratanana (*Seyrig*) (MNHN); 1♂, no further locality, 1844-91 (*CATAT?*) (MNHN); 2♂, no further data (*Seyrig*) (MNHN); 1♂, no further data (MNHN).

ENICOSPILUS CARIOSUS (Enderlein)

(Figs 154, 339, 526, 527, 739, 794)

Henicospilus cariosus Enderlein, 1921 : 30. Holotype ♀, MADAGASCAR (IZPAN) [examined].
Henicospilus cariosus (Enderlein) Townes & Townes, 1973 : 176.

Description. Mandibles evenly narrowed, twisted about 70°, upper tooth about 1.2 times as long as lower; outer mandibular surface flat, finely and densely pubescent. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile almost flat, margin slightly in-turned; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70-75%; occipital carina mediodorsally incomplete. Antennae long and slender with 60-65 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.5-3.0 times as long as broad.

Pronotum mediodorsally short, anterior margin slightly up-turned; transverse furrow strong. Mesoscutum in profile very abruptly rounded, apically strongly out-turned; notauli vestigial. Mesopleuron polished, puncto-striate; epicnemial carina curved to anterior pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, alutaceous with isolated punctures. Metapleuron alutaceous; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina usually complete; anterior area striate, spiracular area smooth, posterior area coarsely alutaceous. Posterior transverse carina of mesosternum complete.

Forewing length 12-20mm; discosubmarginal cell as in Fig. 339; AI = 2.00-2.70; CI = 0.65-1.00; ICI = 0.20-0.30; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 526, 527.

Gaster long and slender; sternite 2 with posterior margin more or less opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by about 3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long hairs and fine decumbent hairs; gonosquama distally evenly rounded to very acute; genitalia as in Fig. 739.

Colour generally more or less uniformly orange, vertex and inter-ocellar area slightly yellower; flagellum strongly infusate.

Variation. This species has an exceptional size range. Larger specimens tend to have 1*m-cu* far more sinuate than normal whereas very small specimens have this vein simply arcuate. Sculpture is uniform over all the size range.

Remarks. This species is very closely related to the following, *E. damius*, from which it may be distinguished by the form of the alar sclerites and shape of the mandibles.

Immature stages. Cephalic capsule of final instar larva as in Fig. 794. Hypostoma strongly sclerotized, broad, curved through 80°; hypostomal spur quite slender; epistoma and pleurostoma fairly long, slender; mandible evenly tapered, weakly curved; sclerotized oral bar absent; labial sclerite rather small, carduate; posterior hypostomal process small; stipital sclerite broad.

The small carduate labial sclerite distinguishes this from other known species.

Cocoon 16-20mm long, about 2.2 times as long as broad; outer surface pale brownish, finely fibrous.

Distribution. This species is restricted to Madagascar.

Material examined. *Henicospilus cariosus* Enderlein, holotype ♀, MADAGASCAR: Ivondro River in Tamatave Province (IZPAN).

Non-type material. MADAGASCAR: 1♀, Andriba, xi.33 (*Seyrig*) (MNHN); 1♀, Ankaratra, ii.33 (*Seyrig*) (MNHN); 1♀, Bekily, iv.32 (*Seyrig*) (MNHN); 5♀, 7♂, Bekily, 1933 (*Seyrig*) (MNHN); 3♀, Bekily, x.36 (*Seyrig*) (MNHN); 1♀, Diego-Suarez, 1893 (*Alluaud*) (MNHN); 1♂, Fianarantsoa, iii.28 (*Seyrig*) (MNHN); 1♀, 1♂, Fianarantsoa, 1930 (*Seyrig*) (MNHN); 1♀, Fianarantsoa, Plateau Central, xii.32 (*Seyrig*) (BMNH); 1♂, Fianarantsoa, xii.32 (*Seyrig*) (MNHN); 1♀, Kalambutitra, i.33 (*Seyrig*) (MNHN); 1♀, Maroantsetra, Ambodivoangy (*Inst. Scient. Mad.*) (MRAC); 3♀, Marojely, xii.60 (*Soga*) (MNHN); 1♀, Perinet, ix.30 (*Seyrig*) (MNHN); 1♀, 1♂, Perinet, xii.32 (*Seyrig*) (BMNH); 2♀, Perinet, 1932 (*Seyrig*) (MNHN); 1♂, Ranomafana, Ifanadiana (*Inst. Scient. Mad.*) (MRAC); 1♀, Rogez, ix.30 (*Seyrig*) (BMNH); 2♀, 1♂, Rogez, 1930 (*Seyrig*) (MNHN); 5♀, 6♂, Rogez, 1931 (*Seyrig*) (MNHN); 5♀, Rogez, 1932 (*Seyrig*) (MNHN); 5♀, 3♂, Rogez, 1935 (*Seyrig*) (MNHN); 1♂, Rogez, 1936 (*Seyrig*) (MNHN); 11♀, 5♂, Rogez, 1946 (*Lamberton*) (TC); 2♀, Sandrangato (*Inst. Scient. Mad.*) (MRAC); 2♀, St. Marie, no further data (MNHN); 1♀, 2♂, Tananarive, 1930 (*Seyrig*) (MNHN); 1♀, Vatondry, vii.28 (*Seyrig*) (MNHN); 1♂, no further data (MNHN).

ENICOSPILUS DAMIUS sp. n.

(Figs 152, 340, 528, 529, 738)

Description. Mandibles evenly narrowed, twisted about 50°, terminally subequally bidentate or with lower tooth slightly the longer; outer mandibular surface flat with scattered hairs. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile virtually flat, margin slightly in-turned; clypeus in anterior aspect 1.6-1.8 times as broad as long, terminally truncate. Lower face slightly elongate, 0.85-0.90 times as broad as long, with small close punctures. Genae constricted behind the eyes; posterior ocellus very close to the eyes; FI = 60-70%; occipital carina usually centrally incomplete. Antennae long and slender with 60-65 flagellar segments; 1st flagellar segment 1.9-2.1 times as long as 2nd, 20th segment 2.0-2.2 times as long as broad.

Pronotum mediodorsally short, anterior margin slightly up-turned; transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli absent. Mesopleuron polished, puncto-striate overlaid with fine alutaceous sculpture; epicnemial carina reaching above lower corner of pronotum but with upper end remote from anterior pleural margin. Scutellum in profile moderately convex, laterally carinate about 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, finely coriaceous. Metapleuron finely alutaceous; submetapleural carina evenly expanded anteriorly. Propodeum in profile weakly declivitous, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely aluto-coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 15-18mm; discosubmarginal cell as in Fig. 340; AI = 1.40-2.00; CI = 0.65-1.00; ICI = 0.25-0.35; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia slightly flattened, without spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 528, 529.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by about 3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long isolated erect hairs and short sparse decumbent hairs; gonosquama distally fairly evenly rounded to obliquely truncate; genitalia as in Fig. 739.

Colour generally orange-brown; lower face whitish, centrally orange; vertex and inter-ocellar area white; flagellum brownish.

Remarks. The affinity of this species is discussed under *E. cariosus*.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, iv.34 (*Seyrig*) (MNHN); paratypes 1♂, Ambatofitorahana, no further data (*Inst. Res. Mad.*) (MRAC); 1♀, 1♂, Ambohimanga, ii.36 (*Seyrig*) (MNHN); 1♂, Ambositra, x.28 (*Seyrig*) (MNHN); 4♀, Bekily, iii-xii.33 (*Seyrig*) (MNHN); 1♀, Bekily, iii.34 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, xi-xii.36 (*Seyrig*) (MNHN); 3♀, 2♂, Bekily, i-iv.37 (*Seyrig*) (MNHN); 1♂, Nosivola (*Inst. Res. Mad.*) (MRAC).

ENICOSPILUS ABESSYNIENSIS (Szépligeti)

(Figs 160, 161, 341, 530, 531, 740, 793)

Dicamptus abessyniensis Szépligeti, 1907 : 136. Holotype ♂, ETHIOPIA (MNHN) [examined].

Allocamptus nigrinervis Szépligeti, 1908 : 47. Holotype ♂, TANZANIA (NR) [examined]. [Synonymized by Townes & Townes, 1973 : 172.]

Allocamptus flavinervis Szépligeti, 1908 : 47. Holotype ♂, TANZANIA (NR) [examined]. [Synonymized by Townes & Townes, 1973 : 172.]

Dicamptus abessyniensis Szépligeti; Szépligeti, 1922 : 911.

Enicospilus abessyniensis (Szépligeti) Townes & Townes, 1973 : 172.

Description. Mandibles evenly narrowed, twisted about 20-30°, upper tooth slightly the longer; outer mandibular surface almost flat with scattered pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile almost flat, margin in-turned; clypeus in anterior aspect 1.35-1.70 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, obsoletely punctate. Genae moderately constricted behind the eyes; posterior ocellus contiguous with eyes; FI = 60-65%; occipital carina complete. Antennae long and slender with 52-56 flagellar segments; 1st flagellar segment 1.8-2.1 times as long as 2nd, 20th segment 2.6-2.9 times as long as broad.

Pronotum mediodorsally short, anterior margin not up-turned; transverse furrow weakly impressed. Mesoscutum in profile abruptly rounded, apically moderately out-turned; notauli absent. Mesopleuron polished, closely punctate grading to puncto-striate; epicnemial carina generally obsolescent above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, obsoletely punctate. Metapleuron alutaceous grading to striate; submetapleural carina narrow, anteriorly slightly expanded. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina usually complete; anterior area striate, spiracular area smooth, posterior area obsoletely wrinkled to coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 9-15mm; discosubmarginal cell as in Fig. 341; AI = 0.95-1.75; CI = 0.85-1.15; ICI = 0.30-0.50; SDI = 1.40-1.60; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1*A* proximally straight.

Forewing with tibia subcylindrical, without obvious spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.4-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 530, 531.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ovate, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor apically moderately elongately acute, dorsally with a fine longitudinal ridge proximal to notch. Sternites 6-8 of ♂ with scattered long erect hairs and scattered fine short decumbent hair; gonosquama distally evenly convex; genitalia as in Fig. 740.

Colour generally orange-brown; lower face, vertex and inter-ocellar area reddish; flagellum slightly infusate.

Variation. This species is variable in colour from yellowish-orange to a very dark reddish-brown and often with terminal segments of gaster infusate. No correlation was observed between colour and locality. Variation was also observed in sculpture, especially that of the pleurae and propodeum. The mesopleurae grade from punctate to almost striate and propodea from finely wrinkled to coarsely coriaceous. There is also some variation in the size of the alar sclerite. Some Madagascan specimens were observed to have *Rs+2r* more sinuate than normal.

Remarks. This distinctive species is undoubtedly closely related to *E. lancasteri*. Although *E. abessyniensis* is variable in appearance the differences given in the key to separate the two species were found to be reliable. The affinity of these two species is not clear but it is possible that they are related to species of the *E. senescens* species-group.

Immature stages. Cephalic capsule of the final instar larva as in Fig. 793. Hypostoma posteriorly weakly sclerotized, curved through 90°; hypostomal spur proximally broad, distally narrowed; epistoma and pleurostoma long, stout; mandibles moderately curved; sclerotized oral bar absent; labial sclerite short and broad; posterior hypostomal process absent; stipital sclerite weakly curved, stout.

This is the only species known with moderately strongly curved mandibles and without a trace of a posterior hypostomal projection.

Cocoon 10-14mm long, about 2.2 times as long as broad, outer surface smooth, dark brown with pale equatorial band.

Host records. This species has been reared from *Psalis pennatula* Fab. (= securis Hübner) (Lep., Lymantriidae), *Dasychira rubrifilata* Hampson *D. compsa* Collenette and *D. geoffreyi* Bethune-Baker (Lep., Lymantriidae) and also from the larva of an unidentified Lymantriid.

Distribution. Szépligeti (1907; 1908) recorded this species from Tanzania and Ethiopia. This species appears to be widely distributed throughout the Ethiopian region from Sierra Leone to Madagascar and Ethiopia to South Africa (Map 36).

Material examined. *Dicamptus abessyniensis* Szépligeti, holotype ♂, South ETHIOPIA: no further data (MNHN). *Allocamptus nigrinervis* Szépligeti, holotype ♂, TANZANIA: Mombo in Usambara Mts (*Sjöstedts*) (NR). *Allocamptus flavinervis* Szépligeti, holotype ♂, TANZANIA: Kibongoto on Mt Kilimanjaro (*Sjöstedts*) (NR).

Non-type material. ANGOLA: 1♂, 30km N of Quiçulungo, x.57 (TC); 1♀, Salazar, iii.72 (*Day*) (BMNH). CENTRAL AFRICAN REPUBLIC: 1♀, Bambari, ii.64 (*Pierrard*) (MRAC). CONGO: 1♀, Dimontra, i.71 (*Grillot*) (MNHN). DAHOMEY: 1♀, Zagnando Plat., Kitou, 1910 (*Ducorps*) (MNHN). FERNANDO POO: 1♀, no further data (*Cooper*) (BMNH). GABON: 1♀, Muni, Crystal Mts, x.69 (*Villiers*) (MNHN). IVORY COAST: 1♀, Bingerville, xi.62 (*Decelle*) (MRAC). LIBERIA: 1♀, Sua Koko, iv.52 (*Blickenstaff*) (USNM). MADAGASCAR: 1♀, Ambanja, Antremabé, ii.64 (*Soga*) (MNHN); 1♂, Bekily, iv.33 (*Seyrig*) (MNHN); 1♂, Maroantsetra, Ambodivoangy, (*Inst. Res. Mad.*) (MRAC); 1♀, 1♂, Perinet (*Inst. Res. Mad.*) (MRAC); 1♀, Rogez, i.31 (*Seyrig*) (MNHN); 1♀, 1♂, Rogez, v-xii.32 (*Seyrig*) (MNHN); 1♂, Rogez, x.36 (*Seyrig*) (MNHN); 1♀, Rogez, vii.46 (*Lamberton*) (TC); 1♂, Sandrangato (*Inst. Res. Mad.*) (MRAC); 1♀, no further locality, xii.34 (*Vadon*) (MNHN); 1♀, no further locality, 1933 (*Seyrig*) (MNHN). SIERRA LEONE: 1♂, Bomatok, v.25 (*Hargreaves*) (BMNH); 2♀, 1♂, Freetown, iv.68 (*Owen*) (TC); 4♀, Freetown, i-iii.69 (*Owen*) (TC); 2♀, Freetown, ii-iii.70 (*Owen*) (TC). SOUTH AFRICA: 1♀, Mariepskop, iv.64 (*Haeselbarth*) (TC); 1♀, 2♂, Natal, Ngome Forest, xi.70 (*H. & M. Townes*) (TC); 1♀, 1♂, Royal Natal Nt. Pk., i.71 (*H. & M. Townes*) (TC). TANZANIA: 2♀, Mt Meru, vi-vii.62 (*Heinrich*) (TC). UGANDA: 1♀, Damba, vi.11 ex *D. geoffreyi* (*Carpenter*) (BMNH); 1♂, Ibanda, Ruwenzori Range, vii.52 (*Fletcher*) (BMNH); 1♀, Kampala, v-xii.65 (*Unamba*) (TC); 23♀, 15♂, Mengo, Zika Forest, viii-xi.63 (*Lancaster*) (TC). 3♀, Sese Is, ex *Psalis securis*, no further data (BMNH); 1♀, Sese Is, ex *D. compsa* (*Carpenter*) (BMNH); ZAIRE: 1♀, Bas Congo, Kimwenza, iv.56 (*Van Eyen*) (MRAC); 1♂, Bassin Lukuga, iv.34 (*De Saeger*) (MRAC); 1♂, Bumba, i.40 (*De Saeger*) (MRAC); 3♀, Eala, i.36 (*Ghesquière*) (MRAC); 1♂, Equateur, Lukolela, 1951 (*Deguide*) (MRAC); 3♀, 4♂, Gandajika, iv.59 (*Decelle*) (MRAC); 1♀, Kanda-Kanda, ix.47, ex *Lymantriid* larva (*Henrard*) (MRAC); 1♀, Kivu, Kadjudju, 1932 (*Babault*) (MNHN); 2♀, Kivu, Rwanki, viii.47 (*Leroy*) (MRAC); 1♀, Lokandu, iii.39 (*Maree*) (MRAC); 1♀, Lubumbashi, xii.46, ex lepidopterous larva (*Seydel*) (MRAC); 2♀, 1♂, Lubumbashi, xii.48, ex *Dasychira ribrifilata* (*Seydel*) (MRAC); 1♂, Lubumbashi, xii.56 (*Seydel*) (TC); 1♀, Lubumbashi, ii.60 (*Bourgeois*) (TC); 1♀, Lulua, Kapanga, ix.33 (*Overlaet*) (MRAC); 1♀, 1♂, Uelé, Bambesa, ix.33 (*Brédo*) (MRAC); 1♀, Uelé, Bambesa, x.33 (*Leroy*) (MRAC).

ENICOSPILUS LANCASTERI sp. n.

(Figs 159, 162, 342, 532, 533, 741)

Description. Mandibles small, strongly narrowed, twisted about 30°, upper tooth slightly the longer; outer mandibular surface flat with long scattered hairs. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.71 times as broad as long, without punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 55-58 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 2.3-2.4 times as long as broad.

Pronotum mediodorsally short, anterior margin slightly swollen, transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically slightly out-turned; notauli absent. Mesopleuron subpolished, puncto-striate; epicnemial carina slightly curved, generally obsolescent above lower corner of pronotum. Scutellum in profile convex, laterally carinate to posterior margin; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, closely and weakly punctate. Metapleuron punctate, posteriorly puncto-striate; submetapleural carina anteriorly abruptly expanded into a triangular lobe. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area coarsely trans-striate. Posterior transverse carina of mesosternum complete.

Forewing length 17-19mm; discosubmarginal cell as in Fig. 342; AI = 0.75-0.87; CI = 0.70-0.85; ICI = 0.60-0.75; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.3 times its own length. Hindwing with 7-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 532, 533.

Gaster fairly long and slender; sternite 2 with posterior margin at or just behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor moderately elongate apically. Sternites 6-8 of ♂ with scattered erect pubescence; gonosquama distally fairly acute; genitalia as in Fig. 741.

Colour generally dark reddish-brown; thorax and gaster with fine badius pubescence; flagellum and terminal segments of gaster infusate; wings infumate.

Remarks. This species is often found mixed with *E. abessyniensis* in museum collections. The propodeal sculpture, trochantelli, value of ICI and difference in the gonolaciniae distinguish the two species.

This species is named in honour of its collector, Dr. G.A. Lancaster.

Host records. This species has been reared from *Chrysopsyche mirifica* Butler (Lep., Lasiocampidae).

Distribution. This species has been recorded from central and west Africa. It is possibly associated with forests (Map 37).

Material examined. Holotype ♀, UGANDA: Mengo, Zika Forest (near Entebbe), viii.63 (Lancaster) (TC). Paratypes. NIGERIA: 1♀, Ibadan, x.35 (Golding) (BMNH). UGANDA: 1♂, Dumba, vi.11, ex *Chrysopsyche mirifica* (BMNH); 8♀, 4♂, Mengo, Zika Forest, viii-xi.63 (Lancaster) (TC). ZAIRE: 1♂, Sankuru, Katako-Kombe, ii.53, ex *Chrysopsyche mirifica* (Fontaine) (MRAC); 1♀, Uelé, Bambesa, x.33 (Brédo) (MRAC).

ENICOSPILUS MICROSPILUS sp. n.

(Figs 158, 343, 534, 535, 742)

Description. Mandibles evenly narrowed, twisted about 30°, subequally bidentate; outer mandibular surface flat with scattered hairs. Labrum 0.3 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin weakly impressed; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, alutaceous with fine punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70%; occipital carina complete. Antennae long and stout with 64-66 flagellar segments; 1st flagellar segment 1.9-2.0 times as long as 2nd, 20th segment 1.8-1.9 times as long as broad.

Pronotum mediodorsally short, anterior margin slightly swollen, transverse furrow deep. Mesoscutum in profile abruptly rounded, apically out-turned; notauli absent. Mesopleuron matt, weakly punctate overlaid with alutaceous sculpture; epicnemial carina curved to anterior pleural margin above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, alutaceous. Metapleuron alutaceous; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally weakly convex; anterior transcarina complete; anterior area smooth, spiracular area smooth, posterior area alutaceous with fine wrinkles. Posterior transverse carina of mesosternum complete.

Forewing length 19-23mm; discosubmarginal cell as in Fig. 343; AI = 1.35-1.45; CI = 0.75-0.90; ICI = 0.78-0.90; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by about 0.2 its own length. Hindwing with 8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered stout spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 534, 535.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long erect hairs and numerous fine decumbent hair; gonosquama distally evenly rounded or slightly truncate; genitalia as in Fig. 742.

Colour generally brownish-orange; lower face, vertex and inter-ocellar area orange-yellow, flagellum brownish.

Remarks. This species differs in many ways from the preceding two, especially in the shape of the distal part of the discosubmarginal cell. It is probably closely related to *E. punctipinnis* which it resembles in venation and sculpture.

Distribution. This species is restricted to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Ranomafana, Ifanadiana (*Inst. Res. Mad.*) (MRAC); paratypes 1♀, Ambohimankana (*Inst. Res. Mad.*) (MRAC); 2♂, Ambohitantely, i.56 (*Inst. Res. Mad.*) (MRAC); 3♀, 1♂, Ambatofitorahana, Rt de Mananjary (*Inst. Res. Mad.*) (MRAC); 1♀, Anjozorobe, x.66 (Griveaud, Vadon & Viette) (MNHN); 1♀, Nosivola (*Inst. Res. Mad.*) (MRAC); 1♀, Perinet (*Inst. Res. Mad.*) (MRAC).

ENICOSPILUS NEFARIUS sp. n.

(Figs 163, 234, 235, 344, 537, 538)

Description. Mandibles weakly narrowed, twisted about 25°, upper tooth slightly flattened, slightly longer than the lower; outer mandibular surface with a groove extending from upper proximal corner to between teeth, this groove bearing elongate pubescence. Labrum 0.2 times as long as broad; malar space 0.15 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned, acute; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.80 times as broad as long, finely and closely punctate. Genae constricted strongly behind the eyes; posterior ocellus contiguous with ocelli; FI = 60%; occipital carina complete. Antennae long and slender with 63-65 flagellar segments. 1st flagellar segment 2.0-2.1 times as long as 2nd, 20th segment 2.5-2.7 times as long as broad.

Pronotum mediodorsally short, transverse furrow strong. Mesoscutum in profile evenly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, dorsally puncto-striate, ventrally striate; epicnemial carina curved to but not reaching anterior margin of pleuron above lower corner of pronotum. Scutellum in profile slightly convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, shallowly punctate. Metapleuron finely striate; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-15mm; discosubmarginal cell as in Fig. 344; AI = 2.70-4.00; CI = 0.50-0.70; ICI = 0.10-0.25; SDI = 1.30-1.40; *cu-a* opposite *Rs&M*. Hindwing with 6 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally about 0.4 times as long as broad; hind tarsal claws asymmetrical, the inner claw more strongly curved and basally lobate, pectinate as in Figs 537, 538.

Gaster long and slender; sternite 2 with posterior margin at or slightly behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor proximally stout, apically elongately acute.

♂ unknown.

Colour generally pale brown with irregular darker brown areas all over thorax, especially on hind corner of pronotum, mesoscutum in 3 longitudinal marks (separated by narrow yellow stripes), mesopleuron ventrally, scutellum, post scutellum and metapleuron; inter-ocellar area yellow, lower face yellow with a minute to very large central brown mark; flagellum yellow or orange.

Variation. This species is extremely variable in colour, being from almost entirely pale yellowish-brown with few small badius markings to virtually entirely badius with a few narrow yellowish areas between these marks. The wing sclerites vary from black to reddish-orange.

Remarks. This type of colour variation is very common in this species-group. It does not appear to be linked to geographic distribution. It is possible that this type of colour variation is dependent on the humidity of the environment of the developing pupa. In the pupa, pigmentation starts at certain points and expands in a particular way. The development of this pigmentation patterning, which is common to many species-groups of Ophioninae, is shown in Figs 234, 235.

This species is easily distinguishable on account of the two proximal sclerites, the asymmetrical claws and the long tarsal bristles.

This species may well have some affinities with the *E. drymosus* species-group in which it is provisionally placed.

Distribution. This is an east African species, probably associated with forests (Map 38).

Material examined. Holotype ♀, UGANDA: Mengo, Zika Forest, xi.63 (*Lancaster*) (TC). Paratypes. MALAWI: 4♀, Mlanje, xi.14 (*Neave*) (BMNH). UGANDA: 2♀, Mengo, Zika Forest, xi.63 (*Lancaster*) (TC). ZAIRE: 1♀, Lubumbashi, xii.36 (*Seydel*) (TC); 1♀, Lubumbashi, xi.51 (*Seydel*) (MRAC). ZAMBIA: 1♀, Abercorn ('Mbala), xii.64 (TC).

ENICOSPILUS LUEBBERTI (Enderlein)

(Figs 164, 174, 179, 242, 345, 536, 539)

Henicospilus Lübberti Enderlein, 1914 : 221. Holotype ♀, SOUTH-WEST AFRICA (MNHU) [examined].

Enicospilus lübberti (Enderlein) Townes & Townes, 1973 : 179.

Note under Article 32c of the International Code of Zoological Nomenclature, ü in a specific name should be changed to ue, hence the proposal of the spelling *luebberti*.

Description. Mandibles distally parallel sided, proximally narrowed, twisted about 10°, with upper mandibular tooth 2.0 or more times as long as the lower; outer mandibular surface with a median longitudinal concavity, finely pubescent. Labrum 0.2-0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.9-2.3 times as broad as long, terminally truncate. Lower face subquadrate, 0.85-1.05 times as broad as long, with deep coarse punctures. Genae somewhat swollen behind the eyes; posterior ocellus separated from orbits by about 0.3 times its maximum diameter; FI = 45-50%; occipital carina complete. Antennae rather short and stout with 50-52 flagellar segments; 1st flagellar segment 1.4-1.8 times as long as 2nd, 20th segment 1.7-2.1 times as long as broad.

Pronotum mediodorsally rather long, virtually flat but with transverse furrow weak. Mesoscutum in profile evenly rounded, apically not or only slightly out-turned; notauli weak. Mesopleuron polished, dorsally punctate grading to puncto-striate; epicnemial carina strong, curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, closely punctate. Metapleuron closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 10-11mm; discosubmarginal cell as in Fig. 345; AI = 0.50-0.85; CI = 0.15-0.40; ICI = 0.35-0.55; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia flattened, bearing numerous close long curved spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.4-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 536, 539.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.5-2.5 times its own length.

Ovipositor slightly shorter than is usual for species of this genus. Sternites 6-8 of ♂ with numerous long erect hairs and short fine decumbent pubescence; gonosquama distally evenly rounded; genitalia similar to that of *E. drakensbergi*.

Colour generally reddish-brown with inter-ocellar area and terminal segments of the gaster black, lower face reddish-brown; flagellum brownish.

Variation. This species is rather variable in colour. Most specimens have the terminal segments of the gaster up to and including tergite 4 black, some individuals have the gaster less extensively black, whilst others have no black markings on the gaster at all.

Remarks. This species may be distinguished from all others in having the inter-ocellar area black and the fore tibia densely spinose. Morphologically it is not otherwise unlike *E. capensis*. Whether this similarity is due to evolutionary convergence or is indicative of true phylogenetic affinity is not clear.

Distribution. This species is restricted to the dryer areas of southern Africa (Map 40).

Material examined. Holotype ♀, SOUTH-WEST AFRICA (MNHU).

Non-type material. BOTSWANA: 1♀, Moremi Res. (19°23'S: 23°33'E), iv.72 (Day) (BMNH). FTAI: 3♀, Massif du Day, xi.72 (Menier) (MNH). KENYA: 3♀, Taveta, iii.12 (Alluaud & Jeannel) (MNH). LESOTHO: 1♂, Leribe, 1923 (Ellenberger) (MNH). MOZAMBIQUE: 2♀, Guengère, Pungové, 1906 (Vasse) (MNH). RHODESIA: 1♀, Victoria Falls, vi.68 (Spangler) (USNM). SIERRA LEONE: 1♀, Njala, xi.32 (Hargreaves) (BMNH). SOUTH AFRICA: 1♀, Cape Prov., Alicedale, xii.70 (Londt) (TC); 2♀, 2♂, Cape, Aliwal, xii.22 (Turner) (BMNH); 1♂, Grahamstown, 1963 (Farquharson) (TC); 48♀, 11♂, Grahamstown, i-iii.71 (Gess) (TC); 3♀, 2♂, Natal, Howick, 1903 (Cregoe) (BMNH); 1♀, Natal, Willow Grange, Mooi R., 1914 (Wroughton) (BMNH); 1♀, Orange Free State, Harrismith, ii.27 (Turner) (BMNH); 1♀, Pietermaritzburg, 1933 (Warran) (BMNH). TANZANIA: 1♀, Kilimanjaro, iii.12 (Alluaud & Jeannel) (MNH); 1♀, Longido, Masai, iv.57 (Leleup) (MRAC); 1♀, Mt Meru, 1937 (Cooper) (BMNH); 1♀, Njombe, i.52 (Peters) (BMNH); 1♀, no further locality, v.16 (Lambourne) (BMNH). ZAIRE: 1♂, Kabinda, iv.34 (Gillardin) (MRAC); 1♀, Lomami, Kaniama, vii.32 (Massart) (MRAC); 1♂, Lubumbashi, v.50 (Seydel) (MRAC); 1♀, Uelé, Paulis, 1946 (Abbeoos) (MRAC).

ENICOSPILUS AGROPHUS sp. n.

(Figs 165, 171, 346, 540, 541)

Description. Mandibles evenly narrowed, twisted about 15°, upper tooth about 1.3 times as long as the lower; outer mandibular surface flat with long fine pubescence. Labrum 0.3 times as long as broad; malar space 0.4-0.7 times as long as basal mandibular width. Clypeus in profile moderately convex, margin in-turned; clypeus in anterior aspect 1.6-2.0 times as broad as long, terminally truncate. Lower face subquadrate, 0.85-1.05 times as broad as long with deep punctures. Genae weakly to moderately constricted behind the eyes; posterior ocellus separated from ocelli by 0.1-0.3 times its maximum diameter; FI = 50-55%; occipital carina complete. Antennae rather short with 50-52 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 2.2-2.6 times as long as broad.

Pronotum mediodorsally of moderate length with transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli discernible on anterior 0.2 of scutum. Mesopleuron submatt, closely and rather coarsely punctate; epicnemial carina abruptly curved to and almost reaching pleural margin above level of lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.4-1.6 times as long as broad anteriorly, punctate. Metapleuron closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly rounded, dorsally more or less flat; anterior transcarina present but often weak; anterior area striate, spiracular area finely wrinkled, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 7-10mm; discosubmarginal cell as in Fig. 346; AI = 0.35-0.85; CI = 0.35-0.55; ICI = 0.40-0.60; SDI = 1.20-1.30; *cu-a* more or less opposite *Rs&M*. Hindwing with 6 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, bearing isolated spines; hind coxa in profile 1.5-1.8 times as long as deep; hind trochantellus mediodorsally 0.3-0.4 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 540, 541.

Gaster elongate; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with sparse moderately long hairs protruding from area of dense fine pubescence; gonosquama distally evenly rounded; genitalia similar to that of *E. drakensbergi*.

Colour generally orange-brown, terminal segments of gaster and inter-ocellar area black; lower face orange-brown; flagellum slightly darker.

Variation. The ♂ was observed to have the malar space wider (0.5-0.7 times as long as basal mandibular width) than the ♀ (0.4-0.5 times basal mandibular width).

Remarks. This species is distinctive on account of its coloration, sculpture of the pleurae and very sparsely pectinate hind tarsal claws. The species resembles members of the *E. communis* species-group in venation, shape of head and mouth-parts and hind trochantelli. Whilst being aberrant in thoracic sculpture it seems to be more closely allied to this species-group than to any other.

Distribution. This species is widely distributed throughout mainland Africa; uncommon (Map 41).

Material examined. Holotype ♀, SOUTH AFRICA: Pretoria (*Distant*) (BMNH). Paratypes. ANGOLA: 1♀, 30km N of Quiçulungo, ix-x.57 (TC). SIERRA LEONE: 1♀, Freetown, xi.67 (*Owen*) (TC). SOUTH AFRICA: 1♀, Natal, Drakensberg, Cathedral Peak, iv.54 (*Balfour-Browne*) (BMNH). ZAIRE: 1♂, Lubumbashi, ii.50 (*Seydel*) (MRAC); 1♂, Lubumbashi, iv.60 (*Bourgeois*) (TC).

ENICOSPILUS APICALIS (Szépligeti)

(Figs 167, 172, 177, 180, 348, 542, 543)

Henicospilus apicalis Szépligeti, 1908 : 46. Holotype ♀, TANZANIA (NR) [examined].

Henicospilus apicalis Szépligeti; Roman, 1910 : 165.

Enicospilus mollis Seyrig, 1935 : 73. Lectotype ♂, KENYA (MNHN), designated by Townes & Townes (1973 : 180) [examined]. Syn. n.

Enicospilus apicalis (Szépligeti) Townes & Townes, 1973 : 173.

Enicospilus mollis Seyrig; Townes & Townes, 1973 : 180.

Description. Mandibles evenly narrowed, twisted about 15°, with upper tooth about 1.3 times as long as the lower; outer mandibular surface with a weak median longitudinal concavity, finely pubescent. Labrum 0.2-0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.6-2.0 times as broad as long, terminally truncate. Lower face subquadrate, 0.90-1.10 times as broad as long with fine sparse punctures. Genae moderately constricted behind the eyes; posterior ocellus separated from eye by about 0.1 times its own maximum diameter; FI = 60-65%; occipital carina complete. Antennae long and slender with 55-62 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.4-3.1 times as long as broad.

Pronotum mediodorsally moderately short with a strongly impressed transverse furrow. Mesoscutum in profile abruptly rounded, apically out-turned; notauli impressed on anterior 0.2-0.3 of scutum. Mesopleuron polished, impunctate, finely longitudinally striate; epicnemial carina curved to almost reach anterior pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.4-1.6 times as long as broad anteriorly, obsoletely punctate, coriaceous. Metapleuron almost without sculpture, at most finely alutaceous with isolated punctures; submetapleural carina parallel sided. Propodeum in profile evenly declivitous, dorsally almost flat; anterior transcarina present; anterior area striate, spiracular area smooth, posterior area obsoletely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 348; AI = 0.50-0.75; CI = 0.20-0.55; ICI = 0.45-0.55; SDI = 1.20-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.5-0.8 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 542, 543.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor rather shorter and stouter than is normal for species of this genus. Sternites 6-8 of ♂ with sparse long erect hair and dense fine short hair; gonosquama distally evenly rounded; genitalia similar to that of *E. drakensbergi*.

Colour generally uniformly yellow-brown, gaster terminally black; lower face and flagellum orange; inter-ocellar area black.

Variation. This species shows variation in the degree to which the central sclerite is pigmented. In most specimens it is clearly pigmented but in a few individuals it is not discernible. A few specimens from Ethiopia (WAU) have the inter-ocellar area very weakly infuscate.

Remarks. This species is morphologically very similar to the following two species, *E. drakensbergi* and *E. justus*. It may be distinguished from these species by the characters mentioned in the key but some care is needed. These 3 species differ in their distribution and thus locality is of some use when determining them. All these species are referable to the *E. communis* species-group.

Distribution. This species is confined to the highlands of eastern Africa and western Angola (Map 42).

Material examined. *Henicospilus apicalis* Szépligeti, holotype ♀, TANZANIA: Lake Natron (NR). *Enicospilus mollis* Seyrig, lectotype ♂, KENYA: Mt Kenya, west slope, 2400m, i-ii.12 (*Alluaud & Jeannel*) (MNHN); paralectotypes 1♀, 1♂, same data as lectotype.

Non-type material. ANGOLA: 1♀, Chianga, iii.72 (*Day*) (BMNH). ETHIOPIA: 12♀, 5♂, Jimma, 1969 (*Cobben*) (WAU); 1♀, L. Zwai, xi.26 (*Scott*) (BMNH). KENYA: 4♂, Aberdare Mts, xi.11 (*Neave*) (BMNH); 2♀, 1♂, Aberdare, Mt Kinangop, 3000m, x.34 (*Edwards*) (BMNH); 1♀, Kapenguria, 2200m, v.76 (*Bampton*) (TC); 1♂, Mt Elgon, 2600m, iv.76 (*Bampton*) (TC); 1♀, Muguga, vi.69 (*Brown*) (BMNH). TANZANIA: 1♀, Kicherere, 1931 (*Worthington*) (BMNH); 1♂, Kilimanjaro, Marangu, vii.57 (*Leleup*) (MRAC); 1♀, Mt Meru, i.38 (*Cooper*) (BMNH); 6♀, 2♂, Mt Meru, 1800m, vi-vii.62 (*Heinrich*) (TC). UGANDA: 1♀, Kampala, i.19 (*Gowdey*) (BMNH); 1♂, Mt Elgon, Bulambuli, 1935 (*Ford*) (BMNH). ZAIRE: 1♀, Bukavu, v.49 (*Bomans*) (MRAC); 1♀, 1♂, Ituri, Dgugu, xi.28 (*Collert*) (MRAC); 1♂, Kivu, Butembo, ix.65 (*Celis*) (MRAC); 1♂, Kivu, Natulonge, Fizi, i.57 (*Leleup*) (MRAC); 2♂, Rutshuru, v.36 (*Lippens*) (MRAC).

ENICOSPILUS DRAKENSBERGI sp. n.

(Figs 168, 173, 347, 544, 545, 743)

Description. Mandibles weakly narrowed, twisted about 20°, with upper tooth 1.8 times as long and much stouter than the lower tooth; outer mandibular surface with a weak median longitudinal concavity bearing fine sparse pubescence. Labrum 0.3-0.5 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, finely punctate. Genae weakly constricted behind the eyes; posterior ocellus separated from eye by 0.1-0.2 times its own maximum diameter; FI = 60-65%; occipital carina complete. Antennae moderately long and slender with 63-65 flagellar segments; 1st flagellar segment 2.0-2.1 times as long as 2nd, 20th segment 2.2-2.4 times as long as broad.

Pronotum mediodorsally of moderate length with strongly impressed transverse furrow. Mesoscutum in profile evenly rounded, apically not out-turned; notauli discernible anteriorly. Mesopleuron polished, punctate dorsally, ventrally grading to puncto-striate; epicnemial carina curved to nearly reach pleural margin above lower pronotal corner. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, closely punctate. Metapleuron regularly, moderately, sparsely punctate; submetapleural carina parallel sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 13-15mm; discosubmarginal cell as in Fig. 347; AI = 0.40-1.00; CI = 0.40-0.60; ICI = 0.70-0.80; SDI = 1.20-1.40; *cu-a* opposite or slightly proximal to *Rs&M*. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 2.0-2.1 times as long as deep; hind trochantellus mediodorsally 0.5-0.8 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 544, 545.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor slightly shorter than is normal for species of this genus. Sternites 6-8 of ♂ with scattered long erect hair and numerous fine decumbent pubescence; gonosquama distally somewhat evenly rounded; genitalia as in Fig. 743.

Colour generally orange with terminal segments of gaster and inter-ocellar area black; flagellum orange, distally infuscate.

Variation. This species exhibits similar variation with *E. apicalis* in the pigmentation of the alar sclerite.

Remarks. This species is very similar to *E. justus* from which it differs not only in the key characters but also in having the flagellum slightly stouter distally. The subterminal flagellar segments of *E. drakensbergi* are about 2.2 times as long as broad and bear microtrichia which are conspicuously shorter than the diameter of the flagellar segment. Those of *E. justus* are about 2.6 times as long as broad and bear microtrichia which are about as long as the diameter of the flagellar segment. The ♂ of *E. drakensbergi* tends to have more closely pectinate claws than those of other species in this group.

Distribution. This species is restricted to the highlands of South Africa (Map 43).

Material examined. Holotype ♀, SOUTH AFRICA: Natal, Drakensberg, x.26 (Turner) (BMNH); paratypes 1♀, Bloemfontein, 1904 (Eckersley) (BMNH); 1♀, Cape, Katberg, xi.32 (Turner) (BMNH); 1♀, Cape, Somerset E, xi.26 (Turner) (BMNH); 2♂, Grahamstown, i-ii.71 (Gess) (TC); 1♀, Johannesburg, 1906 (Cholmley) (BMNH); 2♀, Lady Grey, xii.26 (Nel) (BMNH); 7♀, 5♂, Natal, Drakensberg, x.26 (Turner) (BMNH); 1♀, Natal, Weenen, ii.24 (Thomasset) (BMNH); 1♀, Orange Free State, Harrismith, ii.27 (Turner) (BMNH); 1♀, Pietermaritzburg, xii.70 (H. & M. Townes) (TC); 1♂, Royal Natal Nat. Pk., i.71 (H. & M. Townes) (TC).

ENICOSPILUS JUSTUS (Seyrig) (Figs 166, 170, 178, 349, 546, 547)

Amesopilus justus Seyrig, 1935. LECTOTYPE ♂, KENYA (MNHN) by present designation [examined].
Enicospilus justus (Seyrig) TOWNES & TOWNES, 1973 : 178.

Description. Mandibles evenly narrowed, twisted about 10°, with upper tooth 1.2-1.3 times lower tooth and of similar thickness; outer mandibular surface with weak median longitudinal concavity bearing fine scattered hairs. Labrum 0.2-0.3 times as long as broad; malar space 0.2-0.4 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face elongate 0.75-0.85 times as broad as long, finely punctate. Genae slightly swollen behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina present. Antennae long and slender with 60-69 flagellar segments; 1st flagellar segment 1.5-1.7 times as long as 2nd, 20th segment 2.2-2.5 times as long as broad.

Pronotum mediodorsally moderately long with strongly impressed transverse furrow. Mesoscutum in profile evenly rounded, apically slightly out-turned; notauli weak but discernible. Mesopleuron polished, puncto-striate; epicnemial carina curved to almost reach anterior pleural margin above lower pronotal corner. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, punctate. Metapleuron puncto-striate to coarsely punctate; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area wrinkled irregularly. Posterior transverse carina of mesosternum complete.

Forewing length 11-14mm; discosubmarginal cell as in Fig. 349; AI = 0.60-0.80; CI = 0.20-0.35; ICI = 0.40-0.60; SDI = 1.20-1.40; *cu-a* from opposite to proximal to *Rs&M* by 0.2 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical, with scattered spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.5-0.8 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 546, 547.

Gaster long and slender; sternite 2 with posterior margin at or behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-4.0 times its own length.

Ovipositor slightly shorter and stouter than is normal for species of this genus. Sternites 6-8 of ♂ with almost all long erect hairs, very few fine decumbent hairs; gonosquama distally obliquely truncate; genitalia similar to that of *E. drakensbergi*.

Colour generally reddish-brown, terminal segments of gaster and inter-ocellar area black; flagellum brownish, lower face orange.

Variation. This species shows similar variation to *E. apicalis* in pigmentation of central alar sclerite.

Remarks. This species is very similar to *E. communis*. It differs in having the CI less than 0.40 and the terminal segments of the gaster black. These differences worked for the material examined but it is possible that more material will show the two species are synonymous.

Distribution. This species is widely distributed throughout the eastern half of Africa from South Africa to the Arabian peninsula (Map 44).

Material examined. Lectotype ♂, KENYA: Aberdare Mts, Kinangop, 1932 (Arambourg, Chappuis & Jeannel) (MNHN); paralectotype 1♀, same data as lectotype.

Non-type material. DEM. REP. YEMEN: 1♀, Jebel Jihaf, ix.37 (*Scott & Britton*) (BMNH). ETHIOPIA: 1♂, Addis Ababa, 1919 (*De Gaulle*) (MNHN). KENYA: 1♀, Kapenguria, v.76 (*Bampton*) (TC); 1♀, 1♂, Karen, Nairobi, xii.72 (*Cunningham & van Someren*) (TC); 2♀, 2♂, Mt Elgon, iv.76 (*Bampton*) (TC); 1♂, Nairobi, vii.60 (*van Someren*) (BMNH); 3♂, Nairobi, v.76 (*Bampton*) (TC). RWANDA: 1♂, Bugesera-Biharagu, ii.60 (*Leleup*) (MRAC). SOUTH AFRICA: 1♀, Grahamstown, xii.71 (*Gess*) (TC); 2♀, 4♂, Grahamstown, i-iv.72 (*Gess*) (TC); 1♂, Kenton on Sea, xi.70 (*Jubb*) (TC); 1♀, Kenton on Sea, iii.72 (*Jubb*) (TC); 1♀, Royal Natal Nat. Pk., i.71 (*H. & M. Townes*) (TC). TANZANIA: 1♂, Mbeya, xii.62 (*Heinrich*) (TC); 5♀, 2♂, Mt Meru, 1800m, vi-vii.62 (*Heinrich*) (TC); 9♀, 6♂, Mt Meru, 2700m, vii.62 (*Heinrich*) (TC); 1♀, Ngorongoro, vi.57 (*Leleup*) (MRAC); 1♀, 1♂, Rungwe Mts, xi.62 (*Heinrich*) (TC); 1♀, W. Usambara Mt, Lushoto, ii.62 (*Heinrich*) (TC). UGANDA: 1♀, Namwamba Valley, Ruwenzori Rg., xii.34 (*Edwards*) (BMNH). ZAIRE: 1♂, Kivu, Lenera, xii.56 (*Leleup*) (MRAC); 2♂, Lubumbashi, ii-iv.60 (*Bourgeois*) (TC).

ENICOSPILUS TAXUS sp. n.

(Figs 350, 548)

Description. Mandibles short, evenly narrowed, twisted about 25°, upper tooth dorsoventrally depressed, very slightly the longer; outer mandibular surface flat with long scattered hairs. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile very weakly convex, margin slightly inturned; clypeus in anterior aspect 1.4-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long, finely and sparsely punctate. Genae strongly constricted behind the eyes; posterior ocellus contiguous with eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 53-55 flagellar segments; 1st flagellar segment 1.6-1.9 times as long as 2nd, 20th segment 2.4-2.6 times as long as broad.

Pronotum mediodorsally short with a strongly impressed transverse furrow. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli absent. Mesopleuron polished, upper part finely puncto-striate ventrally becoming striate; epicnemial carina reaching above lower corner of pronotum, its upper end slightly curved forward but remote from pleural margin. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.5 times as long as broad anteriorly, finely wrinkled with the wrinkles tending to be longitudinal posteriorly. Metapleuron aluto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area smooth, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete or medioventrally weak.

Forewing length 13-14mm; discosubmarginal cell as in Fig. 350; AI = 2.80-3.70; CI = 0.35-0.55; ICI = 0.30-0.35; SDI = 1.10-1.25; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 548, exceptional in being curved through about 110° distally.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine elongate pubescence with scattered erect stout hairs; gonosquama distally evenly rounded.

Colour generally variable, see below.

Variation. This species exists in two distinguishable colour forms, a dark marked south African form and a pale central African form. The former is pale yellow with badius markings on the central lower face, pronotum, propleuron, mesopleuron, mesosternum entirely, mesoscutum in 3 vittae, metapleuron and coxae ventrally. The gaster is irregularly mottled with brown on a yellow background. The central African form is entirely orange-yellow. We have chosen not to formally name these forms as the significance of such a colour difference is not clear. The use of infra-specific categories for this type of variation has deliberately not been adopted in this work.

Remarks. The colour variation of this species is reminiscent of *E. nefarius* although in that species there is a gradation from slightly to extremely dark marked. The mandibles of the two species are similar and it is possible that they are either related or share a similar habitat.

E. taxus may be distinguished from all other Ethiopian species in the form of the alar sclerite. Other than the similarities mentioned in the preceding paragraph, it does not appear to be closely related to any species.

Distribution. This species is widely distributed throughout Africa from Ivory Coast to South Africa. It is apparently a rare species (Map 45).

Material examined. Holotype ♀, SOUTH AFRICA: Umhlanga Rocks, xi.70 (*H. & M. Townes*) (TC). Paratypes. CAMEROUN: 1♀, Batouri Dist., vi.35 (3°45' N : 13°45' E) (*Merefield*) (BMNH). GHANA: 1♀, Bompotra, Ashanti, 1921 (*Evans*) (BMNH). IVORY COAST: 1♂, Zep-reghé, Daloa, v.62 (*Decelle*) (MRAC). SOUTH AFRICA: 1♂, Natal, Eshowe, xi.70 (*H. & M. Townes*) (TC). UGANDA: 1♀, Mengo, Zika Forest, xi.63 (*Lancaster*) (TC).

ENICOSPILUS DIABOLICUS sp. n.

(Figs 169, 175, 351, 549, 744)

Description. Mandibles rather evenly narrowed, twisted about 15°, with upper tooth 1.3 times as long as the lower; outer mandibular surface with a weak median longitudinal concavity bearing fine scattered hairs. Labrum 0.2 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.7-1.9 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.85 times as broad as long, finely punctate. Genae slightly constricted behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae very long and slender with 62-70 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 2.6-2.8 times as long as broad.

Pronotum mediodorsally fairly short with weakly impressed transverse furrow. Mesoscutum in profile abruptly rounded, apically out-turned; notauli vestigial. Mesopleuron subpolished, upper part puncto-striate, ventrally weakly striate; epicnemial carina curved to approach pleural margin above lower pronotal corner. Scutellum in profile weakly convex, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, obsolete punctate. Metapleuron virtually smooth; submetapleural carina parallel sided, very narrow. Propodeum in profile weakly rounded, dorsally fairly flat; anterior transcarina complete; anterior area wrinkled, spiracular area smooth, posterior area almost smooth, with few isolated wrinkles. Posterior transverse carina of mesosternum complete.

Forewing length 12-14mm; discosubmarginal cell as in Fig. 351; AI = 0.70-0.75; CI = 0.50-0.60; ICI = 0.50-0.65; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical, devoid of spines; hind coxa in profile 2.0-2.2 times as long as deep; hind trochantellus mediodorsally 1.0-1.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 549.

Gaster exceptionally long and slender; sternite 2 with posterior margin just before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor short and stout, strongly laterally compressed. Sternites 6-8 of ♂ with numerous long erect hairs; gonosquama distally fairly acute; ♂ genitalia as in Fig. 744, similar to *E. drakensbergi* but with gonolacinia bearing a swelling.

Colour generally blackish with posterior orbits narrowly pale marked.

Variation. Slight variation was noted in the degree of pigmentation of the fenestra. In a few specimens a faint central sclerite is discernible but this is never distinctly delineated.

Remarks. This species belongs to the *E. communis* species-group. It is immediately recognizable from other members of this species-group on account of its colour. Only a few other African species of *Enicospilus* are black and these belong to different species-groups. All the black species occur in the same geographical locality at high altitudes.

Distribution. This species is confined to the Ruwenzori Mountains above 3000m. (Map 46).

Material examined. Holotype ♂, UGANDA: Ruwenzori Mts, 3100m; v.11 (*Gowdey*) (BMNH). Paratypes. UGANDA: 1♂, Nymabitabu, viii.31 (*Hancock*) (BMNH); 2♂, Ruwenzori, 3,200m, v.11 (*Gowdey*) (BMNH); 2♀, Ruwenzori, Misigo, 3,000m, viii.52 (*Fletcher*) (BMNH); 1♀, Ruwenzori, Mt Sabinio, xi.34 (*Edwards*) (BMNH). ZAIRE: 1♂, Ruwenzori-Kalonge, ii.71 (*Schwartz*) (MNHN).

ENICOSPILUS SPECIES 5

Morphologically similar to *E. diabolicus* from which it differs in having tergites 1-3 of gaster reddish, abscissa of *M* between *2m-cu* and *3rm* more than 1.0 times as long as *2m-cu*, the thyridia separated from the anterior margin of tergite 2 by 3.0-4.0 times their own length and the ovipositor more slender and elongately acute apically.

It is possible that the specimens included here represent a few aberrant individuals of *E. communis*. They differ from *E. communis* in having the mesopleurae more matt and almost alutaceous and in being darker in colour.

These specimens are all from the Ruwenzori mountains, Uganda.

Material examined. UGANDA: 1♀, 1♂, Ruwenzori, Mohoma R, viii.52 (*Fletcher*) (BMNH); 1♀, Ruwenzori, Namwamba Valley, xi.34 (*Edwards*) (BMNH); 1♀, no further locality, 1911 (*Marshall*) (BMNH).

ENICOSPILUS MAHALONIUS sp. n.

(Figs 181, 352, 550, 551, 745)

Description. Mandibles strongly and evenly narrowed, twisted about 60°, upper tooth flattened, about 1.5 times as long as the lower; outer mandibular surface flat with isolated hairs. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 56-58 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.1-2.3 times as long as broad.

Pronotum mediodorsally long with anterior margin up-turned to approach the anterior margin of the mesoscutum which is extended as a shelflike projection above pronotum. Mesoscutum in profile abruptly rounded, apically strongly out-turned; notauli absent. Mesopleuron polished, finely punctate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate entire length; scutellum dorsally 1.8 times as long as broad anteriorly, smooth. Metapleuron finely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely punctate. Posterior transverse carina of mesosternum complete.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 352; AI = 2.40-2.60; CI = 0.15-0.40; ICI = 0.30-0.35; SDI = 1.20-1.40; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical, without spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 550, 551.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by about 5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hairs; gonosquama distally evenly rounded; genitalia as in Fig. 745.

Colour generally orange-yellow, lower face whitish, inter-ocellar area black; flagellum brownish.

Remarks. The modification of the pronotum presumably serves a similar purpose to that of *E. junctus*. However that of *E. mahalonius* utilizes also the mesoscutum which projects as a shelf, whereas the posterior limit of the defensive structure

of *E. junctus* is formed by an outgrowth of the pronotum itself. It is therefore unlikely that there is any phylogenetic affinity between these two species. *E. mahaloni* appears to be quite closely related to *E. lanafius* which it resembles in the form of the alar sclerites, specialized pronotum etc.

Distribution. This species is recorded only from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, iv.34 (*Seyrig*) (MNHN); paratypes 27♀, 10♂, Bekily, 1932-34 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, 1934 (*Seyrig*) (BMNH).

ENICOSPILUS MAURITII (Saussure)

(Figs 353, 552, 553, 746)

Ophion Mauritii Saussure, 1892 : 14. Holotype ♂, MAURITIUS (MNHN) [examined].

Ophion mauritii Saussure; Bordage, 1898 : 522.

Henicospilus leionotus var *longicornis* Morley, 1912b: 173. Holotype ♀, SEYCHELLES (BMNH) [examined]. [Synonymized by Townes & Townes, 1973 : 180.]

Ophion mauritii Saussure; Bordage, 1914 : 379.

Ophion (*Henicospilus*) *Mauritii* Saussure; d'Emmerez de Charmoy, 1916 : 13.

Amesopilus rectecarinatus Enderlein, 1921 : 20. Holotype ♀, MADAGASCAR (IZPAN) [examined]. [Synonymized by Townes & Townes, 1973 : 180.]

Stauropodoctonus mauritii (Saussure) d'Emmerez de Charmoy & Gebert, 1921 : 184.

Ophion (*Stauropodoctonus*) *mauritii* Saussure; Moutia, 1934 : 36.

Stauropodoctonus mauritii (Saussure); Moutia & Mamet, 1945 : 456.

Stauropodoctonus mauritii (Saussure); Moutia & Mamet, 1947 : 29.

Enicospilus mauritii (Saussure) Moutia & Curtois, 1952 : 343.

Stauropodoctonus mauritii (Saussure); Box, 1953 : 74.

Enicospilus mauritii (Saussure) Williams & Mamet, 1954 : 10.

Amesopilus rectecarinatus Enderlein; Benoit, 1957 : 315.

Enicospilus mauritii (Saussure); Townes & Townes, 1973 : 180.

Description. Mandibles evenly narrowed, twisted about 25°, with upper tooth very slightly the longer; outer mandibular surface with a weak longitudinal concavity, with long fine pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.4-0.6 times as long as basal mandibular width. Clypeus in profile weakly convex, margin impressed, acute; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.90 times as broad as long, finely punctate. Genae moderately constricted behind the eyes; posterior ocellus less than 0.1 times maximum diameter from eye; FI = 45-55%; occipital carina complete. Antennae long and slender with 63-70 flagellar segments; 1st flagellar segment 1.6-2.1 times as long as 2nd, 20th segment 2.3-2.7 times as long as broad.

Pronotum mediadorsally short with anterior margin slightly up-turned; transverse furrow very deep. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, upper part punctate ventrally grading to striate; epicnemial carina weakly curved to and almost reaching anterior pleural margin. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, obsolete wrinkled with isolated punctures. Metapleuron closely puncto-striate; submetapleural carina weakly broadened anteriorly. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area reticulate or irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 10-13mm; discosubmarginal cell as in Fig. 353; AI = 1.10-1.40; CI = 0.29-0.38; ICI = 0.30-0.40; SDI = 1.00-1.10; *cu-a* opposite *Rs&M*. Hindwing with 6 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediadorsally about 0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 552, 553.

Gaster long and slender; sternite 2 with posterior margin opposite or slightly behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with at most few moderately long hairs; gonosquama distally from truncate to rather acute; ♂ genitalia as in Fig. 746.

Colour generally orange-red; lower face orange; inter-ocellar area blackish; flagellum brownish-orange to brown.

Remarks. The large fenestra, sinuous *Rs+2r* and black inter-ocellar area are characters which enable this species to be easily recognized. The affinities of this species are not clear but it does not appear to be closely related to any other African species. It may possibly be related to an undescribed Oriental species.

Host records. Considerable confusion surrounds the host preferences of this species. Bordage (1898) first recorded this species as a parasite of *Proceras sacchariphagus** Bojer (Lep., Pyralidae) and subsequently (1914) as a parasite of *P. venosatum** Walker (= *sacchariphagus* Bojer), *Tetramoera schistaceana** Sneller (Lep., Tortricidae) and *Sesamia nonagrioides** Lefebvre (Lep., Noctuidae). D'Emmerez de Charmoy (1916) added *Sesamia vuteria** Stoll to the host list. Moutia and Mamet (1947) failed to record this species as a parasite of *P. sacchariphagus** but recorded it as a parasite of *S. vuteria*. Moutia and Curtois (1952) questions the records of *E. mauritii* as a parasite of larvae of either *Proceras* or *Sesamia* as in laboratory tests the ichneumonid failed to attack either. They do record this species from *Mythimna loreyi** Duponchel (Lep., Noctuidae). Williams and Mamet (1954) question the records of *E. mauritii* as a parasite of *Proceras*, *Sesamia* and *Tetramoera*. The question is further complicated by records of other species, notably *E. hova*, *E. capensis* (as *antancarus*) and *E. sesamiae* from a similar range of larvae.

We have examined some of the material of Moutia and co-workers (preserved in the BMNH) and conclude that 8 species are represented, *E. mauritii*, *E. braunsii*, *E. capensis*, *E. hova*, *E. transvaalensis*, *E. sesamiae*, *E. rufus* and *E. ruscus*. The critical characters of these species are presented in Table 1.

TABLE 1. COMPARISON OF SPECIES COLLECTED BY MAURITIUS DEPARTMENT OF AGRICULTURE AROUND SUGAR CANE AND MAIZE.

species	MAURITII	RUFUS	BRAUNSII	CAPENSIS	HOVA	TRANSVAALENSIS	SESAMIAE	RUSCUS
character								
CENTRAL SCLERITE	absent	absent	present, small oval	present, moderate size, circular	present, large, kite shaped	present, large D-shaped	present, small oval	present, small ellipsoidal
CLYPEAL MARGIN	impressed	flat	in-turned	strongly impressed	impressed	impressed	strongly out-turned	in-turned
MANDIBLE SHAPE	short, evenly tapered	moderately long, evenly tapered	moderately long, evenly tapered	long, distally parallel sided	moderately long, evenly tapered	long, evenly tapered	moderately long, abruptly tapered	moderately long, evenly tapered
DIAGONAL FURROW OF MANDIBLE	absent	absent	absent	present	absent	absent	absent	present
UPPER TOOTH OF MANDIBLE cf WITH THE LOWER	subequal	1.4-1.6	1.2-1.5	2.0+	1.3-1.4	1.3-1.4	subequal	1.2
METAPLEURAL SCULPTURE	punctostriate	coriaceous	punctostriate	punctate	punctostriate	punctate	punctostriate	sub reticulate
INTER-OCELLAR AREA	black	red-brown	yellowish or weakly infusate	whitish to yellowish	whitish	yellowish	yellow-orange	yellowish

Distribution. This species occurs on the Mascarene Is., the Seychelles, the Comores and Madagascar. The sole record of this species from the African mainland (Morley, 1912a : 17) is a misidentification of *E. biimpressus*. We have seen no specimens of *E. mauritii* from east Africa (Map 39).

Material examined. *Ophion Mauritii* Saussure, holotype ♂, MAURITIUS (MNHN). *Henicospilus leionotus* var *longicornis* Morley, holotype ♀, SEYCHELLES: Silhouette Is, Mare aux Cochons, 300m (BMNH). *Amesospilus recticarinatus* Enderlein, holotype ♀, MADAGASCAR: Tamatave, Ivondro River (IZPAN).

Non-type material. COMORES: 1♀, Grand Comores, Nioumbadjou, xi.73 (*Matile*) (MNHN). MADAGASCAR: 1♀, Ambohimanga, ii.36 (*Seyrig*) (MNHN); 1♀, Ampandrandava, i.40 (*Seyrig*) (TC); 1♀, 1♂, Analandrarak, near Rogez, vi.37 (*Seyrig*) (MRAC); 1♀, Andreba, xi.33 (*Seyrig*) (MNHN); 1♀, Anivorano, vii.28 (*Seyrig*) (MNHN); 1♂, Bekily, xii.32 (*Seyrig*) (BMNH); 2♂, Bekily, v.34 (*Seyrig*) (MNHN); 1♂, Betroka, i.33 (*Seyrig*) (MNHN); 2♂, Fampanambo, ii.61 (*Vadon*) (MRAC); 1♀, Fianarantsoa, Central Plateau, vii.36 (*Seyrig*) (MNHN); 1♀, Perinet, xi.30 (*Seyrig*) (MNHN); 1♂, Perinet, xii.32 (*Seyrig*) (MNHN); 1♂, Perinet (*Inst. Res. Mad.*) (MRAC); 1♀, 1♂, Rogez, ix.30 (*Seyrig*) (BMNH); 2♀, Rogez, ix.30 (*Seyrig*) (MNHN); 2♀, 2♂, Rogez, 1931 (*Seyrig*) (MNHN); 1♂, Rogez, x.32 (*Seyrig*) (MNHN); 1♂, Rogez, 1935 (*Seyrig*) (MNHN); 1♀, 1♂, Rogez, 1936 (*Seyrig*) (MNHN); 2♀, 1♂, Rogez, iv-vi.37 (*Seyrig*) (MRAC); 11♀, 17♂, Rogez, 1946 (*Lamberton*) (TC); 2♀, St Marie no further data (MNHN); 1♀, Vatomandry (*Seyrig*) (MNHN); 3♂, no further data (*Seyrig*) (MNHN). MAURITIUS: 1♂, Cutepipe, ii.50 (*Williams*) (BMNH); 1♂, Henrietta, xi.49 (*Curtois*) (BMNH). 1♀, no further data, 1901 (*Alluaud*) (MNHN). REUNION: 1♀, Salazie, vi.06 (*Carie*) (MNHN).

ENICOSPILUS SLIOCHUS sp. n.

(Figs 182, 354, 558)

Description. Mandibles evenly narrowed, twisted about 60°, upper tooth dorsoventrally flattened, 1.2 times as long as lower; outer mandibular surface flat with isolated hairs. Labrum 0.2 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.68-0.75 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus touching eyes; FI = 60-65%; occipital carina complete. Antennae long and slender with 55-57 flagellar segments; 1st flagellar segment 2.1-2.3 times as long as 2nd, 20th segment 2.8-3.0 times as long as broad.

Pronotum mediodorsally moderately long, with transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically out-turned; notauli absent. Mesopleuron polished, finely striate; epicnemial carina reaching above lower corner of pronotum, inclined to but not reaching pleural margin. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, smooth with isolated punctures. Metapleuron finely striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-14mm; discosubmarginal cell as in Fig. 354; AI = 0.95-1.10; CI = 0.20-0.25; ICI = 0.35-0.40; SDI = 1.05-1.15; *cu-a* subopposite *Rs&M*. Hindwing with 7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 558.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 5.0-6.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ without any long erect hairs, finely pubescent; gonosquama distally elongately rounded.

Colour generally orange-red; lower face and vertex whitish, inter-ocellar area black; flagellum reddish-brown.

Remarks. This species belongs to the *E. dolosus* species-group. It differs from *E. dolosus* in the form of the alar sclerite and in not having long stout hairs on the sub-genital plate of the ♂. *E. sliochus* is also similar to *E. cednus* but lacks the central sclerite.

Distribution. This species is recorded from Madagascar and Zaire.

Material examined. Holotype ♂, MADAGASCAR: Tamatave, Ivondro River, iv.41 (*Seyrig*) (MNHN). Paratypes. MADAGASCAR: 1♂, Fanpanambo, ii.61 (*Vadon*) (MRAC); 2♀, Ivondro, iv.41 (*Seyrig*) (MRAC); 1♂, Ivondro, x.44 (*Seyrig*) (MRAC); 1♀, Maroantsetra, Ambodiwoangy, (*Inst. Res. Mad.*) (MRAC). ZAIRE: 1♂, Kindu (*Russo*) (MRAC).

ENICOSPILUS PESCATOR (Seyrig)

(Figs 185, 187, 355)

Amesopilus pescator Seyrig, 1935 : 65. Holotype ♂, KENYA (MNHN) [examined].
Enicospilus pescator (Seyrig) Townes & Townes, 1973 : 182.

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth about 2.0 times as long as lower; outer mandibular surface flat with fine scattered hair. Labrum 0.3 times as long as broad; malar space 0.4 times as long as basal mandibular width. Clypeus in profile swollen, margin blunt; clypeus in anterior aspect 1.7 times as broad as long, terminally convex. Lower face elongate, 0.87 times as broad as long, finely punctate. Genae weakly constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its maximum diameter; FI = 58%; occipital carina complete. Antennae long and slender with 61 flagellar segments; 1st flagellar segment 1.6 times as long as 2nd, 20th segment 2.2 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow weakly impressed. Mesoscutum in profile abruptly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, punctate; epicnemial carina strongly curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.3 of its length; scutellum dorsally 1.5 times as long as broad anteriorly, punctate. Metapleuron punctate;

submetapleural carina narrow, parallel sided. Propodeum in profile evenly declivitous, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11mm; discosubmarginal cell as in Fig.355; AI = 0.43; CI = 0.30; ICI = 0.50; SDI = 1.20; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on R_1 ; *1A* proximally straight.

Foreleg with tibia subcylindrical, without spines; hind coxa in profile 1.6 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws symmetrical.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0 times its own length.

Sternites 6-8 of ♂ with long erect pubescence; gonosquama distally rounded.

♀ unknown.

Colour generally dark red-brown with irregular yellow patches on pronotum and mesopleuron; lower face yellow; inter-ocellar area black; flagellum brown. Legs 1 & 2 entirely yellowish, hind legs reddish-brown. Gaster reddish-brown, terminal segments yellowish-orange.

Remarks. This species is known only from the ♂ holotype. It is distinct from all others in its colour pattern. The affinities of *E. pescator* are not particularly clear but the shape of head and venation suggest it belongs to the *E. communis* species-group. It differs from other members of this species-group in having short hind trochantelli.

Material examined. Holotype ♂, KENYA: Mt Elgon, east side, Suam fishing hut, 2400m, 1932-33 (*Arambourg, Chappuis & Jeannel*) (MNHN).

***ENICOSPILUS DOLOSUS* (Tosquinet)**
(Figs 170, 183, 184, 186, 356, 554, 555, 748, 795)

Ophion (Enicospilus) dolosus Tosquinet, 1896 : 389. Holotype ♀, EGYPT (MNHU) [examined].

Pterospilus (Henicospilus) dolosus (Tosquinet) Kriechbaumer, 1901 : 156.

Henicospilus dolosus (Tosquinet) Morley, 1912a : 41.

Amesospilus Hammersteini Enderlein, 1921 : 21. Lectotype ♀, MADAGASCAR (IZPAN), designated by Townes & Townes (1973 : 176), [examined]. [Synonymized by Townes & Townes, 1973 : 176.]

[*Amesopilus communis* Seyrig, 1935 : 56. In part. Misidentification.]

Enicospilus dolosus (Tosquinet) Townes & Townes, 1973 : 176.

Description. Mandibles evenly narrowed, twisted about 30°, with upper tooth slightly deplanate, about 1.5 times as long as lower; outer mandibular surface flat with fine hairs. Labrum 0.2 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.63-0.68 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 55-58 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 2.0-2.2 times as long as broad.

Pronotum mediodorsally rather short with transverse furrow quite strongly impressed. Mesoscutum in profile abruptly rounded, apically slightly out-turned; notauli vestigial. Mesopleuron subpolished, more or less evenly striate; epicnemial carina evenly curved to almost reach pleural margin above lower corner of pronotum. Scutellum in profile convex, laterally carinate to posterior margin; scutellum dorsally 1.8 times as long as broad anteriorly, finely alutaceous with isolated punctures. Metapleuron striate; submetapleural carina very narrow, anteriorly abruptly expanded into a small flange. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area smooth, spiracular area punctate, posterior area finely transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 356; AI = 0.79-1.10; CI = 0.20-0.35; ICI = 0.35-0.45; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 6-7 hamuli on R_1 ; *1A* proximally straight.

Foreleg with tibia subcylindrical with few scattered spines; hind coxa in profile 1.6-1.8 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 554, 555.

Gaster long and slender; sternite 2 with posterior margin opposite or behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense elongate erect hairs; gonosquama distally rounded; ♂ genitalia as in Fig. 748.

Colour generally orange-brown; lower face yellow-orange, flagellum reddish-brown; inter-ocellar area black.

Variation. This species is extremely uniform in morphological appearance throughout Africa. The Madagascan specimens tend to have the internal angle of the proximal sclerite slightly more obtuse than normal and have the mandibular teeth less inequal, the upper about 1.3 times the length of the lower, but such slight differences do not, in our opinion, warrant taxonomic distinction.

Remarks. *E. dolosus* is probably the commonest African species with a black inter-ocellar area. The characteristic form of the alar sclerite and the thoracic sculpture are characters which differentiate this species from others with a black inter-ocellar area.

Immature stages. Cephalic capsule of final instar larva as in Fig. 795. Hypostoma strongly sclerotized, narrow, curved sharply through 90°, posteriorly indistinctly delineated; hypostoma spur long and slender; pleurostoma and epistoma long and slender; mandible short, weakly curved; sclerotized oral bar weak but discernible; labial sclerite weak at junction with prelabial sclerite; posterior hypostomal process strong; stipital sclerite long and slender.

This species is distinctive in having a long slender pleurostoma/epistoma and weakly curved mandibles. Cocoon 13-15mm long, 2.5 times or more as long as broad; outer surface smooth or nearly so.

Host records. This species is commonly reared from the larvae of *Anomis leona* Schaus (Lep., Noctuidae) on cocoa (*Theobroma cacao*). It has also been reared from an unidentified Geometrid larva.

Distribution. This species is widely distributed throughout the Ethiopian region from Egypt to South Africa and from Sierra Leone to Madagascar (Map 48).

Material examined. *Ophion (Enicospilus) dolosus* Tosquinet, holotype ♀ (lacks gaster) EGYPT: no further data (MNHU). *Amesospilus Hammersteini* Enderlein, lectotype ♀, MADAGASCAR: Ambre Mt (IZPAN). [The "♂" paralectotype from Ambohimanga is a ♀ of *Dicamptus pellucidus*.]

Non-type material. ANGOLA: 1♀, Dundo, Lunda, iii.58 (TC). CENTRAL AFRICAN REPUBLIC: 1♀, Bouaké, xi.47 (MRAC); 1♀, Ubangi, Semena, i.36, ex Geometrid larva (*Ghesquière*) (MRAC). ETHIOPIA: 4♀, Jimma, x.69 (*Cobben*) (WAU). GABON: 1♀, Lastourville (*Le Testu*) (MNHN). GHANA: 4♀, 2♂, Asuansi, i.41, ex *Anomis leona* on Cocoa (*Box*) (BMNH); 1♀, Cape Coast, xii.40, ex *Anomis* sp. (*Box*) (BMNH). GUINEA: 1♀, N'Zerekore, 1920 (*Chabanaud*) (MNHN). IVORY COAST: 1♀, Adiapote, 30km W of Abidjan, vii.61, on Cocoa (*Decelle*) (MRAC); 1♀, Amanikro, 50km NW of Abengourou, vi.61, on Cocoa (*Decelle*) (MRAC); 1♀, Andé, Bongouanou, iii.62 (*Decelle*) (MRAC); 2♀, Bingerville, xi.62, ex *Anomis leona* on Cocoa (*Decelle*) (MRAC); 3♀, Bingerville, ii.72, ex *Anomis leona* (BMNH); 1♀, Bingerville, ex *Anomis leona* (*Alibert*) (BMNH); 2♂, Zepreghé, Daloa, iv.62 (*Decelle*) (MRAC). KENYA: 1♀, Embu, iii.12 (*Browne*) (BMNH); 1♀, Karen, Nairobi, viii.31 (*van Someren*) (TC); 1♀, Kibwezi, iv.11 (*Neave*) (BMNH); 2♀, Nairobi, vi.32 (*Seyrig*) (MNHN); 1♂, Nairobi, ii.63 (TC); 5♀, 1♂, Nyeri, vi.32 (*Seyrig*) (MNHN). LESOTHO: 1♂, Patlong, 1919 (*Ellenberger*) (MNHN). MADAGASCAR: 2♀, Ampandr-andava, i.40 (*Seyrig*) (TC); 1♂, Analandrakaka, vi.37 (*Seyrig*) (MRAC); 2♀, Antsirabé, i.30 (*Seyrig*) (MNHN); 2♀, Behara, iii-iv.37 (*Seyrig*) (MNHN); 4♀, 4♂, Behara, iv.37 (*Seyrig*) (MRAC); 1♀, Bekily, ix.29 (*Seyrig*) (MNHN); 9♀, Bekily, 1930 (*Seyrig*) (MNHN); 8♀, 3♂, Bekily, 1932 (*Seyrig*) (MNHN); 19♀, 2♂, Bekily, 1933 (*Seyrig*) (MNHN); 2♀, 2♂, Bekily, v.34 (*Seyrig*) (BMNH); 3♀, Bekily, 1934 (*Seyrig*) (MNHN); 1♂, Bekily, i.37 (*Seyrig*) (MNHN); 4♀, 1♂, Betroka, ii.32 (*Seyrig*) (MNHN); 1♀, Betroka (*Inst. Res. Mad.*) (MRAC); 2♀, 4♂, Fianarantsoa, vi.33 (*Seyrig*) (MNHN); 1♂, Fianarantsoa, vii.36 (*Seyrig*) (MNHN); 1♀, Fort Dauphin, iv.31 (*Seyrig*) (MNHN); 1♂, Ivondro River, ii.40 (*Seyrig*) (TC); 2♀, Ivondro River, iv.41 (*Seyrig*) (MRAC); 4♀, Lake Alaotra, viii.28 (*Seyrig*) (MNHN); 1♂, Marojely, xii.60 (*Soga*) (MNHN); 1♀, Perinet, xii.32 (*Seyrig*) (MNHN); 23♀, 2♂, Rogez, 1930 (*Seyrig*) (MNHN); 6♀, 5♂, Rogez, 1931 (*Seyrig*) (MNHN); 1♀, Rogez, xii.32 (*Seyrig*) (MNHN); 1♀, Rogez, iv.34 (*Seyrig*) (MNHN); 1♂, Rogez, iv.37 (*Seyrig*) (MRAC); 8♀, 3♂, Rogez, iv.46 (*Lamberton*) (TC); 9♀, Sombirano, xii.32 (*Seyrig*) (MNHN); 1♀, Tampina, x.30 (*Seyrig*) (MNHN); 1♂, Tsaratanana (*Seyrig*) (MNHN); 3♂, illegible locality data (*Seyrig*) (MNHN). MAURITIUS: 1♂, no further data, viii.11 (*Carie*) (MNHN). MOÇAMBIQUE: 1♀, Guengère, Pungové, 1906 (*Vasse*) (MNHN). NIGERIA: 1♀, Ife-Ife, W State, v.73 (*Medler*) (TC); 4♀, Ife-Ife, W State, viii.74 (*Medler*) (TC); 1♂, Ikerre, W State, ix.74 (*Medler*) (TC); 1♀, 1♂, Zugurma, ix.74 (*Medler*) (TC). SENEGAL: 1♀, Bambey (*Risbec*) (BMNH). SIERRA LEONE: 13♀, 4♂, Freetown, 1967 (*Owen*) (TC); 6♀, Freetown, 1969 (*Owen*) (TC); 1♂, Freetown, i.70 (*Owen*) (TC); 2♀, 1♂, Njala, x.35 (*Hargreaves*) (BMNH). SOUTH AFRICA: 1♀, Natal, Sarnia (*Oakes*) (BMNH); 1♀, Port St. John, iii.24 (*Turner*) (BMNH). TANZANIA: 1♀, 1♂, Kilimanjaro, iv.12 (*Alluaud & Jeannel*) (MNHN); 1♀, Longido, Masi District, iv.57 (*Basilewsky & Leleup*) (MRAC); 4♀, Lushoto, W Usambara Mts, no further data (TC); 1♀, Morogoro, ii.62 (*Heinrich*) (TC); 1♀, Mt Meru, ii.11 (*Neave*) (BMNH); 1♀, Mt Meru, vii.62 (TC); 4♀, Uluguru Mts, no further data (TC). UGANDA: 1♀, Entebbe, viii.11 (*Gowdey*) (BMNH); 8♀, 1♂, Kampala, 1965 (*Owen*) (TC); 3♀, Kampala, v.65 (*Unamba*) (TC). ZAIRE: 1♀, Bambesa, Uélé R., xii.33 (*Brédo*) (MRAC); 1♀, Eala, ix.36 (*Ghesquière*) (MRAC); 1♂, Eala, xi.38 (*Couteaux*) (MRAC); 1♀, Kalemé, xii.18 (*Mayné*) (MRAC); 6♀, 4♂, Kivu, Kadjudju, 1932 (*Babault*) (MNHN); 4♀, 1♂, Kivu, Kavivira (Uvira), iii.55 (*Martier*) (MRAC); 3♀, Kivu, Kitembo, 1932 (*Babault*) (MNHN); 1♀, Lubumbashi, xii.56 (*Seydel*) (TC); 1♀, Rutshuru, v.37 (*Ghesquière*) (MRAC).

ENICOSPILUS BELOSUS sp. n.

(Figs 357, 556, 557, 747)

Description. Mandibles evenly narrowed, twisted about 40°, with upper tooth flattened, about 1.4 times as long as the lower; outer mandibular surface flat with scattered hairs. Labrum 0.3 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.8-1.9 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long with isolated punctures. Genae slightly swollen behind the eyes; posterior ocellus contiguous with eye; FI = 60-65%; occipital carina complete. Antennae moderately long, incomplete; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.1-2.4 times as long as broad.

Pronotum mediadorsally very short with weak transverse furrow. Mesoscutum in profile evenly rounded, apically out-turned; notauli absent. Mesopleuron polished, shallowly punctate, ventrally grading into puncto-striate; epicnemial carina reaching above lower corner of pronotum its upper end remote from pleural margin. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, smooth. Metapleuron finely striate; submetapleural carina anteriorly weakly expanded. Propodeum in profile weakly rounded, dorsally convex; anterior transcarina complete; anterior area smooth, spiracular area striate, posterior area finely transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 10-11mm; discosubmarginal cell as in Fig. 357; AI = 0.80-1.00; CI = 0.20-0.25; ICI = 0.50-0.60; SDI = 1.10-1.20; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia subcylindrical, with isolated spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediadorsally 0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 556, 557.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.5-2.0 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of ♂ with moderately long hairs at 45° to sternites; gonosquama distally evenly rounded to acute; ♂ genitalia as in Fig. 747 with gonolaciniar spine hooked.

Colour generally orange-yellow; head, mesoscutal stripes and subalar prominences paler; lower face and inter-ocellar area white; flagellum orange-red.

Remarks. A very distinctive species on account of the very straight *Rs+2r* and small bullet-shaped alar sclerite. The affinities of this species are not clear but it is probably related to *E. lanafius*.

Distribution. This species is confined to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, i.34 (*Seyrig*) (MNHN); paratypes 1♀, Antanimora, i.37 (*Seyrig*) (MNHN); 1♀, Bekily, iii.32 (*Seyrig*) (MNHN); 14♀, 5♂, Bekily, 1933 (*Seyrig*) (MNHN); 3♀, 4♂, Bekily, i-v.34 (*Seyrig*) (MNHN). 1♀, 1♂, Bekily, v.34 (*Seyrig*) (BMNH).

ENICOSPILUS PUNCTIPINNIS (Saussure)

(Figs 358, 559, 560, 779)

Ophion punctipinnis Saussure, 1892 : 16. Holotype ♂, MADAGASCAR (MNHN) [examined].

Ophion punctipennis (sic) Saussure; Risbec, 1960 : 636.

Enicospilus punctipinnis (Saussure) Townes & Townes, 1973 : 182.

Description. Mandibles proximally narrowed, distally parallel sided, twisted about 25°, upper tooth broader and about 1.3 times as long as the lower; outer mandibular surface flat with scattered hairs. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile very weakly to moderately convex, margin usually flat; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete or centrally weak. Antennae long and fairly slender with 63-66 flagellar segments; 1st flagellar segment 1.9-2.0 times as long as 2nd, 20th segment 1.8-1.9 times as long as broad.

Pronotum mediodorsally short with transverse furrow strongly impressed. Mesoscutum in profile evenly rounded apically not out-turned; notauli discernible on anterior 0.2 of scutum. Mesopleuron polished, finely punctate; epicnemial carina curved to but not reaching pleural margin above level of lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate beyond 0.9 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, alutaceous. Metapleuron closely punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 16-19mm; discosubmarginal cell as in Fig. 358; AI = 0.85-1.45; CI = 0.60-0.90; ICI = 0.45-0.70; SDI = 1.50-1.60; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 559, 560.

Gaster moderately long; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.5-5.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long erect hairs and fine decumbent pubescence; gonosquama distally obliquely truncate; genital claspers as in Fig. 779.

Colour generally brownish-red; gaster with tergite 3+ weakly infusate to (rarely) black; inter-ocellar area whitish; lower face red; flagellum proximally reddish-brown, distally badious.

Variation. *E. punctipinnis* as represented by the holotype has a narrow almost straight alar sclerite, a centrally angled *Rs+2r* and a distally constricted discosubmarginal cell. In a few specimens the sclerite is stouter, *Rs+2r* is slightly sinuous and the discosubmarginal cell less constricted.

Remarks. This species is very similar to the following, *E. fananus* from which it differs in the shape of the alar sclerite and the discosubmarginal cell.

Host records. Risbec (1960) records this species as a parasite of *Proceras sacchariphagus** Bojer (Lep., Pyralidae).

Distribution. This species is recorded only from Madagascar.

Material examined. Holotype ♂, MADAGASCAR: no further data (MNHN).

Non-type material. MADAGASCAR: 1♂, Anibatolaova, i.33 (*Seyrig*) (MNHN); 2♀, Anjzorobe, x.66 (*Griveaud, Vadon & Viette*) (MNHN); 3♀, 3♂, Nosivola (*Inst. Res. Mad.*) (MRAC); 1♀, Perinet, xi.30 (*Seyrig*) (MNHN); 1♂, Rogez, 1935 (*Seyrig*) (MNHN); 1♀, no further data (*Benoit*) (MRAC).

ENICOSPILUS FANANUS sp. n.

(Figs 359, 561, 562)

Description. Mandibles strongly tapered, narrowed, twisted about 25°; subequally bidentate; outer mandibular surface flat with scattered hairs. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile very weakly convex, margin flat; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, obsolete punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina centrally weak. Antennae long and slender with 63-66 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 1.7-1.9 times as long as broad.

Pronotum mediodorsally short, transverse furrow strongly impressed. Mesoscutum in profile evenly rounded apically not out-turned; notauli strong on anterior 0.2 of scutum. Mesopleuron polished, closely punctate; epicnemial carina curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, alutaceous. Metapleuron closely punctate; submetapleural carina strongly broadened anteriorly. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 18mm; discosubmarginal cell as in Fig. 359; AI = 0.85-1.40; CI = 0.60-0.90; ICI = 0.45-0.70; SDI = 1.50-1.60; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 8-9 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 561, 562.

Gaster moderately long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.5-5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with few scattered long erect hairs and numerous fine decumbent hairs; gonosquama distally fairly acute.

Colour generally brownish-red; vertex and inter-ocellar area whitish; lower face red; flagellum orange.

Remarks. This species belongs to the *E. punctipinnis* species-group. It differs from *E. punctipinnis* very subtly, not only in the key characters but also in the form of the mandibles. The two species may well have been confused in the past.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Mt Bity, i.30 (*Seyrig*) (MNHN); paratypes 1♀, 1♂, Ambohimanga, xi.36 (*Seyrig*) (BMNH); 1♂, Ambositra, x.28 (*Seyrig*) (MNHN); 2♀, Ambositra, xi.36 (*Seyrig*) (MNHN); 1♀, 8km SE d'Anjozorobe, forêt de Vanjamanitra, 1380m, x.66 (*Griveaud, Vadon & Viette*) (MNHN); 1♀, Ankaratra, xi.36 (*Seyrig*) (MNHN); 1♀, 5♂, Antsirabé, xi.36 (*Seyrig*) (MNHN); 1♀, Behara, xii.40 (*Seyrig*) (MNHN); 1♀, Bekily, ii.33 (*Seyrig*) (MNHN); 1♀, 2♂, Bekily, xii.33 (*Seyrig*) (MNHN); 9♀, Bekily, x-xii.36 (*Seyrig*) (MNHN); 3♂, Bekily, i.37 (*Seyrig*) (MNHN); 3♀, Fianarantsoa, iii.56 (*Inst. Res. Mad.*) (MRAC); 1♀, Vatondransy, xii.29 (*Seyrig*) (MNHN).

ENICOSPILUS RETSIFOIUS sp. n.

(Figs 188, 360, 563, 564)

Description. Mandibles very strongly narrowed, twisted about 15°, upper tooth about 2.0 times as long as the lower; outer mandibular surface flat with isolated fine hairs. Labrum 0.3 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile flat, margin flat, blunt; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally slightly concave. Lower face elongate, 0.75-0.80 times as broad as long, obsoletely punctate. Genae weakly constricted behind the eyes; posterior ocellus very close to eye; FI = 40-45%; occipital carina complete or centrally obsolescent. Antennae moderately long and stout with 57 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 1.6-1.7 times as long as broad.

Pronotum mediodorsally long, anterior margin up-turned, centrally impressed, curved back to approach mesoscutal margin; transverse furrow broad and deep. Mesoscutum in profile abruptly rounded, apically out-turned with margin extending over pronotum; notauli absent. Mesopleuron polished, deeply punctate; epicnemial carina strongly curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.4 times as long as broad anteriorly, smooth. Metapleuron punctate; submeta-pleural carina evenly expanded anteriorly. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-14mm; discosubmarginal cell as in Fig. 360; AI = 1.20-1.30; CI = 0.12-0.20; ICI = 0.45-0.50; SDI = 1.00-1.10; *cu-a* opposite *Rs&M*. Hindwing with 6 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical, without spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 563, 564.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia elongate, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine decumbent pubescence; gonosquama distally evenly rounded.

Colour generally orange-yellow, genae paler; vertex, inter-ocellar area and lower face white; flagellum reddish-brown.

Remarks. This species belongs to the *E. lanafius* species-group. Only 3 species in this species-group have the specialized pronotum/mesoscutum, *E. lanafius*, *E. retsifoius* and *E. mahalonius*. *E. retsifoius* differs from *E. lanafius* in the alar sclerites and alitrunk sculpture and from *E. mahalonius* in the form of the alar sclerites, venation and colour of inter-ocellar area.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, xii.33 (*Seyrig*) (MNHN); paratypes 2♀, Bekily, xii.33 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, x-xi.36 (*Seyrig*) (BMNH); 3♀, 3♂, Bekily, x-xi.36 (*Seyrig*) (MNHN).

ENICOSPILUS LANAFIUS sp. n.

(Figs 189, 361, 565, 566)

Description. Mandibles strongly narrowed, twisted about 10°, upper tooth 2.0-2.5 times as long as the lower; outer mandibular surface flat with isolated pubescence. Labrum 0.2 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.3-1.4 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.65 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 75-80%; occipital carina complete. Antennae long and slender with 68-70 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.4-2.5 times as long as broad.

Pronotum mediodorsally long with anterior margin strongly up-turned, posterior margin slightly incrassate. Mesoscutum in profile abruptly rounded apically out-turned and projecting beyond propodeum; notauli vestigial. Mesopleuron matt, puncto-striate; epicnemial carina obsolescent above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, alutaceous. Metapleuron weakly striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area weakly more or less transversely strigose. Posterior transverse carina of mesosternum complete.

Forewing length 17-19mm; discosubmarginal cell as in Fig. 361; AI = 1.60-2.10; CI = 0.40-0.45; ICI = 0.40-0.45; SDI = 1.10-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7-8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with very strong scattered spines on outer surface; hind coxa in profile 2.0-2.1 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 565, 566.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long erect hairs; gonosquama distally convex.

Colour generally pale orange, terminal segments of gaster slightly infuscate; lower face and inter-ocellar area orange; flagellum brownish.

Remarks. A distinctive species on account of its venation, the form of the propodeum, the mesothoracic sculpture and the pubescence of ♂ sternites 6-8.

Distribution. This species is only known from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, xii.33 (*Seyrig*) (MNHN); paratypes 3♀, Bekily, iv.32 (*Seyrig*) (MNHN); 4♀, 1♂, Bekily, i-ii.33 (*Seyrig*) (MNHN); 11♀, 1♂, Bekily, xi.33-v.34 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, v.36 (*Seyrig*) (BMNH); 3♀, Bekily, v.36 (*Seyrig*) (MNHN).

ENICOSPILUS XANDARUS sp. n.

(Figs 362, 567)

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth about 1.4 times as long as the lower; outer mandibular surface flat, with isolated punctures. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute; clypeus in anterior aspect 1.5 times as broad as long, terminally truncate. Lower face elongate, 0.80 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 64%; occipital carina complete. Antennae long and slender with 59 flagellar segments; 1st flagellar segment 1.6 times as long as 2nd, 20th segment 2.0 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow deep. Mesoscutum in profile abruptly rounded, apically out-turned; notauli absent. Mesopleuron polished, punctate, ventrally puncto-striate; epicnemial carina vestigial above lower corner of pronotum, upper end remote from pleural margin. Scutellum in profile convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.3 times as long as broad anteriorly, obsoletely punctate. Metapleuron puncto-striate; submetapleural carina strongly anteriorly expanded. Propodeum in profile evenly rounded, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 20mm; discosubmarginal cell as in Fig. 362; AI = 0.86; CI = 0.82; ICI = 0.81; SDI = 1.45; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.6 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 567.

Gaster slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.5 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally orange-red; lower face whitish, centrally orange; inter-ocellar area white; flagellum reddish.

Remarks. This distinctive species is known only from the holotype. The affinities of this species are not clearly understood.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, iv.38 (*Seyrig*) (MNHN).

ENICOSPILUS VORIKUS sp. n.

(Figs 193, 363, 364, 568, 569)

Description. Mandibles evenly narrowed, twisted about 30°, upper tooth not at all dorsoventrally depressed, 1.2 times as long as the lower; outer mandibular surface flat with fine pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile virtually flat, margin flat, acute; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.70 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 80-85%; occipital carina complete. Antennae long with 64-68 flagellar segments; 1st flagellar segment 2.0-2.2 times as long as 2nd, 20th segment 1.8-2.0 times as long as broad.

Pronotum mediodorsally short with weak transverse furrow. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli absent. Mesopleuron polished, puncto-striate; epicnemial carina vestigial above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, obsoletely punctate. Metapleuron puncto-striate; submetapleural carina evenly anteriorly expanded. Propodeum in profile declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly trans-striate. Posterior transverse carina of mesosternum complete.

Forewing length 19-25mm; discosubmarginal cell as in Figs 363, 364; AI = 1.00-1.40; CI = 0.80-1.00; ICI = 0.65-0.80; SDI = 1.70-1.80; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 8-10 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia flattened with isolated spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 568, 569.

Gaster slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout hairs at about 45° to sternite; gonosquama distally evenly rounded.

Colour generally orange-yellow, vertex and inter-ocellar area slightly paler.

Variation. There appears to be 3 forms of this species, the typical form with *Rs+2r* virtually straight and the fenestra about 3.0 times as wide as long (this form sometimes has a vestigial distal sclerite discernible), a second form with *Rs+2r* slightly sinuate and the fenestra about 2.5 times as wide as long, and a third form with *Rs+2r* moderately sinuate and the fenestra very little more than 2.0 times as wide as long. Apart from these differences and very slight dissimilarities in the sclerite, the 3 forms are extremely alike. We do not know the significance of this variation so we have not proposed separate new species for the forms 2 and 3.

Remarks. This species belongs to the *E. lanafius* species-group. It is very similar to the following two species, *E. famantrus* and *E. oswaldi* from which it may be distinguished by the characters mentioned in the key.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Mandraka, 1944 (*Seyrig*) (MNHN); paratypes 1♀, Anjozorobe, x.66 (*Griveaud, Vadon & Viette*) (MNHN); 3♀, Bekily, v-xii.36 (*Seyrig*) (MNHN); 1♀, Bekily, i.37 (*Seyrig*) (MNHN); 1♂, Mandraka, 1944 (*Seyrig*) (MRAC); 1♀, Mandraka (*Inst. Res. Mad.*) (MRAC); 1♀, Perinet, vii.36 (*Seyrig*) (MNHN); 1♀, Perinet, viii.36 (*Seyrig*) (MRAC); 1♀, Rogez, x.32 (*Seyrig*) (MNHN); 2♀, Sakaraha, Zombitey (*Griveaud*) (MRAC); 2♀, Sandrangato (*Inst. Res. Mad.*) (MRAC); 1♀, no further data (*Seyrig*) (BMNH); 1♀, no further data (MNHN).

ENICOSPILUS FAMANTRUS sp. n.

(Figs 191, 192, 365, 570)

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth slightly dorsoventrally depressed, 2.0 times as long as the lower; outer mandibular surface flat with isolated hairs. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute, flat; clypeus in anterior aspect 1.4 times as broad as long, terminally truncate. Lower face elongate, 0.70 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus very close to eyes; FI = 80%; occipital carina complete. Antennae long with 67 flagellar segments; 1st flagellar segment 1.6 times as long as 2nd, 20th segment 2.1 times as long as broad.

Pronotum mediodorsally of moderate length with a deep transverse furrow. Mesoscutum in profile abruptly rounded, apically out-turned; notauli absent. Mesopleuron matt, finely aluto-striate; epicnemial carina obsolete above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.8 times as long as broad anteriorly, smooth. Metapleuron finely striate; submetapleural carina weakly broadened anteriorly. Propodeum in profile evenly rounded, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 20mm; discosubmarginal cell as in Fig. 365; AI = 2.00; CI = 0.75; ICI = 0.50; SDI = 1.80; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 570.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.5 times its own length.

Ovipositor concealed. Sternites 6-8 of ♂ with long erect hairs and scattered decumbent pubescence; gonosquama distally obliquely truncate.

Colour generally orange-yellow; lower face and vertex whitish; flagellum orange-red.

Remarks. This species resembles some specimens of *E. vorikus* but differs not only in the characters mentioned in the key but also in having a larger fenestra and a matt aluto-striate mesopleuron.

Distribution. This species is only recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Rogez, Forêt Cote Est, iv.37 (*Seyrig*) (MNHN); paratype 1♂, Perinet (*Inst. Res. Mad.*) (MRAC).

ENICOSPILUS OSWALDI (Saussure)

(Figs 190, 366, 571, 572)

Ophion Oswaldi Saussure, 1892 : 17. Holotype ♀, MADAGASCAR (MNHN) [examined].

Ophion oswaldi Saussure; Risbec, 1960 : 636.

Enicospilus oswaldi (Saussure) Townes & Townes, 1973 : 181.

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth slightly dorsoventrally flattened, 1.3 times as long as the lower; outer mandibular surface flat with isolated pubescence. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile flat, margin flat; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.80 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65%; occipital carina complete. Antennae long and slender with 70-75 flagellar segments; 1st flagellar segment 1.9-2.1 times as long as 2nd, 20th segment 1.8-1.9 times as long as broad.

Pronotum mediodorsally short, transverse furrow exceptionally strongly impressed. Mesoscutum in profile evenly rounded apically weakly out-turned; notauli absent. Mesopleuron polished, punctate to puncto-striate; epicnemial carina vestigial above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, punctate with fine alutaceous sculpture between punctures. Metapleuron swollen, punctate; submetapleural carina anteriorly abruptly expanded into a triangular lobe. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina usually complete, in a few individuals vestigial; anterior area striate, spiracular area alutaceous, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 15-20mm; discosubmarginal cell as in Fig. 366; AI = 1.10-1.60; CI = 0.75-1.00; ICI = 0.48-0.70; SDI = 1.10-1.40; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 7-9 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, virtually without spines; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.2 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 571, 572.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of ♂ with numerous long fine hairs; gonosquama distally almost acute.

Colour generally brownish-orange; lower face at orbits, vertex, inter-ocellar area and genae dorsally whitish; flagellum orange-red.

Variation. Larger specimens tend to have the wing membranes more infumate than smaller individuals.

Remarks. The small value of SDI, strongly sinuate *Rs+2r* and characteristic sclerite distinguish this species from others in the *E. lanafius* species-group.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: no further data (MNHN).

Non-type material. MADAGASCAR: 2♀, Ambatofitorahana (*Inst. Res. Mad.*); 1♀, 8km SE Anjozorobe, x.66 (*Griveaud, Vadon & Viette*) (MNHN); 1♀, Antarsafanota, ii.37 (*Seyrig*) (MNHN); 1♀, Antsirabé, xi.36 (*Seyrig*) (MNHN); 8♀, 6♂, Bekily, (*Seyrig*) (MNHN); 1♀, Bekily (*Seyrig*) (MRAC); 1♂, Fianarantsoa (*Inst. Res. Mad.*) (MRAC); 1♀, Fort Dauphin, xii.35 (*Seyrig*) (MNHN); 1♀, Perinet, vii.36 (*Seyrig*) (MRAC); 2♀, Sakaraba (*Griveaud*) (MRAC); 1♀, Sakaran Lambomakandro (*Inst. Res. Mad.*) (MRAC); 1♀, 1♂, Sandrangato (*Inst. Res. Mad.*) (BMNH); 1♂, Sombirano (*Seyrig*) (MNHN); 1♀, Tananarive, 1889 (*Camboué*) (MNHN); 1♀, Tananarive, 1919 (*Waterlot*) (MNHN); 1♀, Tananarive, xii.21 (*Decary*) (MNHN); 1♀, Tananarive, i.52 (*Benoit*) (MRAC).

ENICOSPILUS RECAVUS sp. n.

(Fig. 367)

Description. Mandibles evenly narrowed, twisted about 25°, upper tooth about 1.3 times as long as lower, not flattened; outer mandibular surface almost flat, with long scattered pubescence and with a weak proximal concavity. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile flat, margin slightly in-turned; clypeus in anterior aspect 1.5 times as broad as long, terminally truncate. Lower face elongate, 0.75 times as broad as long, finely and weakly punctate. Genae weakly constricted behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae long and slender with 66-67 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 2.2-2.4 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, puncto-striate; epicnemial carina becoming obsolescent above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally weakly carinate, the carinae becoming vestigial beyond centre; scutellum dorsally 1.7 times as long as broad anteriorly, almost smooth. Metapleuron puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area with fine transverse concentric striae. Posterior transverse carina of mesosternum complete.

Forewing length 18-20mm; discosubmarginal cell as in Fig. 367; AI = 3.10-3.40; CI = 0.60-0.65; ICI = 0.25-0.30; SDI = 1.50-1.60; *cu-a* proximal to *Rs&M* by about 0.3 times its own length. Hindwing with 6 hamuli on *R*₁; 1A proximally straight. Unusual in having *Rs* slightly bowed.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 2.0 times as long as deep; hind trochantellus mediodorsally 0.3-0.4 times as long as broad; hind tarsal claws symmetrical, similar to those of *E. lanafius*.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.5-4.0 times its own length.

Ovipositor concealed.

♂ unknown.

Colour generally orange-brown; lower face, vertex and inter-ocellar area yellowish; flagellum orange-red.

Remarks. This species probably belongs to the *E. lanafius* species-group. It differs from all other species in this species-group in having the distal margin of the fenestra very close to the base of *Rs* and in having CI smaller.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Sandrangato (*Inst. Res. Mad.*) (MRAC); paratypes 1♀, Ambatofaona, i.31 (*Seyrig*) (MNHN); 1♀, Mandraka, xii.44 (*Seyrig*) (MRAC); 2♀, Rogez, x.32 (*Seyrig*) (MNHN); 1♀, Rogez, 1935 (*Seyrig*) (MNHN); 1♀, Rogez, x.36 (*Seyrig*) (MNHN); 1♀, Tananarive, no further data (BMNH).

ENICOSPILUS NUBECULATUS Seyrig

(Figs 195, 368, 573, 796)

Enicospilus rubens subsp. *nubeculatus* Seyrig, 1935 : 69. LECTOTYPE ♀, MADAGASCAR (MNHN), here designated [examined].

Enicospilus nubeculatus Seyrig; Townes & Townes, 1973 : 181.

Description. Mandibles abruptly narrowed, distal 0.6 parallel sided, twisted about 5°, upper tooth more than 2.5 times as long as the lower; outer mandibular surface with a groove extending from upper proximal corner to between bases of teeth, the groove bearing sparse hair. Labrum 0.3-0.4 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile very convex, margin impressed; clypeus in anterior aspect 1.8-2.0 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, strongly punctate. Genae moderately constricted behind the eyes; posterior ocellus contiguous with eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 60-64 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 2.1-2.3 times as long as broad.

Pronotum mediodorsally quite long with a broad deep transverse furrow. Mesoscutum in profile evenly rounded, apically not out-turned; notauli discernible on anterior 0.2 of scutum. Mesopleuron polished, puncto-striate; epicnemial carina reaching above lower corner of pronotum curved to but not reaching pleural margin. Scutellum in profile moderately convex, laterally carinate for more than 0.8 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, anterior half punctate, posterior half striate. Metapleuron coriaceous; submetapleural carina narrow, parallel sided. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area very long, concave, smooth, spiracular area smooth, posterior area with strong wrinkles running postero-laterally from anterior transverse carina. Posterior transverse carina of mesosternum complete.

Forewing length 18-20mm; discosubmarginal cell as in Fig. 368; AI = 1.40-1.70; CI = 0.40-0.58; ICI = 0.25-0.45; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 7-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws slightly asymmetrical, pectinate as in Fig. 573.

Gaster slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia large, ovate, separated from anterior margin of tergite by 1.5-2.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long erect hairs; gonosquama distally convex.

Colour generally reddish-brown; gaster often terminally infusate; vertex and inter-ocellar area orange; flagellum red.

Remarks. A very uniform species easily recognized on account of its characteristic alar formations. It is very similar to *E. rubens* from which it can only really be separated by the lack of a central sclerite. Whether this difference is worthy of specific distinction is not clear, so for the present we have retained *E. nubeculatus* as a distinct species following Townes & Townes (1973).

Immature stages. Cephalic capsule of final instar larva as in Fig. 796. Hypostoma sclerotized, quite narrow, curved sharply through 80°, posteriorly indistinctly delineated; hypostomal spur quite long, slender; pleurostoma and epistoma long, stout, dorsally bifurcate; mandibles short, strongly curved; sclerotized oral bar vestigial; labial sclerite evenly sclerotized; posterior hypostomal process strong; stipital sclerite stout, slightly sinuous.

The dorsally bifurcate epistoma distinguishes this species.

Cocoon 13mm long, 2.2 times as long as broad; outer surface smooth, slightly polished.

Distribution. This species is widely distributed through equatorial Africa from Ivory Coast to Tanzania and also in Madagascar (Map 49).

Material examined. Lectotype ♀, MADAGASCAR: Bekily, iii.33 (*Seyrig*) (MNHN). Paralectotypes 1♀, xi.33 (*Seyrig*) (MNHN). KENYA: 1♂, Mt Kenya, Nyeri, vi.32 (*Seyrig*) (MNHN).

Non-type material. IVORY COAST: 1♀, Reserve du Banco (*Paullon & Delancre*) (MNHN). MADAGASCAR: 1♀, Ambohimanga, ii.32 (*Seyrig*) (MNHN); 1♀, Ivondro, xii.38 (*Seyrig*) (MNHN); 1♂, Mandraka, iii.44 (*Seyrig*) (MRAC); 1♀, Steoeafenobe (*Inst. Res. Mad.*) (MRAC). TANZANIA: 1♀, Chimala, 93km E of Mbeya, no further data (TC). UGANDA: 1♀, L. George, x.11 (*Neave*) (BMNH); 1♀, L. Kwania, vi.43 (*Taylor*) (BMNH).

ENICOSPILUS ICTERUS sp. n.

(Figs 369, 574, 575, 749)

Description. Mandibles moderately long, distal 0.5 parallel sided, twisted about 15°, upper tooth 1.4 times as long as

the lower, but more slender; outer mandibular surface flat with fine scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.4 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.40-1.50 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, with fine scattered punctures. Genae moderately constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its maximum diameter; FI = 60-65%; occipital carina complete or centrally weak. Antennae long and slender with 64-66 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 2.0-2.1 times as long as broad.

Pronotum mediodorsally short with a strongly impressed transverse furrow. Mesoscutum in profile evenly rounded apically very weakly out-turned; notauli vestigial. Mesopleuron polished, upper part puncto-striate, lower part striate; epicnemial carina reaching above level of lower corner of pronotum, curved to reach pleural margin. Scutellum in profile convex, laterally carinate entire length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, finely alutaceous. Metapleuron weakly striate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-15mm; discosubmarginal cell as in Fig. 369; AI = 1.45-1.80; CI = 0.55-0.70; ICI = 0.35-0.45; SDI = 1.20-1.30; *cu-a* opposite *Rs&M*. Hindwing with 7-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.1 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 574, 575.

Gaster long and slender; sternite 2 with posterior margin at or behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of σ with long stout erect hairs; gonosquama distally evenly convex; σ genitalia as in Fig. 749.

Colour generally from orange-brown to reddish-brown; lower face, vertex and inter-ocellar area yellowish; flagellum infusate.

Variation. Some of the darker specimens tend to have pale stripes on the mesoscutum.

Remarks. The shape of the alar sclerite and other key characters enable this species to be easily recognized. It is probably quite closely related to *E. pacificus*.

Distribution. This species is restricted to South Africa (Map 50).

Material examined. Holotype ♀, SOUTH AFRICA: Grahamstown, i.71 (*Gess*) (TC); paratypes 1♀, 4♂, East London, vii.61 (TC); 1♀, Kenton on Sea, iii.74 (*Jubb*) (TC); 1♀, Natal, Gillets, ii.63 (*Heinrich*) (TC); 1♀, St. Lucia Estuary, xi.70 (*H. & M. Townes*) (TC); 1♀, no further data (BMNH).

ENICOSPILUS BANTU (Schulz)

(Figs 194, 370, 576, 577, 750)

Henicospilus bantu Schulz, 1906 : 278. Holotype ♀, FERNANDO POO (BMNH) [examined].

Henicospilus bantu Schulz; Morley, 1912a : 42.

Enicospilus bantu (Schulz) Townes & Townes, 1973 : 173.

Description. Mandibles evenly and weakly narrowed, twisted about 30°; upper tooth slightly the longer; outer mandibular surface flat with long fine pubescence. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile very convex, margin impressed, acute; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 60-64 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 2.5-2.7 times as long as broad.

Pronotum mediodorsally short with transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, upper part puncto-striate, lower part striate; epicnemial carina abruptly curved to almost reach pleural margin above lower pronotal corner. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, weakly punctate. Metapleuron striate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area finely transversely wrinkled, posterior area finely irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 9-12mm; discosubmarginal cell as in Fig. 370; AI = 0.95-2.50; CI = 0.40-0.60; ICI = 0.15-0.35; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 5 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with few scattered spines on outer surface; hind coxa in profile in 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 576, 577.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-3.5 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of σ with dense elongate erect hair; gonosquama distally evenly rounded; σ genitalia as in Fig. 750.

Colour generally brownish-red, vertex and inter-ocellar area very slightly paler.

Remarks. The longer lower tooth of this species is reminiscent of species of the *E. unidens* species-group. That is the only character (other than those common to all species) that *E. bantu* shares with the *E. unidens* species-group. Morphologically this species has affinities with the *E. dubius* species-group. It is the only species in this species-group with the longer lower mandibular tooth.

Distribution. This species is recorded in Equatorial Africa from Sierra Leone to Tanzania and including west African islands (Map 51).

Material examined. Holotype ♀, FERNANDO POO: no further data (BMNH).

Non-type material. FERNANDO POO: 1♂, no further locality, 1901 (*Conradt*) (MNHN). SIERRA LEONE: 1♂, Freetown, xii.69 (*Owen*) (TC); 2♀, Freetown, v.70 (*Owen*) (TC). TANZANIA: 1♀, Mkozi, Lushoto, vi.52 (BMNH). UGANDA: 1♀, Kampala, viii.16 (*Gowdey*) (BMNH). ZAIRE: 1♀, Bagara, ii.12 (*Pillette*) (MRAC); 1♂, Lubumbashi, ii.35 (*Seydel*) (MRAC); 1♂, Rutshuru, i.38 (*Ghesquière*) (MRAC); 1♂, Uelé, Dingila, vi.33 (*Brédo*) (MRAC); 1♀, Wamba, 1936 (*Degotte*) (MRAC).

ENICOSPILUS SPHENUS sp.n.

(Figs 197, 371, 578)

Description. Mandibles evenly narrowed, twisted about 15°, upper tooth 1.1-1.3 times as long as the lower; outer mandibular surface flat with scattered hairs. Labrum 0.2-0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile very weakly to moderately convex, margin in-turned slightly; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long, finely punctate. Genae moderately constricted behind the eyes; posterior ocellus close to eye; FI = 55-60%; occipital carina complete or centrally obsolescent. Antennae long and slender with 61-65 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.9-2.1 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow weakly impressed. Mesoscutum in profile abruptly rounded apically not out-turned; notauli vestigial. Mesopleuron polished, punctate grading ventrally to puncto-striate; epicnemial carina curved to anterior pleural margin just above lower pronotal corner. Scutellum in profile weakly convex, laterally carinate to centre, from there posteriorly vestigial; scutellum dorsally 1.4-1.6 times as long as broad anteriorly, alutaceous. Metapleuron aluto-punctate; submetapleural carina anteriorly strongly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area reticulate, posteriorly with strong striae. Posterior transverse carina of mesosternum complete.

Forewing length 15-16mm; discosubmarginal cell as in Fig. 371; AI = 1.40-1.50; CI = 0.60-0.65; ICI = 0.35-0.40; SDI = 1.70-1.80; *cu-a* proximal to *Rs&M* by 0.3-0.4 times its own length. Hindwing with 8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, more or less devoid of spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 578.

Gaster long and slender; sternite 2 with posterior margin just before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long erect hairs and scattered fine pubescence; gonosquama distally elongately rounded.

Colour generally reddish-brown, posterior orbits alone paler marked.

Variation. A few individuals have the clypeus in profile rather weakly convex.

Remarks. The form of the sclerite and the propodeal sculpture characterize this species. The general appearance, form of the mouthparts and shape of *Rs+2r* indicate that this species is related to the *E. lanafius* species-group. It is distinct from other species in this species-group in the smaller value of CI and the more complete epicnemial carina.

Distribution. This species is recorded from Madagascar only.

Material examined. Holotype ♀, MADAGASCAR: Ambatofitorahana, Km-303, Rte de Mananjary (*Inst. Res. Mad.*) (MRAC); paratypes 1♀, 1♂, same data as holotype (BMNH); 2♂, 3♀, same data as holotype (MRAC).

ENICOSPILUS HELVOLUS sp. n.

(Figs 200, 209, 214, 372, 579, 580, 751)

Description. Mandibles weakly and evenly narrowed, twisted about 10°, subequally bidentate; outer mandibular surface with a groove extending from upper proximal corner to between bases of teeth, the groove bearing long hair and also with an unusually strong proximo-ventral concavity. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile convex, margin impressed, out-turned; clypeus in anterior aspect 1.4-1.5 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 67-69 flagellar segments; 1st flagellar segment 1.9-2.1 times as long as 2nd, 20th segment 2.1-2.3 times as long as broad.

Pronotum mediodorsally quite long, with transverse furrow rather weakly impressed. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, aluto-striate with scattered punctures; epicnemial carina curved to but not reaching anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, finely alutaceous with isolated punctures. Metapleuron alutaceous; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally deplanate; anterior transcarina from weak to anteriorly vestigial; anterior area striate, spiracular area smooth, posterior area with fine obsolescent wrinkles. Posterior transverse carina of mesosternum complete.

Forewing length 14-15mm; discosubmarginal cell as in Fig. 372; AI = 1.15-1.60; CI = 0.45-0.60; ICI = 0.35-0.46; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.4-0.6 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 579, 580.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long erect hairs; gonosquama distally obliquely truncate; ♂ genitalia as in Fig. 751.

Colour generally orange-brown to reddish-brown with only posterior orbits paler yellowish-brown.

Variation. A few specimens from Uganda and Rhodesia are a paler yellow in colour.

Remarks. This species belongs to the *E. dubius* species-group. It most closely resembles *E. brevicornis* but may be distinguished from this species by the larger AI and the longer more slender flagellum.

Host records. This species has been reared from *Anomis leona* Schaus (Lep., Noctuidae) on cocoa (*Theobroma cacao*).

Distribution. Widely distributed from Ivory Coast to Zambia (Map 52).

Material examined. Holotype ♀, UGANDA: Kampala, vii.17 (*Gowdey*) (BMNH). Paratypes. IVORY COAST: 1♀, Bingerville, iii.63 ex *Anomis leona* on cocoa (*Decelle*) (MRAC). KENYA: 1♂, Ngong Forest, iv.68 (*Spangler*) (USNM). SAO TOME: 1♀, no further locality, ix.32 (*Tams*) (BMNH). UGANDA: 1♀, Kakira, on bank of Nile, viii.11 (*Neave*) (BMNH); 14♀, 3♂, Kampala, vii.17-iv.18 (*Gowdey*) (BMNH); 1♀, Kampala, v.65 (*Owen*) (TC); 1♀, Kampala, v-xii.65 (*Unamba*) (TC). ZAMBIA: 1♂, Mbala, xii.64 (TC).

ENICOSPILUS DUBIUS (Tosquinet)
(Figs 196, 198, 212, 217, 373, 581, 582, 756)

Ophion (Enicospilus) dubius Tosquinet, 1896 : 390. Lectotype ♀, GHANA ('TOGO') (MNHU), designated by Townes & Townes (1973 : 177) [examined].

Ophion (Enicospilus) anceps Tosquinet, 1896 : 392. Lectotype ♂, GHANA ('TOGO') (MNHU), designated by Townes & Townes (1973 : 177) [examined]. [Synonymized by Townes & Townes, 1973 : 177.]

Henicospilus anceps (Tosquinet) Dalla Torre, 1901 : 181.

Henicospilus dubius (Tosquinet) Dalla Torre, 1901 : 181.

Pterospilus (Henicospilus) dubius (Tosquinet) Kriechbaumer, 1901 : 156.

Pterospilus (Henicospilus) anceps (Tosquinet) Kriechbaumer, 1901 : 156.

Henicospilus angustatus Szépligeti, 1906 : 136. Lectotype ♀, TANZANIA (TMB), designated by Townes & Townes (1973 : 177) [examined]. [Synonymized by Townes & Townes, 1973 : 177.] [Junior secondary homonym in *Enicospilus* of *Ophion angustatus* Brullé, 1846.]

Henicospilus angustatus Szépligeti; Szépligeti, 1908 : 47.

[*Henicospilus vecors* (Tosquinet); Morley, 1912a : 41. Misidentification.]

[*Henicospilus vecors* (Tosquinet); Morley, 1917 : 223. Misidentification.]

Amesospilus anceps (Tosquinet) Seyrig, 1935 : 57.

Amesospilus gulosus Seyrig, 1935 : 60. Holotype ♀, KENYA (MNH) [examined]. [Synonymized by Townes & Townes, 1973 : 177.]

Enicospilus dubius (Tosquinet) Townes & Townes, 1973 : 177.

Description. Mandibles strongly narrowed, twisted about 25°, upper tooth about 1.5 times as long as the lower; outer mandibular surface with a weak longitudinal concavity close to lower margin with isolated fine pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate or weakly convex. Lower face elongate, 0.65-0.80 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 55-61 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 2.5-3.0 times as long as broad.

Pronotum mediodorsally short with the transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically not or only slightly out-turned; notauli weak to absent. Mesopleuron polished, finely and evenly striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 or more of its length; scutellum dorsally 1.3-1.6 times as long as broad anteriorly, finely punctate. Metapleuron alutaceous to striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally slightly flattened; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11-16mm; discosubmarginal cell as in Fig. 373; AI = 1.15-2.00; CI = 0.50-0.70; ICI = 0.25-0.45; SDI = 1.30-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia cylindrical, virtually devoid of spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.4-0.6 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 581, 582.

Gaster slender; sternite 2 with posterior margin at or behind spiracle of tergite 2; thyridia elongately ovate, separated from anterior margin of tergite by about 4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long erect pubescence; gonosquama distally evenly rounded; ♂ genitalia as in Fig. 756.

Colour generally fairly uniformly orange-brown but may be much lighter or darker.

Variation. Colour variation is particularly conspicuous in this species. The majority of specimens are, as described above, uniformly orange-brown. In Uganda several individuals have the terminal gastral segments infuscate or in a very few individuals black. Another group of specimens in Uganda are dark reddish-brown, whilst a ♀ from Natal, South Africa has conspicuous badius marks on the alitrunk and gaster. A number of specimens, particularly from Cameroun, Zaire

and East Uganda have the alitrunk dark brown, whilst the appendages and gaster are paler orange. Specimens from Madagascar tend to be paler orange.

There is considerable variation in the shape of the alar sclerite. Most usually the anterior angle of the proximal sclerite is very acute but in some individuals it is rounded. One group of specimens in the MNHN, Paris from Madagascar are distinct in having the propodeal sculpture coarser and the upper mandibular tooth flatter than normal. This group of specimens may well represent a separate species but more material is needed before a reliable estimate of the limits of intraspecific variation of *E. dubius* can be made.

Remarks. One of the commonest African species of *Enicospilus* which may be recognized by the lack of a central sclerite, large value of AI, convex clypeus and strongly tapered mandibles.

Immature stages. Cocoon 12-14mm long, 1.9-2.2 times as long as broad, outer surface finely fibrous.

Host records. This species has been reared from larva of *Anomis leona* Schaus (Lep., Noctuidae) on cocoa (*Theobroma cacao*), *Chrysodeixis chalcites* Esper (Lep., Noctuidae), *Plusia* sp. (Lep., Plusiidae) and an unidentified noctuid larva feeding on *Senecio* sp.

Distribution. Widely distributed throughout Africa to Madagascar and Comores Archipelago. (Map 53).

The record of this species from Madeira (Morley, 1912a : 42) is a misidentification of *Enicospilus atrodecoratus* Roman.

Material examined. *Ophion* (*Enicospilus*) *dubius* Tosquinet, lectotype ♀, GHANA: Dutukpene ("TOGO: Bismarckburg") (MNHU). *Ophion* (*Enicospilus*) *anceps* Tosquinet, lectotype ♂, GHANA: Dutukpene ("TOGO: Bismarckburg") (MNHU). *Henicospilus angustatus* Szépligeti, lectotype ♀, TANZANIA: Moshi (TMB). *Amesospilus gulosus* Seyrig, holotype ♀, KENYA: Nyeri, Mt Kenya (MNHN).

Non-type material. ANGOLA: 1♀, Quitondo, ix.57 (*Heinrich*) (TC); 1♀, Roça Canzele, 30km N of Quiçulungo, iv.55 (TC). BURUNDI: 1♀, 1♂, Bururi, iii.53 (*Basilewsky*) (MRAC). CAMEROUN: 1♀, Yaoundé (*Benoit*) (MRAC). CENTRAL AFRICAN REPUBLIC: 1♀, Bambari, i.64 (*Pierrard*) (MRAC). COMORES: 1♀, Grand Comores, x.27 (*Leigh*) (BMNH). ETHIOPIA: 1♀, Tullo, vii.71 (TC). FERNANDO POO: 1♀, no further data (*Cooper*) (BMNH); 1♀, no further locality, ii.33 (*Tams*) (BMNH). GHANA: 1♀, 1♂, Asuansi, xi.40, ex noctuid on *Senecio* (*Box*) (BMNH); 1♀, Asuansi, ii.41, ex *Plusia* sp. (*Box*) (BMNH). IVORY COAST: 2♀, 7♂, Bingerville, ii.62 (*Decelle*) (MRAC); 2♀, 1♂, Bingerville, iii.63 ex *Anomis leona* on cocoa (*Decelle*) (MRAC). KENYA: 1♀, 1♂, Aberdare Mts, ii.11 (*Neave*) (BMNH); 1♀, Masongoleni, iv.11 (*Neave*) (BMNH); 1♂, Mt Kenya (SE), ii.11 (*Neave*) (BMNH); 4♂, Nairobi, vi.32 (*Seyrig*) (BMNH); 1♀, Nairobi, v.37 (*Ghesquière*) (MRAC); 1♀, Nairobi, vi.37 (*van Someren*) (BMNH); 2♀, Nairobi, x.72 (*Cunningham*) (TC); 1♀, Ngong, ix.40 (*van Someren*) (BMNH); 1♂, Teita Hills, vii.47 (*Steele*) (BMNH); 1♀, Wandanyi, iii.39 (*van Someren*) (BMNH). MADAGASCAR: 1♂, Ambalavao, iv.30 (*Seyrig*) (MNHN); 2♂, Ambositra, x.28 (*Seyrig*) (MNHN); 1♀, Ambositra, ii.34 (*Seyrig*) (MNHN); 2♀, Ambositra, xi.36 (*Seyrig*) (MNHN); 1♀, 1♂, Ampandrandava, i-v.40 (*Seyrig*) (TC); 2♀, Andapa, xi.33 (*Seyrig*) (MNHN); 1♂, Andreba, xi.33 (*Seyrig*) (MNHN); 1♂, Analandraraka, vi.37 (*Seyrig*) (MRAC); 1♀, Anivorano, xii.29 (*Seyrig*) (MNHN); 2♀, 9♂, Andaratra, i.31 (*Seyrig*) (MNHN); 1♂, Antsirabé, ii.28 (*Seyrig*) (MNHN); 1♂, Antsirabé, i.30 (*Seyrig*) (MNHN); 3♀, Antsirabé, xi.33 (*Seyrig*) (MNHN); 3♂, Bekily, iii.30 (*Seyrig*) (MNHN); 8♀, 8♂, Bekily, 1932 (*Seyrig*) (MNHN); 7♀, 8♂, Bekily, 1933 (*Seyrig*) (MNHN); 2♀, 6♂, Bekily, 1934 (*Seyrig*) (MNHN); 7♀, 1♂, Bekily, v-vi.36, ex *Chrysodeixis chalcite* larva (*Seyrig*) (MNHN); 2♀, 1♂, Bekily, ii-v.37 (*Seyrig*) (MNHN); 1♀, Betroka, iii.30 (*Seyrig*) (MNHN); 2♀, Betroka, ii.32 (*Seyrig*) (MNHN); 6♀, Fandriana, vi.33 (*Seyrig*) (MNHN); 2♀, 2♂, Fianarantsoa, ix.30 (*Seyrig*) (MNHN); 1♀, 2♂, Fianarantsoa, vi.33 (*Seyrig*) (MNHN); 1♀, 2♂, Fianarantsoa, xi.36 (*Seyrig*) (MNHN); 2♂, Fort Schunaka, ix.31 (*Seyrig*) (MNHN); 1♂, Lake Alaotra, viii.28 (*Seyrig*) (MNHN); 1♂, Ihosy, ii.33 (*Seyrig*) (MNHN); 1♀, Ivondro, ii.40 (*Seyrig*) (TC); 1♀, Ivondro, xii.40 (*Seyrig*) (MRAC); 1♂, Jakora (Rakoto), iv.33 (*Seyrig*) (MNHN); 1♂, Mandraka, ii.29 (*Seyrig*) (MNHN); 1♀, Mandraka, xii.44 (*Seyrig*) (MRAC); 1♂, Perinet, xi.30 (*Seyrig*) (MNHN); 1♀, Perinet, v.68 (*Guichard*) (BMNH); 1♀, Perinet (*Inst. Res. Mad.*) (MRAC); 2♀, 1♂, Ranomafana, ii.40 (*Seyrig*) (TC); 2♀, 2♂, Rogez, xii.30 (*Seyrig*) (BMNH); 17♀, 11♂, Rogez, xi.30 (*Seyrig*) (MNHN); 4♀, 6♂, Rogez, 1931 (*Seyrig*) (MNHN); 7♀, Rogez, 1932 (*Seyrig*) (MNHN); 1♀, 1♂, Rogez, iv.34 (*Seyrig*) (MNHN); 2♀, Rogez, x.36 (*Seyrig*) (MNHN); 4♀, Rogez, vi.37 (*Seyrig*) (MRAC); 28♀, 27♂, Rogez, vii-xi.46 (*Lamberton*) (TC); 1♀, Rogez (*Seyrig*) (MNHN); 1♂, Tananarive, 1916 (*Waterlot*) (MNHN); 1♀, Tananarive, 1921 (*Decary*) (MNHN); 1♀, Tananarive, xii.29 (*Seyrig*) (MNHN); 2♀, 1♂, Tananarive, i.32 (*Seyrig*) (MNHN); 1♂, Tananarive, vi.46 (*Lamberton*) (TC); 1♂, Tsiljoariro, ii.32 (*Seyrig*) (MNHN); 1♀, Tsivory, Jan. (*Seyrig*) (MNHN); 2♀, Vatomaniry (*Seyrig*) (MNHN). MALAWI: 1♂, Mlanje, iii.13 (*Neave*) (BMNH); 1♀, Zomba, (*Stannus*) (BMNH). NIGERIA: 2♀, Ife-Ife, viii.74 (*Medler*) (TC); 3♀, 1♂, Ikerre, ix.74 (*Medler*) (TC); 1♀, Ilora, viii.74 (*Medler*) (TC). RWANDA: 2♀, Astrida, iii.55 (*Fain*) (MRAC); 1♀, Gitarama, Nyanza, i.53 (*Basilewsky*) (MRAC). SIERRA LEONE: 9♀, Freetown, 1967 (*Owen*) (TC); 4♀, Freetown, 1969 (*Owen*) (TC); 5♀, Freetown, 1970 (*Owen*) (TC). SOUTH AFRICA: 2♀, Cape, Coffee Bay, x.70 (*Londt*) (TC); 1♀, Cape, Katberg, x.32 (*Turner*) (BMNH); 2♀, 3♂, East London, vii.61 (TC); 1♀, Gilletts nr. Durban, x.70 (*H. & M. Townes*) (TC); 1♀, Grahamstown, ii.63 (TC); 2♀, Hluhluwe Game Res., xi.70 (*H. & M. Townes*) (TC); 5♀, Natal, Eshowe, vii.26 (*Turner*) (BMNH); 1♂, Natal, Eshowe, xi.70 (*H. & M. Townes*) (TC); 1♀, Natal, Kloof, viii.26 (*Turner*) (BMNH); 1♀, Natal, Ngome Forest, xi.70 (*H. & M. Townes*) (TC); 1♀, Orange Free State, Harrismith, iii.27 (*Turner*) (BMNH); 4♀, Pietermaritzburg, x.70 (*H. & M. Townes*) (TC); 6♀, Port St. John, xii.23 (*Turner*) (BMNH); 1♀, Port St. John, ii.63 (*Heinrich*) (TC); 1♀, 2♂, Port St. John, xii.70 (*H. & M. Townes*) (TC); 3♀, 2♂, Transvaal, Entabeni Forest, Soutpansberg, vi.64 (*Haeslbarth*) (TC). TANZANIA: 2♀, Kilimanjaro, 1905 (*Sjöstedt*) (MNHN); 4♀, Kilimanjaro, Lyamungu, viii-xi.48 (*Salt*) (BMNH); 6♀, 5♂, Kilimanjaro, Marangu, vii.57 (*Basilewsky & Leleup*) (MRAC); 4♀, Morogoro, i-ii.62 (*Heinrich*) (TC); 16♀, 1♂, Mt Meru, vii.62 (*Heinrich*) (TC); 1♀, Uluguru, xii.61 (*Heinrich*) (TC); 2♀, W Usambara Mts, iii.62 (TC). UGANDA: 1♀, Bududa, ix.11 (*Neave*) (BMNH); 1♀, Entebbe, vi.13 (*Gowdey*) (BMNH); 1♀, Entebbe, iv.64 (*Lancaster*) (TC); 3♀, 2♂, Kampala, xi.17-vi.18 (*Gowdey*) (BMNH); 2♀, Kampala, ii.65 (*Owen*) (TC); 1♂, Mabira Forest, vii.13 (*Gowdey*) (BMNH); 2♀, 2♂, Mengo, Zika Forest, 1963 (*Lancaster*) (TC). ZAIRE: 2♀, Bambesa, Uelé R., xii.33 (*Brédo*) (MRAC); 1♀, Banza Manteka, vi.12 (*Mayné*) (MRAC); 1♀, Bensa Masola, vi.11 (*Mayné*) (MRAC); 1♀, Boga, iv.12 (*Pillette*) (MRAC); 1♀, Congo de Lemba, vi.11 (*Mayné*) (MRAC); 1♀, 1♂, Eala, viii.36 (*Ghesquière*) (MRAC); 1♀, Gandajika, vi.60 (*Maréchal*) (MRAC); 2♀, Ituri, Blukwa, xii.28 (*Collert*) (MRAC); 1♀, Ituri, Djugu, xi.28 (*Collert*) (MRAC); 27♀, 9♂, Kivu, Kadjudju, 1932 (*Babault*) (MNHN); 2♀, Kivu, Kadjudju, xi.32 (*Babault*) (MRAC); 1♀, 1♂, Kivu, Kadjudju (*Benoit*) (MRAC); 1♀, Kivu, Kissenyi, ii.28 (*Seydel*) (MRAC); 1♂, Kivu, Kitembo, 1932 (*Babault*) (MNHN); 1♀, Kivu, Kitwabelezi, i.46 (*Herrinck*) (MRAC); 2♀, Kivu, Rwanki, viii.47 (*Leroy*) (MRAC); 1♂, Kundelungu Mts (*Malaisse*) (TC); 1♀, Lomami, viii.31 (*Quarré*) (MRAC); 1♀, Lubumbashi, xii.56 (*Seydel*) (TC); 1♀, Lubumbashi, xi.61 (*Maréchal*) (MRAC); 1♀, Lukula, ix.13 (*Bequaert*) (MRAC); 1♀, Mahagi Niarembé, xi.35 (*Scops*) (MRAC); 1♀, Nioka, viii.31 (*Brédo*) (MRAC); 1♂, Rutshuru, v.36 (*Lippens*) (MRAC); 2♀, 1♂, Rutshuru, v.37 (*Ghesquière*) (MRAC); 1♂, Rutshuru, vii.37 (*Prophylactique*) (MRAC); 1♀, Sankuru, Kouni, iii.38 (*Ghesquière*) (MRAC).

ENICOSPILUS BREVICORNIS (Masi)

(Figs 202, 208, 213, 374, 583)

Amesospilus brevicornis Masi, 1939 : 32. Holotype ♀, ETHIOPIA (MCSN) [examined].
Enicospilus (sic) *brevicornis* (Masi) Townes & Townes, 1973 : 174.

Description. Mandibles weakly narrowed, twisted about 10°, subequally bidentate; outer mandibular surface flat with isolated pubescence. Labrum 0.3-0.4 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile convex, margin impressed, acute; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.90 times as broad as long, closely and coarsely punctate. Genae constricted weakly behind the eyes; posterior ocellus very close to eye; FI = 50-55%; occipital carina complete. Antennae short and stout with 43-47 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.2-1.4 times as long as broad.

Pronotum mediodorsally rather long, transverse furrow weakly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli weak. Mesopleuron polished, punctate to puncto-striate ventrally; epicnemial carina strongly curved to almost reach pleural margin. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, virtually impunctate. Metapleuron very strongly inflated, puncto-striate, submetapleural carina broad, anteriorly expanded into a blunt lobe. Propodeum in profile abruptly declivitous, dorsally deplanate; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area strongly concentrically wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-14mm; discosubmarginal cell as in Fig. 374; AI = 0.40-1.00; CI = 0.15-0.25; ICI = 0.50-0.70; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia flattened bearing a few scattered spines; hind coxa in profile 1.6-1.8 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 583.

Gaster fairly long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-3.5 times its own length.

Ovipositor exceptionally long and slender, apically elongately acute. Sternites 6-8 of ♂ with few scattered fine hairs; gonosquama distally evenly rounded.

Colour generally uniformly orange-brown, posterior orbits alone paler yellowish.

Variation. Madagascan specimens are slightly more orange than mainland ones but otherwise they are extremely similar.

Remarks. Similar to *E. helvolus* from which it differs not only in the key characters mentioned but also in having the mandible flat without a diagonal groove and having the alar sclerite slightly more elongate.

Distribution. Widely distributed in East Africa from Saudi Arabia, Egypt and Ethiopia to South Africa. It also occurs in Madagascar (Map 54).

Material examined. *Amesospilus brevicornis* Masi, holotype ♀, ETHIOPIA: Mega (Sidamo) Borana (MCSN).

Non-type material. BURUNDI: 1♀, Kitega, iv.55 (*Francois*) (MRAC). DEM. REP. YEMEN: 1♂, Ash Shahr, iv.36 (*Philby*) (BMNH). EGYPT: 1♀, Meadi, iv.12 (*Eg. Dept. Ag.*) (BMNH). ETHIOPIA: 1♀, Harar, 1912 (*Turner*) (BMNH). KENYA: 1♀, Mt Meru, vii.43 (BMNH); 1♀, Solai, Sonje, ix.19 (*Anderson*) (BMNH). MADAGASCAR: 1♀, 1♂, Bekily vii.36 (*Seyrig*) (BMNH). SAUDI ARABIA: 1♀, Asir Suda, vi.62 (*Popov*) (BMNH). SOUTH AFRICA: 1♂, Cape, Calvinia, xi.31 (*Turner*) (BMNH); 1♀, Cape, Ceres, xii.20 (*Turner*) (BMNH); 2♀, Cape, Ceres, Witzenberg, xii.20 (*Turner*) (BMNH); 2♀, Cape, Mossel Bay, iii.30 (*Turner*) (BMNH); 1♀, Grahamstown, xi.70 (*Farquharson*) (TC); 1♀, Grahamstown, xii.71 (*Gess*) (TC); 1♂, Natal Nat. Park, iii.32 (*Mackie*) (BMNH); 1♀, 1♂, Pretoria, no further data (BMNH). SUDAN: 1♀, W Darfur, Jebel Marra, Karanga, vi.32 (*Steele*) (BMNH). UGANDA: 1♂, Toro, Mpanga Forest, xi.11 (*Neave*) (BMNH). YEMEN: 1♂, San'a, x.37 (*Rathjens*) (BMNH). ZAIRE: 1♀, Kivu, Bukulu, i.38 (*Hendrickx*) (MRAC); 1♂, Kivu, Ibanda, 1935 (*Vandelannoite*) (MRAC); 2♀, Kivu, Kavivira, iii.55 (*Martier*) (MRAC); 1♀, Lubumbashi, iv.20 (*Bequaert*) (MRAC); 1♀, Rwanki, iv.48 (*Leroy*) (MRAC); 2♀, Tshibinda, viii.31 (*Ogilvie*) (BMNH).

ENICOSPILUS HENRYI sp. n.

(Figs 203, 207, 211, 375, 584)

Description. Mandibles proximally constricted, distally parallel sided, twisted about 10°, upper tooth slightly the longer; outer mandible surface with a weak median longitudinal concavity bearing long pubescence. Labrum 0.3-0.4 times as long as broad; malar space 0.4-0.6 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned, blunt; clypeus in anterior aspect 1.9-2.1 times as broad as long, terminally truncate. Lower face subquadrate, 0.90-1.10 times as broad as long with fine deep punctures. Genae barely constricted behind the eyes; posterior ocellus separated from eye by 0.3 times its own maximum diameter; FI = 50-55%; occipital carina complete. Antennae rather short with 50-54 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 1.3-1.5 times as long as broad.

Pronotum mediodorsally very long, flat, with weak transverse furrow. Mesoscutum in profile evenly rounded, apically not out-turned; notauli weak. Mesopleuron polished, puncto-striate; epicnemial carina strongly curved to almost reach pleural margin above lower pronotal corner. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, punctate. Metapleuron puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally more or less flat; anterior transcarina complete; anterior area striate, spiracular area coriaceous, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 10-12mm; discosubmarginal cell as in Fig. 375; AI = 0.40-0.85; CI = 0.40-0.45; ICI = 0.40-0.55; SDI = 1.00-1.10; *cu-a* opposite or proximal to *Rs&M* by 0.1 times its own length. Hindwing with 6 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened with few scattered spines; hind coxa in profile 1.6-1.8 times as long as deep; hind trochantellus mediodorsally 0.3-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 584.

Gaster moderately long; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally uniformly orange-red, not even posterior orbits paler; flagellum slightly infusate.

Remarks. Similar to *E. herero* but face unicolorous, notauli discernible, mesopleuron puncto-striate and mandibles subequally bidentate. *E. henryi* together with the following 3 species, *E. herero*, *E. leionotus* and *Enicospilus* species 6 resemble each other in the shape of the mandible. In other respects they seem to have affinities with *E. dubius* and we have tentatively placed them within this species-group.

This species is named in honour of its collector, Dr. Henry K. Townes.

Distribution. This species is recorded from South Africa (Map 55).

Material examined. Holotype ♀, SOUTH AFRICA: Transvaal, Pretoria, i.71 (*H. & M. Townes*) (TC); paratypes 5♀, same data as holotype (TC).

ENICOSPILUS SPECIES 6

(Figs 201, 205, 218, 376, 585)

Description. Mandibles long, proximally narrowed distally parallel sided, twisted about 10° , upper tooth about 4.0 times as long as the lower; outer mandibular surface with a strongly impressed groove extending from upper proximal corner to between bases of teeth; the groove bearing long hair. Labrum 0.3 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile convex, margin impressed, acute; clypeus in anterior aspect 2.1-2.5 times as broad as long, terminally truncate. Lower face transverse, 1.05-1.20 times as broad as long, finely punctate. Genae not constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its maximum diameter; FI = 50%; occipital carina complete. Antennae short and stout with 50-52 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.7-1.8 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, puncto-striate; epicnemial carina curved to approach but not reach pleural margin above lower pronotal corner. Scutellum in profile weakly convex, laterally carinate for 0.9 or more of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, punctate. Metapleuron closely punctate; submetapleural carina narrow, evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina absent or present as central vestige; anterior area striate, spiracular area not separated from posterior area the whole finely coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 11-12mm; discosubmarginal cell as in Fig. 376; AI = 0.90-0.95; CI = 0.35-0.40; ICI = 0.45-0.55; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia flattened bearing few short scattered spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 585.

Gaster moderately long; sternite 2 with posterior margin before spiracle of tergite 2; thyridia long, ellipsoidal, separated from anterior margin of tergite by 1.5-2.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally dark reddish; lower face whitish-yellow with indistinct red mark centrally; inter-ocellar area, vertex and posterior orbits white; mesoscutal stripes, subalar prominences and scutellum orangish-yellow; flagellum reddish-brown; distal 0.3 of wing slightly infumate.

Remarks. Very similar to *E. herero* from which it differs in the mid tibial spurs, sculpture of pleuron, thyridia, having pectin of claws slightly stouter and having the face more evenly pale. It also is similar to *E. nervellator* from which it differs in having AI larger, hairs on wing closer together and clypeus and labrum more convex.

Distribution. Kenya (Map 56).

Material examined. KENYA: 4♀, Maungu, v.76, (*Bampton*) (TC).

ENICOSPILUS HERERO (Enderlein)

(Figs 199, 204, 206, 210, 215, 377, 586, 587, 755, 758)

Henicospilus capensis Szépligeti, 1906 : 136. Lectotype ♀, SOUTH AFRICA (TMB), designated by Townes & Townes (1973 : 178) [examined]. [Junior secondary homonym in *Enicospilus* of *Ichneumon capensis* Thunberg, 1822.] [Synonymized by Townes & Townes, 1973 : 178.]

Henicospilus capensis Szépligeti; Szépligeti, 1908 : 45.

Amesospilus herero Enderlein, 1918 : 222. Lectotype ♀, SOUTH WEST AFRICA (MNHU), designated by Townes & Townes (1973 : 178) [examined].

Henicospilus capensis Szépligeti; Szépligeti, 1922 : 912.

Enicospilus herero (Enderlein) Townes & Townes, 1973 : 178.

Description. Mandibles long, proximally narrowed, distally parallel sided, twisted about 10° , upper tooth 2.5 or more

TABLE 2. COMPARISON OF THE CRITICAL FEATURES OF *ENICOSPILUS HERERO*, *E. LEIONOTUS*, *E. CAPENSIS* AND *E. SPECIES 6*

	CAPENSIS	LEIONOTUS	HERERO	ENICOSPILUS SPECIES 6
Diagonal mandibular groove	present	absent	present	present
Mesopleural sculpture	punctate to punctostriate	punctostriate	punctate	punctostriate
Length of shorter mid tibial spur / length of longer spur	0.60+	0.60+	0.65+	0.60-
Anterior transverse carina of propodeum	complete to absent	complete to absent	complete	vestigial or absent
Central sclerite	large, vestigial to strong	minute transparent	absent	small, vestigial
20th flagellar segment length / breadth	1.5-1.8	2.2-2.4	1.7-1.9	1.7-1.8
Facial colour	yellowish, centrally reddish	unicolourous yellow or brownish	red-brown, orbits white	whitish-yellow, centrally indistinctly red.
Notauli	discernible on anterior 0.4 of scutum	vestigial	vestigial	vestigial

times as long as the lower; outer mandibular surface with a diagonal furrow from upper proximal corner to between bases of teeth, the furrow bearing long pubescence. Labrum 0.3-0.4 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile very convex, margin impressed, acute; clypeus in anterior aspect 1.9-2.2 times as broad as long, terminally truncate. Lower face subquadrate, 0.90-1.10 times as broad as long, finely punctate. Genae not constricted behind the eyes; posterior ocellus separated from eye by about 0.1 times its own maximum diameter; FI = 50-55%; occipital carina complete. Antennae short and stout with 46-50 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 1.7-1.9 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically strongly out-turned; notauli absent. Mesopleuron subpolished, coarsely and closely punctate; epicnemial carina abruptly curved to but not reaching pleural margin above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.4-1.6 times as long as broad anteriorly, closely punctate. Metapleuron punctate; submetapleural carina narrow, evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate; spiracular area punctate; posterior area finely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 377; AI = 0.38-0.95; CI = 0.40-0.50; ICI = 0.45-0.55; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1 times its own length, in a few individuals slightly distal to *Rs&M*. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia flattened with few short scattered spines on outer surface; hind coxa in profile 1.6-1.8 times as long as deep; hind trochantellus mediodorsally 0.3-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 586, 587.

Gaster moderately long; sternite 2 with posterior margin opposite or about opposite spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 3.0-5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with short dense pubescence and isolated erect long hairs; gonosquama distally obliquely truncate to rounded; ♂ genitalia as in Figs 755, 758, similar to that of *E. leionotus* but with a swollen spinose region on inner surface of gonolacinia, remote from its distal apex.

Colour generally dark reddish-brown; lower face reddish-brown with orbits yellow; vertex, inter-ocellar area and posterior orbits whitish-yellow; flagellum brownish.

Variation. A few specimens were observed to be orange-brown in colour with the face more broadly pale and only at the very centre darker.

Remarks. This species is very closely related to *E. species 6* and *E. leionotus*. The key was found to be quite satisfactory for the material examined but more material could well show that *E. species 6* and even *E. leionotus* are merely extreme varieties of *E. herero* (Table 2).

Distribution. The majority of specimens are from South Africa and South West Africa. The Szépliget records of this species occurring in Kenya and Tanzania require verification. The Seyrig record of this species from Madagascar is a misdetermination of *E. leionotus* (Map 55).

Material examined. *Henicospilus capensis* Szépliget, lectotype ♀, SOUTH AFRICA: Cape Prov., Cradock (TMB). *Amesospilus herero* Enderlein, lectotype ♀, SOUTH WEST AFRICA: Windhoek (MNHU).

Non-type material. SOUTH AFRICA: 1♂, Bloemhol Tol., xii.62 (*Haeselbarth*) (TC); 1♀, Cape, Calvinia, xi.26 (*Turner*) (BMNH); 1♂, Cape, Erraha, ix.27 (*Gough*) (BMNH); 1♀, Cape, Mossel Bay, viii.38 (*Turner*) (BMNH); 4♀, Cape, Prince Albert Rd., xi.31 (*Turner*) (BMNH); 1♀, Cape Town, i.26 (*Turner*) (BMNH); 2♀, Cape Town, no further data (BMNH); 4♀, 3♂, Grahamstown, xi.70 (*Farquharson*) (TC); 1♀, Grahamstown, xii.70 (*Gess*) (TC); 1♀, Grahamstown, ii.71 (*Gess*) (TC); 1♀, Queenstown, 1907 (*Wells*) (BMNH). SOUTH WEST AFRICA: 1♀, Seeheim, ii.34 (*Ogilvie*) (BMNH); 1♀, Windhoek, Eros Gorge, ii.72 (*Day*) (BMNH).

ENICOSPILUS LEIONOTUS (Tosquinet)

(Figs 216, 378, 588, 589, 754, 757)

Ophion (Enicospilus) leionotus Tosquinet, 1896 : 393. Holotype ♀, GHANA ('TOGO') (MNHU) [examined].

Henicospilus leionotus (Tosquinet) Dalla Torre, 1901 : 182.

Pterospilus (Henicospilus) leionotus (Tosquinet) Kriechbaumer, 1901 : 156.

Henicospilus lionotus Schulz, 1906 : 97. [Unjustified emendation of *leionotus* Tosquinet.]

Henicospilus leionotus (Tosquinet); Morley, 1912a : 42, in part.

Henicospilus leionotus (Tosquinet); Morley, 1917 : 223.

[*Amesospilus capensis* (Szépliget) Seyrig, 1935 : 57. Misidentification.]

Enicospilus leionotus (Tosquinet) Townes & Townes, 1973 : 179.

Description. Mandibles long, proximally narrowed, twisted about 10°, upper tooth about 3.0 times as long as the lower; outer mandibular surface flat, without a diagonal groove, punctate with a weak median band of hair. Labrum 0.3-0.4 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile convex, margin impressed, acute; clypeus in anterior aspect 1.9-2.2 times as broad as long, terminally truncate. Lower face subquadrate, 0.90-1.00 times as broad as long, finely but deeply punctate. Genae not constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its own maximum diameter; FI = 50-55%; occipital carina complete. Antennae of moderate length with 56-61 flagellar segments; 1st flagellar segment 1.4-1.6 times as long as 2nd, 20th segment 2.2-2.4 times as long as broad.

Pronotum mediodorsally moderately long with a moderately strongly impressed transverse furrow. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli vestigial or absent. Mesopleuron polished, puncto-striate; epicnemial carina curved to almost reach margin of pleuron above level of lower corner of pronotum. Scutellum in profile very weakly convex, laterally carinate for 0.9 or more of its length; scutellum dorsally 1.5-1.6 times as long as broad

anteriorly, sparsely punctate. Metapleuron coarsely punctate; submetapleural carina narrow, evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-14mm; discosubmarginal cell as in Fig. 378; AI = 0.55-0.95; CI = 0.30-0.35; ICI = 0.35-0.45; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by 0.1-0.4 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with a moderate number of short spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.4-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 588, 589.

Gaster moderately long; sternite 2 with posterior margin about opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of δ with numerous long erect hairs; gonosquama distally obliquely truncate to rounded; δ genitalia as in Figs 754, 757, with gonolacinia simple.

Colour generally pale orange-brown, mesoscutum with a pair of latero-median yellow stripes, whole of mesoscutum postero-centrally yellowish, scutellum yellowish; lower face, vertex and inter-ocellar area yellowish; posterior orbits whitish; flagellum infusate.

Variation. The Madagascan specimens are more uniformly orange in colour with only the posterior orbits paler and the inter-ocellar area slightly infusate. These specimens also have the hind tarsal claws more strongly curved and with fewer stouter pectinae and have a distinct distal sclerite. A few South African individuals have the terminal segments of the gaster weakly infusate.

Remarks. The Madagascan specimens probably warrant specific distinction but we have decided not to describe them until more material is examined.

This species is extremely close to *E. herero* and may possibly only be a variant of it. The material of *E. leionotus* we have seen differs from *E. herero* in the longer flagella, puncto-striate mesopleuron, form of the mandible and in having a simple gonolacinia.

Distribution. This species is widely distributed throughout Africa and SE Madagascar (Map 56). Morley (1912a) records it from Reunion and Rodriguez but we have seen no specimens to confirm his identification.

Material examined. *Ophion (Enicospilus) leionotus* Tosquinet, holotype ♀, GHANA: Dutukpene ('TOGO: Bismarckburg') (MNHU).

Non-type material. MADAGASCAR: 1♂, Bekily, xii.29 (*Seyrig*) (MNH); 1♀, 1♂, Bekily, ii.34 (*Seyrig*) (BMNH); 11♀, 7♂, Bekily, 1934 (*Seyrig*) (MNH). SOUTH AFRICA: 1♂, Grahamstown, x.70 (*Gess*) (TC); 2♀, 3♂, Grahamstown, iii-v.71 (*Gess*) (TC).

ENICOSPILUS GRANDIFLAVUS Townes & Townes

(Figs 221, 224, 381, 590, 591)

Enicospilus grandis Morley, 1912 : 41. Holotype ♂, RHODESIA (BMNH) [examined]. [Junior primary homonym of *Enicospilus grandis* Szépligeti, 1908.]

Enicospilus grandiflavus Townes & Townes, 1973 : 177. [Replacement name for *grandis* Morley.]

Description. Mandibles evenly narrowed, twisted about 15°, terminally with upper tooth about 2.0 times as long as the lower; outer mandibular surface more or less flat with isolated pubescence. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile flat, margin flat, acute; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long with isolated punctures. Genae slightly swollen behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae moderately long, stout with 56-60 flagellar segments, 1st flagellar segment 2.0-2.1 times as long as 2nd, 20th segment 1.3-1.5 times as long as broad.

Pronotum mediodorsally short, transverse furrow deep. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli on anterior 0.3 of scutum. Mesopleuron polished, closely punctate; epicnemial carina reaching to or above level of lower corner of pronotum, not curved to pleural margin. Scutellum in profile moderately convex, laterally carinate to posterior margin; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, punctate. Metapleuron coriaceous; submetapleural carina abruptly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally deplanate; anterior transcarina complete; anterior area striate, spiracular area smooth with spiracle at extreme anterior end, posterior area very coarsely transversely striate. Posterior transverse carina of mesosternum complete.

Forewing length 17-19mm; discosubmarginal cell as in Fig. 381; AI = 0.65-0.75; CI = 0.20-0.30; ICI = 0.80-0.90; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.4-1.6 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 590, 591.

Gaster long but stout; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of δ with short fine pubescence; gonosquama distally acute.

Colour generally uniformly orange-yellow.

Remarks. A very uniform species which may be easily recognized by the large ICI, coarsely sculptured propodeum and the colour. It is one of the few species to have the propodeal spiracle at the extreme anterior margin of the spiracular area usually anterior to the transpropodeal furrow.

Distribution. This species is recorded from south-east Africa and southern Madagascar (Map 57).

Material examined. Holotype ♂, RHODESIA: Salisbury, iii.1900 (*Marshall*) (BMNH).

Non-type material. MADAGASCAR: 1♀, Bekily, viii.30 (*Seyrig*) (MNHN); 1♀, Bekily, iv.32 (*Seyrig*) (MNHN); 8♀, 3♂, Bekily, 1933 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, i-ii.34 (*Seyrig*) (MNHN); 1♀, 2♂, Bekily, vi-ix.36 (*Seyrig*) (MNHN). SOUTH AFRICA: 1♀, Pretoria, i.71 (*H. & M. Townes*) (TC). ZAIRE: 1♂, Kivu, Kadjudju, 1932 (*Seyrig*) (MNHN).

ENICOSPILUS ALBIGER (Kriechbaumer)

(Figs 219, 220, 382, 592)

Ophion (Henicospilus) albiger Kriechbaumer, 1894 : 308. Holotype ♀, MOÇAMBIQUE (TMP) [examined].

Henicospilus albiger (Kriechbaumer) Morley, 1912a : 39, 42.

Amesospilus tsigegeus Seyrig, 1935 : 58. LECTOTYPE ♀, MADAGASCAR (MNHN), by present designation [examined].

Syn. n.

Amesospilus tsigegeus Seyrig; Benoit, 1953 : 545.

Enicospilus albiger (Kriechbaumer) Townes & Townes, 1973 : 172.

Enicospilus tsigegeus (Seyrig) Townes & Townes, 1973 : 184.

Description. Mandibles strongly narrowed, twisted about 40°, upper tooth about 2.0 times as long as the lower; outer mandibular surface flat with scattered hair. Labrum 0.2-0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile flat, margin blunt, flat; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, with deep close punctures. Genae weakly constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae moderately long with 44-46 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 2.0-2.1 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically out-turned; notauli vestigial. Mesopleuron polished, closely coarsely punctate; epicnemial carina slightly inclined to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior 0.9 or more; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, punctate. Metapleuron closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina present as a central vestige; anterior area striate, spiracular area smooth, posterior area regularly reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 7-11mm; discosubmarginal cell as in Fig. 382; AI = 0.75-1.20; CI = 0.20-0.35; ICI = 0.60-0.70; SDI = 1.00-1.10; *cu-a* opposite *Rs&M*. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia slightly flattened with isolated spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep, hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 592.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with short fine hair; gonosquama distally evenly rounded.

Colour generally brownish-red; orbits, vertex, inter-ocellar area, scutellum and subalar prominences ivory; flagellum brown.

Variation. South African specimens have the scutellum and anterior orbits reddish not ivory. Some males from Madagascar have ivory spots on the posterior corner of the mesopleuron and on the metapleuron.

Remarks. The very characteristic venation and the ivory markings distinguish this species from others in the *E. rufus* species-group. It is otherwise very similar to *E. quietus* except that the ♀ hind tarsal claws of *E. albiger* are more coarsely pectinate than those of *E. quietus*.

Distribution. This species is very widely distributed from Ivory Coast to Madagascar (Map 59).

Material examined. *Ophion (Henicospilus) albiger* Kriechbaumer, holotype ♀, MOÇAMBIQUE: Delagoa Bay, no further data (TMP). *Amesospilus tsigegeus* Seyrig, lectotype ♀, MADAGASCAR: Bekily, iv.32 (*Seyrig*) (MNHN); paralectotype ♂, MADAGASCAR: Bekily, xii.36 (*Seyrig*) (BMNH).

Non-type material. CONGO: 1♂, Ile de M'Bamou, xii.70 (*Grillot*) (MNHN). IVORY COAST: 3♀, Bingerville, viii-xi.62 (*Decelle*) (MRAC). KENYA: 1♀, Voi, iii.11 (*Alluaud & Jeannel*) (MNHN). MADAGASCAR: 1♂, Ambrombi, xii.36 (*Seyrig*) (MNHN); 2♀, 1♂, Bekily, 1933 (*Seyrig*) (MNHN); 1♀, Bekily, i.34 (*Seyrig*) (MNHN); 10♀, 4♂, Bekily, ix-xii.36 (*Seyrig*) (MNHN); 1♀, Bekily, ii.37 (*Seyrig*) (MNHN); 1♂, Betroka, i.33 (*Seyrig*) (MNHN); 1♀, Mt Bity, i.30 (*Seyrig*) (MNHN). NIGERIA: 1♂, Pauwa, x.10 (*Scott-Macfie*) (BMNH). SOUTH AFRICA: 1♀, Grahamstown, iii.71 (*Gess*) (TC); 3♀, Schoemanshoek, ii.71 (*Whitehead*) (TC). SOUTH WEST AFRICA: 1♂, Sesriem Farm, Mattahohe, i.72 (*Day*) (BMNH).

ENICOSPILUS SPECIES 4

(Figs 379, 380)

Description. Mandibles evenly narrowed, twisted about 15-20°, upper tooth 1.6-2.0 times as long as the lower; outer mandibular surface flat, without a diagonal groove, with isolated pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin flat, acute; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face very elongate, 0.55-0.65 times as broad as long, almost impunctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae short and stout with 62-64 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.2-1.4 times as long as broad.

Pronotum mediodorsally of moderate length, transverse furrow strongly impressed. Mesoscutum in profile evenly

rounded, apically weakly to moderately out-turned; notauli absent. Mesopleuron polished, punctate; epicnemial carina curved to pleural margin above lower pronotal corner. Scutellum in profile moderately convex, laterally carinate for almost entire length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, smooth. Metapleuron striate to punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina more or less complete; anterior area striate, spiracular area very short, smooth, posterior area wrinkled. Posterior transverse carina of mesosternum complete or centrally obsolescent.

Forewing length 12-13mm; discosubmarginal cell as in Figs 379, 380; AI = 0.65-0.85; CI = 0.25-0.40; ICI = 0.50-0.60; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical.

Gaster elongate; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine decumbent pubescence only; gonosquama distally rounded.

Colour generally dark reddish-brown with ivory marks on mesoscutal margins, scutellum, subalar prominences, anterior central and posterior ventral margins of mesopleuron and metapleuron centrally; gaster irregularly infusate; lower face red, orbits entirely ivory; vertex and inter-ocellar area whitish; flagellum reddish-brown.

Variation. There are two forms of alar sclerite, the almost isosceles triangle of the typical form and the right angled triangular one of the other form. In other respects these forms are identical and are here considered as one species.

Remarks. The coloration and narrow face distinguishes this species from its relatives in the *E. rufus* species-group. It resembles *E. albiger* in having the scutellum ivory but can be easily distinguished from this species in having the genae more constricted and in being larger.

Distribution. This species is recorded from southern and east Africa (Map 58).

Material examined. BOTSWANA: 1♂, Ghanzi (Khanzi), i.28 (*Maurice*) (BMNH). KENYA: 1♀, Nairobi, v.70 (*Brown*) (BMNH).

ENICOSPILUS PROSPIRACULARIS sp. n.

(Figs 222, 383, 593)

Description. Mandibles evenly narrowed, twisted about 30°, upper tooth very slightly flattened, about 1.5 times as long as the lower; outer mandibular surface flat with long scattered pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin flat, blunt; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate or slightly concave. Lower face elongate, 0.65-0.70 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae short and stout with 51-53 flagellar segments; 1st flagellar segment 2.1-2.2 times as long as 2nd, 20th segment 1.4-1.5 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow mediodorsally widened into a broad shallow concavity. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, strongly and closely punctate, ventrally sometimes grading to puncto-striate; epicnemial carina curved to almost reach anterior pleural margin above lower corner of pronotum. Scutellum in profile convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, obsoletely punctate. Metapleuron puncto-striate; submetapleural carina evenly but strongly broadened anteriorly. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, long, spiracular area smooth and very short, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 13-15mm; discosubmarginal cell as in Fig. 383; AI = 0.55-0.80; CI = 0.20-0.30; ICI = 0.60-0.70; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines on outer surface; hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 593.

Gaster elongate; sternite 2 with posterior margin slightly before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.0-2.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally reddish-orange; inter-ocellar area, vertex and posterior orbits alone paler.

Remarks. This species is unusual in having a very short spiracular area and having the propodeal spiracles well before the transpropodeal furrow. It is otherwise rather similar to *E. quietus*.

Distribution. This species is recorded from South Africa (Map 60).

Material examined. Holotype ♀, SOUTH AFRICA: Grahamstown, iii.72 (*Gess*) (TC); paratypes 1♀, Hluhluwe Game Res., xi.70 (*H. & M. Townes*) (TC); 1♀, Jonkershoek near Stellenbosch, xii.70 (*Whitehead*) (TC); 1♀, Jonkershoek near Stellenbosch, i.71 (*Whitehead*) (TC); 1♀, Kirstenbosch near Cape Town, xii.70 (*H. & M. Townes*) (TC); 1♀, Transvaal, Tzaneen, i.71 (*H. & M. Townes*) (TC).

ENICOSPILUS RUFUS (Brullé) Stat. rev.

(Figs 226, 227, 384, 594, 595, 752, 797)

Ophion rufus Brullé, 1846 : 149. Lectotype ♀, MAURITIUS ('L'ILE DE FRANCE LESCHENAULT') (MNHN), designated by Townes (1961 : 173) [examined].

- Ophion rufus* Brullé; Smith, 1879 : 537.
Ophion (Henicospilus) longescutellatus Kriechbaumer, 1894 : 308. Holotype ♀, TANZANIA (TMP) [examined]. **Syn. n.**
 [*Henicospilus longescutellaris* (Kriechbaumer) Dalla Torre, 1901 : 182. Misspelling of *longescutellatus*.]
Henicospilus rufus (Brullé) Dalla Torre, 1901 : 184.
Henicospilus insidiosus (Brullé) Szépligeti, 1905 : 26.
Ophion rufus Brullé; Cameron, 1907 : 79.
Enicospilus rufus (Brullé) Cameron, 1911 : 183.
Henicospilus longescutellatus (Kriechbaumer) Morley, 1912a : 43.
 [*Henicospilus leionotus* Tosquinet; Morley 1912a : 43 in part. Misidentification.]
Henicospilus longescutellatus (Kriechbaumer); Morley, 1912b : 173.
Enicospilus lomelaensis Cameron, 1912 : 388. Holotype ♀, ZAIRE (MRAC) [examined]. **Syn. n.**
Amesophilus insidiosus Enderlein, 1921 : 20. Holotype ♀, MADAGASCAR (IZPAN) [examined]. [Synonymized by
 Townes & Townes, 1973 : 179.]
Enicospilus rufus (Brullé) Benoit, 1957 : 315.
Enicospilus rufus (Brullé) Townes, 1961 : 173.
Enicospilus longescutellatus (Kriechbaumer) Townes & Townes, 1973 : 179.

Brullé's description of *Ophion rufus* is based on a number of syntypes from Java, "Malabar", Central Africa, "Bengale" and "L'île de France". The syntype series contains at least 3 different species, an unidentified oriental species and two Ethiopian species, one of which is conspecific with *E. capensis* (Thunberg), the other conspecific with *E. longescutellatus* (Kriechbaumer). (Those from Malabar and Java have not been seen.) Roman (1912) and Seyrig (1935) both used the name *rufus* as a synonym of what is now called *capensis* (in Seyrig's work as a senior synonym of *antankarus* Sss). Townes (1961) designated a ♀ from Mauritius as lectotype and thereby fixed the identity of *rufus* as a senior synonym of *longescutellatus* (which at that date Townes called *E. insidiosus* Enderlein). In 1973 Townes & Townes declared that, "the lectotype designated by Townes in 1961 is invalid because of Seyrig's restriction of *rufus* to a different species in 1935". Seyrig (1935 : 68) states "L'identité de l'espèce de BRULLÉ a celle de SAUSSURE *antankarus* ressort de l'examen des types, qui se trouvent tout deux au Museum de Paris". This statement cannot be interpreted as a type restriction because more than one species is concerned. Article 74c of the International Code of Zoological Nomenclature states that lectotypes cannot be designated collectively by a general statement, although Seyrig restricted the taxonomic species. Townes was therefore free to choose any syntype as a lectotype and although his lectotype designation is contrary to Recommendation 74a of the International Code of Zoological Nomenclature (agreement with previous restriction) it must stand as valid. A similar case of first reviser versus lectotype designation is discussed by Sabrowsky (1974) who reached the conclusion that "as long as no reviser had designated a lectotype, any later author is free to do so and the first publication of a valid designation then fixed the status of the specimen (Art. 74ai) no matter whether it agreed or disagreed with the action of the reviser(s)".

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth about 1.5 times as long as the lower; outer mandibular surface flat with scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile flat or virtually so, margin flat, blunt; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, moderately densely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eyes; FI = 65-70%; occipital carina complete. Antennae moderately long with 52-55 flagellar segments; 1st flagellar segment 1.6-1.9 times as long as 2nd; 20th segment 2.4-2.6 times as long as broad.

Pronotum mediodorsally moderately long; transverse furrow moderately impressed. Mesoscutum in profile abruptly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, punctate to puncto-striate; epicnemial carina curved to but not reaching anterior pleural margin above lower corner of pronotum. Scutellum in profile convex, laterally carinate to posterior margin; scutellum dorsally 1.8-2.0 times as long as broad anteriorly, smooth or with isolated punctures. Metapleuron finely convex; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 9-14mm; discosubmarginal cell as in Fig. 384; AI = 0.45-0.70; CI = 0.25-0.40; ICI = 0.50-0.55; SDI = 1.20-1.40; *cu-a* opposite or proximal to *Rs&M* by 0.1 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines on outer surface; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 594, 595.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine pubescence; gonosquama distally exceptional in having upper corner extended into a small acute projection; ♂ genitalia with claspers as in Fig. 752; aedeagus unusual in bearing flanges distally.

Colour generally evenly reddish-brown, posterior orbits paler yellowish.

Variation. A few specimens are more orange in colour.

Remarks. The ♂ is easily recognizable on account of the unusual gonosquama but the ♀ resembles *E. quietus* and *E. albiger*. The majority of specimens can be separated by their longer antennae and longer narrower scutella but we have seen two females from South Africa that we could not place into species as they were intermediate in scutellar and flagellar length.

Immature stages. Cephalic capsule of final instar larva as in Fig. 797. Hypostoma sclerotized, slender, curved through 90°, posteriorly poorly defined; hypostomal spur short, slender; pleurostoma and epistoma short and quite stout; mandible

small, weakly curved; sclerotized oral bar absent; labial sclerite normal; posterior hypostomal process small; stipital sclerite stout.

This species is difficult to separate from *E. finalis* and *E. drasmosus*. It is however slightly smaller than either.

Cocoon 11-13mm long, about 2.5 times as long as broad; outer surface finely fibrous, not polished.

Host records. This species has been reared from *Trigonodes hyppasia* Cramer (Lep., Noctuidae).

Distribution. This is a common species widely distributed from Sierra Leone to Tanzania, Seychelles, Mauritius and Madagascar (Map 61).

Material examined. *Ophion (Henicospilus) longescutellatus* Kriechbaumer, holotype ♀, TANZANIA: Dar es Salaam (TMP). *Enicospilus lomelaensis* Cameron, holotype ♀, ZAIRE: Lomela Gombé (MRAC). *Amesospilus insidiosus* Enderlein, holotype ♀, MADAGASCAR: Ambohimanga (IZPAN).

Non-type material. COMORES: 1♀, Guiri (La Grille), Grand Comore, xi.73 (*Matile*) (MNHN). FERNANDO POO: 1♀, no further locality, 1901 (*Conradt*) (MNHN). KENYA: 1♀, Mugaga, ii.69 (*Brown*) (BMNH). MADAGASCAR: 1♀, Anivorano, xii.29 (*Seyrig*) (MNHN); 1♀, Behara, iv.37 (*Seyrig*) (MRAC); 20♀, 3♂, Bekily, 1933-34 (*Seyrig*) (MNHN); 2♀, 2♂, Bekily, v.34 (*Seyrig*) (BMNH); 14♀, 16♂, Bekily, vi.36 ex *Trigonodes hyppasia* (*Seyrig*) (MNHN); 1♀, 1♂, Ihosy, ii.33 (*Seyrig*) (MNHN); 1♀, Ivondro, iv.41 (*Seyrig*) (MRAC); 1♀, Maroantsetra, vii.59 (*Vadon*) (MRAC); 1♀, Perinet (*Inst. Res. Mad.*) (MRAC); 15♀, Rogez, vi.31 (*Seyrig*) (MNHN); 3♀, 3♂, Rogez, vi.37 (*Seyrig*) (MRAC); 2♀, 2♂, Rogez, v-xi.46 (*Lamberton*) (TC); 1♂, N. E., no further locality, 1946 (*Hutchins*) (BMNH). MAURITIUS: 1♀, Cutepipe, ii.50 (*Williams*) (BMNH); 1♂, Etoile, xii.37 (*Jepson*) (BMNH); 2♀, 2♂, Henrietta, xi.49 (*Moutia*) (BMNH); 1♂, Hermitage, xii.49 (*Moutia*) (BMNH); 1♂, Reduit, iv.50 (*Curtois*) (BMNH); 3♀, 3♂, Union Park, xi.49 (*Curtois*) (BMNH); 1♂, Vale, viii.44 (*Hemmelin*) (BMNH). NIGERIA: 7♀, Ilora, viii.74 (*Medler*) (TC). RODRIGUEZ I.: 2♀, 2♂, no further locality, xi.18 (*Snell & Thomasset*) (BMNH); 1♀, no further data (BMNH). SAO TOME: 1♀, no further locality, xi.32 (*Tams*) (BMNH). SEYCHELLES: 1♀, 1♂, Mahé, ix.08 (BMNH); 1♀, Mahé (*Benoit*) (MRAC). SIERRA LEONE: 1♂, Freetown, x.67 (*Owen*) (TC); 1♀, Freetown, ii.68 (*Owen*) (TC); 1♀, Freetown, v.69 (*Owen*) (TC); 1♀, Freetown, i.70 (*Owen*) (TC). TANZANIA: 1♀, E. Usambara Mts, no further data (TC). ZAIRE: 1♂, Basoko, ix.48 (*Benoit*) (MRAC); 1♂, Bumba, xii.39 (*De Saeger*) (MRAC); 1♀, Kindu (*Russo*) (MRAC); 1♀, Kisangi, x.28 (*Collart*) (MRAC); 2♂, Rutshuru, ii.36 (*Lippens*) (MRAC).

ENICOSPILUS QUIETUS (Seyrig)

(Figs 223, 225, 385, 596, 597, 753, 798)

[*Henicospilus longescutellatus* (Kriechbaumer); Morley, 1917 : 223. Misidentification.]

[*Amesospilus longescutellatus* (Kriechbaumer) Enderlein, 1921 : 20. Misidentification.]

Amesospilus quietus Seyrig, 1935 : 61. Holotype ♀, KENYA (MNHN) [examined].

Enicospilus quietus (Seyrig) Townes & Townes, 1973 : 182.

Description. Mandibles evenly narrowed, twisted about 15°, terminally with upper tooth about 2 times as long as the lower; outer mandibular surface flat with scattered pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin flat; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate or slightly concave. Lower face elongate, 0.80-0.90 times as broad as long, finely punctate. Genae weakly constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its own maximum diameter; FI = 55-60%; occipital carina complete. Antennae moderately short with 44-47 flagellar segments; 1st flagellar segment 1.9-2.1 times as long as 2nd, 20th segment 1.5-1.6 times as long as broad.

Pronotum mediodorsally short, flat; transverse furrow weak. Mesoscutum in profile evenly rounded, apically very slightly out-turned; notauli discernible. Mesopleuron polished, punctate; epicnemial carina curved to but not reaching pleural margin above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate almost to posterior margin; scutellum dorsally 1.5-1.7 times as long as broad anteriorly, with isolated punctures. Metapleuron coriaceous to closely punctate; submetapleural carina evenly expanded anteriorly. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 8-12mm; discosubmarginal cell as in Fig. 385; AI = 0.55-0.80; CI = 0.20-0.30; ICI = 0.50-0.70; SDI = 1.10-1.20; *cu-a* subopposite *Rs&M*. Hindwing with 6-7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, virtually without spines; hind coxa in profile 1.6-1.7 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 596, 597.

Gaster of moderate length; sternite 2 with posterior margin at spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.5-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine short pubescence; gonosquama distally evenly rounded; ♂ genitalia as in Fig. 753, the aedeagus simple, quite unlike that of *E. rufus*.

Colour generally reddish-orange usually with subalar prominences and posterior orbits paler yellow.

Variation. Individuals from South West Africa tend to have the paler areas of the head more extensive, encompassing not only the posterior orbits but the frontal orbits, the vertex and inter-ocellar area.

Remarks. The ♂ genitalia of species of the *E. rufus* species-group differ from those of the *E. herero* species-group in having a strongly curved gonolaciniar spine.

Immature stages. Cephalic capsule of final instar larva as in Fig. 798. Hypostoma sclerotized, narrow, curved through about 80°; hypostoma spur very slender; pleurostoma and epistoma of moderate proportions; mandible with narrow blade arising from centre, weakly curved; sclerotized oral bar absent; labial sclerite ventrally indistinctly defined; posterior hypostomal process small; stipital sclerite stout.

The form of the mandible and small posterior hypostomal process distinguish this from other species. Despite the great morphological similarities of the adults of *E. quietus* and *E. rufus* the larvae are quite different, especially in the structure of the mandible.

Cocoon 9-11 mm long, about 2.1 times as long as broad; outer surface smooth and polished.

Host records. This species is recorded as a parasite of *Ctenoplusia limbirena** Guenée (Lep., Plusiidae) by Morley (1917). We have seen specimens reared from *Grammodes stolidus* Fab. (Lep., Noctuidae) and *Dasychira ribrifilata* Hampson (Lep., Lymantriidae).

Distribution. This species is most common in the drier areas of southern Africa although its range extends to Kenya, Zaire and Madagascar (Map 62).

Material examined. *Amesospilus quietus* Seyrig, holotype ♀, KENYA: Ngong, Nairobi (MNHN).

Non-type material. BOTSWANA: 1♀, Gaborones, 1915 (*Ellenberger*) (MNHN); 1♀, Palapye Rd., iii.34 (*Ogilvie*) (BMNH). CENTRAL AFRICAN REPUBLIC: 1♀, Bambari, i.64 (*Pierrard*) (MRAC). MADAGASCAR: 2♀, Befasy, i.56 (*Inst. Res. Mad.*) (MRAC); 1♀, Behara, iv.37 (*Seyrig*) (MRAC); 21♀, 11♂, Bekily, 1933-1936, ex *Grammodes stolidus* (*Seyrig*) (MNHN); 1♀, Ivondro, ii.40 (*Seyrig*) (TC); 1♀, Perinet (*Inst. Res. Mad.*) (MRAC). SOUTH AFRICA: 3♀, Cape, Murraysburg, x.19 (BMNH); 3♀, Cape, Tsitsikama Nat. Pk, ii.74 (*Thomas*) (ZC); 1♂, Donkerpoort, iv.34 (*Weller*) (BMNH); 1♀, Mafeking, iii.34 (*Ogilvie*) (BMNH); 1♀, Orange Free State, Allemans Kraaldam, iii.74 (*Thomas*) (ZC); 1♀, 1♂, Orange Free State, Novals Point, iv.34 (*Ogilvie*) (BMNH); 1♀, Orange Free State, Ficksburg, iii.74 (*Thomas*) (ZC); 1♀, St. Lucia Est., xi.70 (*H. & M. Townes*) (TC); 1♀, Upington, iii.34 (*Wilmot*) (BMNH). SOUTH WEST AFRICA: 2♂, Grootfontein, iv.72 (*Day*) (BMNH); 1♀, Kuiseb R. at Gobabeb, ii.74 (*Irwin*) (TC); 8♀, 7♂, Okahandja, ii.28 (*Turner*) (BMNH); 2♀, 1♂, Okahandja, ii.72 (*Day*) (BMNH); 10♀, 1♂, Okjikoko, ii.72 (*Day*) (BMNH); 1♂, 5 km W of Sesriem, ii.72 (*Day*) (BMNH). ZAIRE: 1♀, Bassin Lukunga, vii.34 (*De Saegar*) (MRAC); 1♀, Kabongo, x.53 (*Seydel*) (TC); 1♀, Lomami, Kamiama, iii-vii.32 (*Massart*) (MRAC); 1♂, Lubumbashi, i.49, ex *Dasychira ribrifilata* (*Seydel*) (MRAC); 1♀, Lubumbashi, xii.56 (*Seydel*) (TC).

ENICOSPILUS BABAULTI (Seyrig)

(Figs 228, 386, 603)

Schizospilus babaulti Seyrig, 1935 : 81. Lectotype ♂, KENYA (MNHN), designated by Townes & Townes (1973 : 173) [examined].

Enicospilus babaulti (Seyrig) Townes & Townes, 1973 : 173.

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth at most very slightly the longer, usually subequal in length; outer mandibular surface flat with fine pubescence. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile more or less flat, margin flat; clypeus in anterior aspect 1.5-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long, finely punctate. Genae moderately constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete or mediodorsally obsolete. Antennae long, stout with 69-73 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.6-1.8 times as long as broad.

Pronotum mediodorsally short; transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically not distinctly out-turned; notauli absent. Mesopleuron polished, puncto-striate; epicnemial carina reaching above level of lower corner of pronotum, its upper end remote from pleural margin. Scutellum in profile weakly convex, laterally carinate for 0.9 or more of its length; scutellum dorsally 1.3-1.5 times as long as broad anteriorly, smooth with isolated punctures. Metapleuron striate; submetapleural carina abruptly anteriorly expanded into triangular lobe. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 20-27 mm; discosubmarginal cell as in Fig. 386, AI = 0.90-1.00; CI = 0.35-0.40; ICI = 0.80-0.90; SDI = 1.25-1.35; *cu-a* proximal to *Rs&M* by about 0.2 times its own length. Hindwing with 9-11 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 603.

Gaster long but stout; sternite 2 with posterior margin before spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of ♂ with numerous long stout erect hairs and scattered short fine decumbent hair; gonosquama distally acutely rounded.

Colour generally orange-brown; gaster terminally infuscate; lower face and genae paler yellowish-orange; inter-ocellar area orange; flagellum orange-brown.

Remarks. A very uniform species easily recognized on account of its numerous alar sclerites and large size. It is morphologically very closely related to *E. polyspilus*.

Distribution. This species seems to be restricted to equatorial Africa (Map 63).

Material examined. Lectotype ♂, KENYA: Nairobi, 1923 (*Babault*) (MNHN); paralectotype 1♂, same data as lectotype.

Non-type material. KENYA: 1♀, Mugaga, Nairobi, vi.66 (*Brown*) (BMNH); 1♀, Mugaga, Nairobi, vii.68 (*Brown*) (BMNH); 1♀, Mugaga, Nairobi, vi.70 (*Brown*) (BMNH); 1♀, Nairobi, x.23 (*van Someren*) (BMNH); 1♀, Nairobi, vi.71 (*Brown*) (BMNH); 1♀, Timau, Ngare Ndare Forest, xi.72 (*Boulard*) (MNHN). NIGERIA: 1♀, Mt Cameroon East, viii.67 (*Matile*) (MNHN). RWANDA: 1♂, Kigali, vii.33 (*Becquet*) (MRAC). SIERRA LEONE: 1♀, Freetown, i-iii.69 (*Owen*) (TC). UGANDA: 1♀, Entebbe, viii.29 (*Hancock*) (BMNH); 1♀, Kigezi, Mabundo, xi.34 (*Ford*) (BMNH); 1♀, Ngongera, ix.13 (*Gowdey*) (BMNH). ZAIRE: 1♀, Eala, xi.36 (*Ghesquière*) (MRAC); 1♂, Kivu, Kadjudu, 1932 (*Babault*) (MNHN); 1♀, Kivu, Ibanda, 1935 (*Vandelannoite*) (MRAC); 1♂, Lulua, Kapanga, iv.36 (*Overlaet*) (MRAC); 1♀, Mayumbé, 1917 (*Mayné*) (MRAC); 1♀, Rutshuru, v.37 (*Ghesquière*) (MRAC).

ENICOSPILUS POLYSPILUS sp. n.

(Figs 229, 387, 604, 605)

Description. Mandibles proximally narrowed, distally parallel sided, twisted about 20°, upper tooth about 1.2 times as

long as the lower; outer mandibular surface flat finely pubescent. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile more or less flat, margin flat; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI - 65-70%; occipital carina complete. Antennae long with 65-70 flagellar segments; 1st flagellar segment 2.0-2.2 times as long as 2nd, 20th segment 1.8-2.0 times as long as broad.

Pronotum mediodorsally short, transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, puncto-striate; epicnemial carina curved to anterior pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its own length; scutellum dorsally 1.2-1.4 times as long as broad anteriorly, polished with isolated punctures. Metapleuron striate; submetapleural carina anteriorly abruptly expanded into triangular flange. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area transversely striate. Posterior transverse carina of mesosternum complete.

Forewing length 18-21mm; discosubmarginal cell as in Fig. 387, AI = 0.90-1.10; CI = 0.40-0.45; ICI = 0.60-0.65; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 10 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 2.0-2.1 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 604, 605.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long erect stout hair and fine scattered decumbent hair; gonosquama distally evenly rounded.

Colour generally orange-yellow, terminal segments of gaster and longitudinal vittae on mesoscutum darker; vertex and inter-ocellar area orange; flagellum slightly infusate.

Variation. The holotype has 6 central sclerites discernible whereas the ♀ paratype has only 5. This difference in number is due to the fusion of the two small postero-distal central sclerites. The specimens are otherwise morphologically very similar.

Remarks. This species is morphologically very similar to *E. babaulti* from which it differs in the number of alar sclerites and in the shape of the mandibles.

Distribution. This species is restricted to the Ruwenzori Mountains (Map 64).

Material examined. Holotype ♀, UGANDA: Ruwenzori Range, Mobuku Valley, xii.34 (*Edwards*) (BMNH); paratypes 1♂, same data as holotype (BMNH); 1♀, Ruwenzori Range, Namwamba Valley, xii.34 (*Edwards*) (BMNH).

ENICOSPILUS DIVISUS (Seyrig) (Figs 388, 606, 607, 608, 609)

Schizospilus divisus Seyrig, 1935 : 80. Holotype ♀, ETHIOPIA (MNHN) [examined].
Enicospilus divisus (Seyrig) Townes & Townes, 1973 : 176.

Description. Mandibles distally parallel sided, proximally narrowed, twisted about 15°, upper tooth 1.1-1.5 times as long as the lower; outer mandibular surface more or less flat with scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex margin impressed; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.68-0.72 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eyes; FI = 65%; occipital carina complete. Antennae long and slender with 57-62 flagellar segments; 1st flagellar segment 1.8-2.1 times as long as 2nd, 20th segment 2.3-2.4 times as long as broad.

Pronotum mediodorsally moderately long with moderately strongly impressed transverse furrow. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, upper part finely puncto-alutaceous, lower part puncto-striate to striate; epicnemial carina curved to approach anterior pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, alutaceous. Metapleuron alutaceous; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-16mm; discosubmarginal cell as in Fig. 388; AI = 0.65-0.80; CI = 0.40-0.45; ICI = 0.40-0.55; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.4-0.5 times as long as broad; hind tarsal claws asymmetrical, pectinate as in Figs 606-9.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ovate, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with moderately long scattered pubescence; gonosquama distally evenly rounded.

Colour generally reddish-brown; head posteriorly paler yellowish; 1st and distal 0.5 of 2nd gastral tergites badius; lower face, inter-ocellar area and flagellum reddish.

Remarks. This is a rather uniform species in appearance and easily recognized by the two curved central sclerites. The affinities of this species are not wholly clear but it appears to have more in common with species of the *E. biimpressus* species-group than with the *E. babaulti* species-group with which it was previously associated.

Distribution. This species is widely distributed throughout East Africa from Ethiopia to South Africa. Uncommon (Map 65).

Material examined. *Schizospilus divisus* Seyrig, holotype ♀, ETHIOPIA: no further data, 1899 (Michel) (MNHN).

Non-type material. SOUTH AFRICA: 4♀, 1♂, Grahamstown, xi-xii.71 (Gess) (TC); 1♀, 3♂, Grahamstown, i.72 (Gess) (TC); 4♀, Karkloof nr. Howick, xii.70 (H. & M. Townes) (TC); 2♀, Magoebaskloof near Tzaneen, i.71 (H. & M. Townes) (TC). TANZANIA: 1♀, Mt Meru, vii.62 (Heinrich) (TC). ZAIRE: 1♂, Ituri, Blukwa, xi.28 (Collert) (MRAC); 3♀, Kivu, Kadjudju, 1932 (Babault) (MNHN); 1♀, Kivu, Kadjudju, no further data (TC).

ENICOSPILUS DRYMOSUS sp. n.

(Figs 230, 389, 599, 600)

Description. Mandibles evenly narrowed, twisted about 40°, upper tooth 1.3 times as long as the lower, flattened; outer mandibular surface with a weak median longitudinal concavity and scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.4 times as broad as long, terminally truncate. Lower face elongate, 0.60 times as broad as long with isolated punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 75%; occipital carina complete. Antennae long and slender with apices missing; 1st flagellar segment 2.0 times as long as 2nd, 20th segment 3.0 times as long as broad.

Pronotum mediodorsally short; transverse furrow moderately impressed. Mesoscutum in profile evenly rounded, apically out-turned; notauli absent. Mesopleuron polished finely striate; epicnemial carina curved to but not reaching anterior pleural margin. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.55 times as long as broad anteriorly, irregularly wrinkled, posterior longitudinally wrinkled. Metapleuron striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14mm; discosubmarginal cell as in Fig. 389; AI = 1.15; CI = 0.42; ICI = 0.44; SDI = 1.40; *cu-a* proximal to *Rs&M* by 0.3 times its own length. Hindwing with 6 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws asymmetrical, the outer normally curved, the inner strongly geniculate, pectinate as in Figs 599, 600.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.5 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally mottled; head yellow, scape, lower face centrally badius; alitrunk dark blackish-red, subalar prominences, mesoscutal margin and upper half of pronotum yellow; gaster badius, tergite 2 dorsally yellow. All coxae and distal 0.7 of hind femora badius, remainder of legs yellow.

Remarks. Only a single ♀ of this remarkable species is known. The asymmetrical claws and flattened upper tooth of the mandible ally this species with *E. nefarius* but it is distinct on account of the similar sized proximal and central sclerites.

Material examined. Holotype ♀, TANZANIA: Amani, iv.62 (Heinrich) (TC).

ENICOSPILUS MELEDONOSUS sp. n.

(Figs 231, 233, 390, 601, 602)

Description. Mandibles evenly narrowed, twisted about 40°, upper tooth 1.2 times as long as the lower, both teeth flattened; outer mandibular surface more or less flat with isolated pubescence. Labrum 0.4 times as long as broad, unusual in being strongly swollen; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin not in-turned; clypeus in anterior aspect 1.7 times as broad as long, terminally truncate. Lower face elongate, 0.68 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eyes; FI = 65%; occipital carina complete. Antennae incomplete; 1st flagellar segment 1.9 times as long as 2nd.

Pronotum mediodorsally moderately long; transverse furrow moderately impressed. Mesoscutum in profile abruptly rounded, apically out-turned; notauli absent. Mesopleuron polished, striate; epicnemial carina more or less straight, vestigial above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.5 times as long as broad anteriorly, alutaceous, posteriorly longitudinally wrinkled. Metapleuron finely striate; submetapleural carina narrow. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area punctate, spiracular area coriaceous, posterior area finely striate. Posterior transverse carina of mesosternum complete.

Forewing length 13mm; discosubmarginal cell as in Fig. 390; AI = 1.05; CI = 0.38; ICI = 0.45; SDI = 1.30; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 6 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia subcylindrical, virtually devoid of spines; hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 601, 602.

Gaster long and slender; sternite 2 with posterior margin at spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.5 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally evenly reddish-brown; terminal segments of gaster slightly infuscate.

Remarks. Very similar to *E. vatius* from which it differs in having the clypeus flat, the central sclerites larger and of irregular shape, being more uniformly coloured and having the centre of the mandible smooth.

Only the holotype of this species is known.

Material examined. Holotype ♀, SIERRA LEONE: Freetown, ii-iv.67 (Owen) (TC).

***ENICOSPILUS VATIUS* sp. n.**

(Figs 232, 391, 598)

Description. Mandibles evenly narrowed, twisted about 35°, upper tooth conspicuously flattened, about 1.1 times as long as the lower; outer mandibular surface flat with fine scattered hairs, unusual in having the centre finely reticulate. Labrum 0.4 times as long as broad, unusual in being swollen; malar space 0.2 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.7 times as broad as long, terminally truncate. Lower face elongate, 0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65%; occipital carina complete. Antennae incomplete.

Pronotum mediodorsally moderately long with transverse furrow moderately strongly impressed. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli discernible on anterior 0.2 of scutum. Mesopleuron almost matt, puncto-striate; epicnemial carina curved to but not quite reaching anterior pleural margin above lower corner of pronotum. Scutellum in profile convex, laterally carinate to posterior margin; scutellum dorsally 1.6 times as long as broad anteriorly, punctate. Metapleuron aluto-striate; submetapleural carina narrow, anteriorly abruptly expanded. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area smooth, spiracular area punctate, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14mm; discosubmarginal cell as in Fig. 391; AI = 1.20; CI = 0.35; ICI = 0.36; SDI = 1.40; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 6 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, virtually without spines; hind coxa in profile 1.7 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 598.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal separated from anterior margin of tergite by 2.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally mottled, head yellow, lower face centrally badius; alitrunk badius, pronotum, mesoscutum in 4 longitudinal lines, upper part of mesopleuron, propodeal spiracular groove yellow; gaster reddish-yellow, tergite 1 blackish, terminal tergites infuscate, legs pale yellow, all coxae badius.

Remarks. The unusually strongly swollen labrum and position of the alar sclerites separate *E. vatius* and *E. meledonosus* from other species. The affinities of these two species are not clear but they may be related to the *E. bümpresus* species-group. For the present we prefer to treat these as constituting a separate species-group, the *E. vatius* species-group.

This species is known only from the holotype.

Material examined. Holotype ♀, SOUTH AFRICA: Port St. John, xii.70 (H. & M. Townes) (TC).

***ENICOSPILUS KADIOSUS* sp. n.**

(Figs 392, 628, 629, 763)

Description. Mandibles evenly narrowed, twisted about 20°, lower tooth 1.2 times upper; outer mandibular surface flat with isolated hairs. Labrum 0.4 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile flat, margin acute, flat; clypeus in anterior aspect 1.5 times as broad as long, terminally transverse. Lower face elongate, 0.65-0.70 times as broad as long, devoid of punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae rather short and stout with 50-52 flagellar segments; 1st flagellar segment 2.0 times as long as 2nd, 20th segment 1.1-1.2 times as long as broad.

Pronotum mediodorsally very short, transverse groove impressed. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli absent. Mesopleuron polished, punctate; epicnemial carina curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.5 times as long as broad anteriorly, with isolated punctures. Metapleuron punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally convex; anterior transcarina vestigial or absent; anterior area striate, spiracular area smooth, posterior area finely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 9-10mm; discosubmarginal cell as in Fig. 392; AI = 0.90-1.00; CI = 0.15-0.20; ICI = 0.60-0.65; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 6 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia flattened with isolated spines; hind coxa in profile 1.6-1.7 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 628, 629.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 3.0-3.5 times its own length.

Ovipositor short, stoutly acute. Sternites 6-8 of ♂ with fine decumbent hairs; gonosquama distally rather abruptly truncated; genitalia as in Fig. 763.

Colour generally orange-red; mesoscutum in 4 stripes, scutellum and alitrunk laterally ivory marked; face and vertex including inter-ocellar area yellow; flagellum brown.

Remarks. This is a very distinctive species in having one small and one large central sclerite positioned approximately in line with *Rs+2r*. Its affinities are not clear.

Distribution. This species is confined to Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, ii.33 (Seyrig) (MNHN); paratypes 1♀, Antanimora, i.34 (Seyrig) (MNHN);

1♂, Befasy, no further data (BMNH); 3♀, 2♂, Bekily, iv-xii.33 (*Seyrig*) (MNHN); 3♀, 2♂, Bekily, x-xii.36 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, xi.36 (*Seyrig*) (BMNH); 4♀, 12♂, Bekily, i-iii.37 (*Seyrig*) (MNHN).

***ENICOSPILUS RUWENZORIUS* sp. n.**

(Figs 236, 393, 610, 611)

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth 1.2 times as long as the lower, slightly flattened; outer mandibular surface flat with scattered hair. Labrum 0.2 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.8-1.9 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, micro-reticulate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60%; occipital carina complete. Antennae long and slender with 59-60 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 2.8-3.0 times as long as broad.

Pronotum mediodorsally moderately long with moderately strongly impressed transverse furrow. Mesoscutum in profile evenly rounded, apically more or less not out-turned; notauli vestigial. Mesopleuron submatt, micro-reticulate; epicnemial carina reaching level of lower corner of pronotum distant from anterior pleural margin. Scutellum in profile convex, laterally carinate for 0.5 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, micro-reticulate. Metapleuron micro-reticulate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally weakly convex; anterior transcarina complete; anterior area micro-reticulate, spiracular area micro-reticulate, posterior area finely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 13-14mm; discosubmarginal cell as in Fig. 393; AI = 1.10-1.30; CI = 0.45-0.50; ICI = 0.40-0.45; SDI = 1.40-1.50; *cu-a* subopposite *Rs&M*. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical virtually devoid of spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.3-0.4 times as long as broad; hind tarsal claws asymmetrical, the inner somewhat more strongly curved, pectinate as in Figs 610, 611.

Gaster long and slender; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia oval, small, separated from anterior margin of tergite by 5.0-6.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with isolated long erect hairs; gonosquama distally subtruncate.

Colour generally badius; inter-ocellar area black; flagellum dark brown with distal margin of flagellar segments narrowly yellowish.

Remarks. This species probably belongs in the *E. biimpressus* species-group despite having asymmetrical claws. It is the only species in this species-group that is entirely blackish. Its colour and surface sculpture seem to be a modification to enable this species to absorb radiant solar energy.

Distribution. This species is confined to the higher parts of the Ruwenzori mountains (Map 67).

Material examined. Holotype ♂, UGANDA: Ruwenzori Range, Namwamba Valley, 2000 metres, xii.34-i.35 (*Edwards*) (BMNH); paratypes 1♀, Ruwenzori Range, Mobuku Valley, xii.34 (*Edwards*) (BMNH); 1♂, Ruwenzori Range, Namwamba Valley, xii.34 (*Edwards*) (BMNH).

***ENICOSPILUS CITTUS* sp. n.**

(Figs 394, 612, 613, 762)

Description. Mandibles parallel sided, twisted about 20°, upper tooth 1.1-1.3 times as long as the lower, slightly the more slender; outer mandibular surface flat with isolated pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.85 times as broad as long, coarsely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70%; occipital carina complete. Antennae long with 57-59 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.3-2.4 times as long as broad.

Pronotum mediodorsally moderately short; transverse furrow strongly impressed. Mesoscutum in profile evenly rounded; apically weakly out-turned; notauli discernible on anterior 0.2 of scutum. Mesopleuron polished, puncto-striate; epicnemial carina strong, upper end remote from pleural margin. Scutellum in profile weakly convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.6 times as long as broad anteriorly, finely alutaceous with isolated punctures. Metapleuron alutaceous with fine punctures; submetapleural carina broad, evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina weak but complete; anterior area smooth, spiracular area smooth, posterior area with fine obsolete wrinkling. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 394; AI = 0.50-0.85; CI = 0.40-0.50; ICI = 0.35-0.45; SDI = 1.30-1.40; *cu-a* subopposite *Rs&M*. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 612, 613.

Gaster long; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long erect pubescence and isolated fine short hairs; gonosquama distally evenly rounded; ♂ genitalia as in Fig. 762.

Colour generally reddish-brown; lower face, genae and inter-ocellar area whitish-yellow; flagellum brown.

Variation. A few individuals have the terminal segments of the gaster slightly infusate.

Remarks. This species is distinctive in the shape of the central sclerites. It is probably allied to the *E. biimpressus* species-group although the central sclerites are much more clearly defined and much larger than in the other species.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, ii.34 (*Seyrig*) (MNHN); paratypes 1♀, Ambositra, xi.36 (*Seyrig*) (MNHN); 1♀, Androharisambirano, xii.64 (*Soga*) (MNHN); 1♀, Bekily, v.37 (*Seyrig*) (BMNH); 3♂, Fianarantsoa, xi.36 (*Seyrig*) (MNHN); 2♂, La Mandraka, xi.35 (*Seyrig*) (MNHN); 1♂, Mandraka, xii.44 (*Seyrig*) (MRAC); 1♂, Mandraka, xii.51 (*Krauss*) (MRAC); 1♂, Perinet, xii.32 (*Seyrig*) (BMNH); 1♂, Rogez, ix.30 (*Seyrig*) (MNHN).

ENICOSPILUS HECASTUS sp. n.

(Figs 239, 395, 614, 615)

Description. Mandibles fairly evenly narrowed, twisted about 30°, terminally subequally bidentate; outer mandibular surface flat with scattered hairs which are closer together proximally. Labrum 0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile more or less flat, margin very slightly in-turned; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally convex. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted slightly behind the eyes; posterior ocellus very close to eye; FI = 70%; occipital carina complete. Antennae moderately long, stout with 58-62 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.7-1.8 times as long as broad.

Pronotum mediodorsally moderately long; transverse furrow deep but rather broader than is usual in species of this genus. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli impressed on margin. Mesopleuron almost matt, puncto-striate, ventrally very closely punctate; epicnemial carina strong, reaching to level of lower corner of pronotum but remote from pleural margin. Scutellum in profile convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, weakly punctate with strong longitudinal wrinkles. Metapleuron alutocoriaceous; submetapleural carina anteriorly abruptly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area long, striate, spiracular area smooth or alutaceous, posterior area rugose, the rugosities being more or less transverse except for a few strong lateral longitudinal ones. Posterior transverse carina of mesosternum complete.

Forewing length 23-26mm; discosubmarginal cell as in Fig. 395; AI = 0.90-1.10; CI = 0.60-0.75; ICI = 0.65-0.70; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 7-9 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 614, 615.

Gaster long, posteriorly stout; sternite 2 with posterior margin at or behind spiracle of tergite 2; thyridia small, pear-shaped, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hairs and scattered fine pubescence; gonosquama distally evenly rounded.

Colour generally uniformly reddish-brown; genae alone paler yellowish-brown.

Remarks. This large species is distinct in its size and the form of the central and proximal alar sclerites. It belongs to the *E. biimpressus* species-group and may well have affinities with *E. lictus* despite the differences in the form of the claws.

Host records. This species has been reared from a cocoon of an unidentified Lasiocampid and the pupa of a Psychid.

Distribution. This species is recorded in Equatorial Africa from Sierra Leone to Uganda (Map 68).

Material examined. Holotype ♀, UGANDA: Mengo, Zika Forest, viii.63 (*Lancaster*) (TC). Paratypes. GABON: 1♀, Mayoumba (*Mayné*) (MRAC). SIERRA LEONE: 1♀, Njala, v.34, ex Psychid pupa (*Hargreaves*) (BMNH). UGANDA: 1♀, Kome Is., viii.29, ex Lasiocampid cocoon (*Carpenter*) (BMNH); 3♀, 3♂, Mengo, Zika Forest, viii-xi.63 (*Lancaster*) (TC). ZAIRE: 1♀, Eala, iii.32 (*Brédo*) (MRAC); 1♂, Equateur, Flandria, i.48 (*Hulstaert*) (MRAC).

ENICOSPILUS SIMANDRIUS sp. n.

(Figs 240, 397, 398, 616, 617, 759)

Description. Mandibles evenly narrowed, twisted about 40°, upper tooth about 1.3 times length of the lower; outer mandibular surface flat with isolated fine pubescence. Labrum 0.4 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.3-1.4 times as broad as long, terminally truncate. Lower face fairly elongate, 0.85-0.90 times as broad as long, closely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60%; occipital carina complete. Antennae long and slender with 68-72 flagellar segments; 1st flagellar segment 2.0-2.1 times as long as 2nd, 20th segment 2.0-2.2 times as long as broad.

Pronotum mediodorsally short with a deeply impressed transverse furrow. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli weak. Mesopleuron polished, punctate to puncto-striate; epicnemial carina slightly inclined forward above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, punctate, posteriorly wrinkled. Metapleuron rugulose; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area wrinkled, spiracular area smooth, posterior area transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 16-18mm; discosubmarginal cell as in Figs 397, 398; AI = 1.40-1.60; CI = 0.50-0.55; ICI = 0.40-0.50; SDI = 1.70-1.80; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened bearing short stout scattered spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws asymmetrical, the outer claw normally curved the inner strongly geniculate, pectinate as in Figs 616, 617.

Gaster moderately long, stout; sternite 2 with posterior margin slightly before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hairs and short fine decumbent pubescence; gonosquama distally evenly rounded; genitalia as in Fig. 759.

Colour generally orange-red; only genae paler yellowish.

Variation. The posterior central sclerite varies from being short and 'comma-shaped' to very long and 'sausage-shaped' and paralleling the posterior margin of the fenestra. This type of difference is due to the progressive sclerotization of the posterior margin of the quadra and the intermediates observed clearly show such differences are intraspecific variation and not a more significant character.

Remarks. Despite the asymmetrical hind tarsal claws this species is apparently quite closely related to *E. biimpressus* and *E. seminiger*. The longer labrum and more quadrate flagellar segments differentiate *E. simandrius* from related species.

Distribution. This species is widely distributed from Liberia to Madagascar. Rare (Map 69).

Material examined. Holotype ♂, UGANDA: Makerere, Kampala, v-xii.65 (*Unamba*) (TC). Paratypes. LIBERIA: 1♂, Monrovia, 1899 (*Delafosse*) (MNHN). MADAGASCAR: 1♀, Bekily, xii.33 (*Seyrig*) (MNHN); 1♀, Bekily, ii.37 (*Seyrig*) (MNHN); 1♀, Rogez, iv.30 (*Seyrig*) (MNHN); 2♂, Rogez, i-ii.31 (*Seyrig*) (MNHN); 1♂, Rogez, xi.32 (*Seyrig*) (MNHN); 1♀, Rogez, ii.37 (*Seyrig*) (BMNH). ZAIRE: 1♀, Lubumbashi, vi.47 (*Seydel*) (MRAC).

ENICOSPILUS DRASMOSUS sp. n.

(Figs 254, 396, 618, 806)

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth 1.4 times as long as the lower; outer mandibular surface with a weak median longitudinal concavity bearing fine pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly in-turned; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to the eye; FI = 70%; occipital carina complete. Antennae long and slender with 63-68 flagellar segments; 1st flagellar segment 1.9-2.0 times as long as 2nd, 20th segment 2.4-3.0 times as long as broad.

Pronotum mediodorsally fairly short with transverse furrow weakly impressed. Mesoscutum in profile abruptly rounded, apically out-turned; notauli absent. Mesopleuron polished, puncto-striate to striate; epicnemial carina slightly curved to pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, alutaceous, posteriorly longitudinally wrinkled. Metapleuron puncto-reticulate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly declivitous, dorsally slightly convex; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 17-19mm; discosubmarginal cell as in Fig. 396; AI = 0.80-1.30; CI = 0.25-0.45; ICI = 0.30-0.40; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 5-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws asymmetrical, the inner claw more strongly curved than the outer, pectinate as in Fig. 618.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.0-5.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally pale yellowish mottled with black; head yellow with lower face centrally infusate; alitrunk badius with upper corner of pronota and margins of other tergites and stripes on mesoscutum yellowish; gaster with tergite 1 badius, tergite 2 yellow, tergites 3+ slightly infusate; flagellum pale yellow.

Variation. The extent of the darker marking on the alitrunk were observed to be less expansive in a few individuals. The postero-central sclerite is rather weak and in a few specimens not discernible at all.

Remarks. This species is apparently very closely related to *E. seminiger* from which it differs in venation (having CI and ICI smaller) and in having the hind tarsal claws asymmetrical. The clear morphological resemblance of *E. seminiger* and *E. dramosus* indicates that the claw specialization of the latter and also of *E. simandrius* arose within the *E. biimpressus* species-group. The selective advantage of such a modification is not clear but it appears to be confined to sylvan species. The similar modification occurring in species of the *E. drymosus* species-group may have arisen separately. Certainly *E. nefarius* does not appear to have any real affinities with the *E. biimpressus* species-group and the superficial similarities in claw structure and colour between *E. nefarius* and *E. dramosus* are probably the result of evolutionary convergence.

Immature stages. Cephalic capsule of final instar larva as in Fig. 806. Hypostoma sclerotized, moderately stout, curved through 70°; hypostomal spur stout; pleurostoma and epistoma moderately stout not long; mandible short, weakly curved; labial sclerite ventrally rather acute; posterior hypostoma process small; stipital sclerite very stout.

Similar to *E. pacificus* except in the form of the labial sclerite and in the stouter hypostoma.

Cocoon 18mm long, 5mm in diameter with outer surface finely fibrous; dark brown with a slightly paler equatorial band.

Distribution. This species is distributed throughout Africa. Uncommon (Map 70).

Material examined. Holotype ♀, SIERRA LEONE: Freetown, v.70 (*Owen*) (TC). Paratypes. GHANA: 1♀, Asuansi, xi.41 (*Box*) (BMNH).

MALAWI: 1♀, Mt Mlange, x.12 (Neave) (BMNH). SIERRA LEONE: 2♀, Freetown, iii-v.70 (Owen) (TC). UGANDA: 2♀, Mengo, Zika Forest, viii.63 (Lancaster) (TC).

***ENICOSPILUS BIIMPRESSUS* (Brullé)**
(Figs 399, 400, 401, 402, 619, 620, 764, 802)

Ophion bi-impressus Brullé, 1846 : 148. Holotype ♀, 'SOUTHERN AFRICA' (MNHN) [examined].

Ophion (Enicospilus) bi-impressus Brullé; Tosquinet, 1896 : 380.

Henicospilus biimpressus (Brullé) Dalla Torre, 1901 : 181.

Pterospilus (Dispilus) bi-impressus (Brullé) Kriechbaumer, 1901 : 156.

Henicospilus pallidiceps Cameron, 1911 : 181. Holotype ♀, SOUTH AFRICA (BMNH) [examined]. **Syn. n.**

Stauropodoctonus alienus Morley, 1912a : 17. Holotype ♀, Patria incognita ?ASIA (?UGANDA) (BMNH) [examined].

Syn. n.

[*Stauropodoctonus mauritii* (Saussure) Morley, 1912a : 17. Misidentification.]

Enicospilus alienus (Morley) Townes et al., 1961 : 269.

Enicospilus alienus (Morley); Townes et al., 1965 : 327.

Enicospilus bi-impressus (Brullé) Townes & Townes, 1973 : 173.

Enicospilus pallidiceps (Cameron) Townes & Townes, 1973 : 182.

Morley (1912a) caused some confusion in his interpretation of this species and this confusion remained in the collections of the BMNH up until now. He misidentified a rather distinctive geographical race of *E. capensis* as *E. biimpressus* whilst *E. biimpressus* (Brullé) he knew but referred to the genus *Stauropodoctonus* as two species, *alienus* with 2 central sclerites and *mauritii* (sensu Morley non Saussure) with only one central sclerite. Furthermore Morley cited the type locality of *E. alienus* as '?Asia'. In the collections of the BMNH are two specimens from Uganda collected in 1917 by Gowdey which are identical to the type of *E. alienus*. Both Gowdey and Neave were sending specimens from Uganda to the BMNH before 1912 and it was possibly one of these specimens which Morley used as a holotype. It is suggested therefore that the type locality of *alienus* is probably Uganda and definitely not Asia.

Description. Mandibles fairly evenly narrowed, twisted about 10-20°, upper tooth from 1.1-1.5 times as long as the lower; outer mandibular surface more or less flat, with fine scattered pubescence. Labrum 0.1-0.2 times as long as broad; malar space 0.1-0.3 times as long as basal mandibular width. Clypeus in profile almost flat, margin flat or slightly in-turned; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to the eye; FI = 60-70%; occipital carina complete or mediodorsally obsolete. Antennae long, quite stout with 63-68 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 1.7-2.4 times as long as broad.

Pronotum mediodorsally short; transverse furrow rather strongly impressed. Mesoscutum in profile evenly rounded, apically out-turned; notauli absent. Mesopleuron polished, punctate to puncto-striate; epicnemial carina curved to approach lower corner of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate at least to 0.8 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, smooth with scattered punctures. Metapleuron puncto-striate to striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina strong, complete; anterior area striate, spiracular area punctate, posterior area coarsely striate to coriaceous or evenly slightly reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 14-26mm; discosubmarginal cell as in Figs 399 to 402; AI = 0.80-1.25; CI = 0.32-0.70; ICI = 0.50-0.70; SDI = 1.30-1.60; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 7-10 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 1.7-2.0 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 619, 620.

Gaster long and stout; sternite 2 with posterior margin at or just before spiracle of tergite 2; thyridia oval to ellipsoidal, separated from anterior margin of tergite by 3.0-5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense moderately long stout erect pubescence and few fine decumbent hairs; gonosquama distally evenly rounded to subacute; genital claspers as in Fig. 764.

Colour generally from pale yellow to dark reddish-brown; lower face, antennae and inter-ocellar area yellow to orange-red.

Variation. This is the most variable species in general appearance and requires far more study than we have been able to allot it. It is possible that there are a number of species confused here although we were unable to find any satisfactory combination of characters to permit reliable segregation. The two conspicuous types of variation are of colour and form of the alar sclerites. The majority of specimens are rather uniformly reddish-brown with the wings evenly hyaline and the gaster with tergites 3 or 4+ weakly infumate. One group of specimens from higher ground in East Africa are distinctive in having the marginal angle strongly infumate and the gaster pale yellow on the 2nd and sometimes also the 1st and anterior half of the 3rd tergites, whilst the remainder is much darker in colour, being almost badius. Such specimens also have the legs paler than the alitrunk. A very few individuals are more uniformly pale yellow with only the terminal segments of the gaster infusate.

The central alar sclerites vary not only in size but also number. Members of this species-group have a distinctive type of quadra and it is the progressive sclerotization of parts of this quadra which is responsible for the different sclerites. It can be seen from Figs 399-402 that the quadra is palette-shaped with a strong proximal invagination. In all specimens at least the extreme antero-distal corner is sclerotized appearing as a small linear sclerite parallel to *Rs+2r* to somewhat crescentic as the sclerotization increases down the distal quadra margin. In many specimens this is the only sclerite visible and the quadra is difficult to see in normal lighting. Most specimens however have the postero-proximal margin of the quadra sclerotized parallel with the 'tail' of the proximal sclerite. In some specimens this may be confined as a discrete sclerotized spot whilst in others it may extend as a very weakly sclerotized band all along the posterior margin of the

quadra. In a few specimens the sclerotization of the posterior quadra margin is confined to the more distal part and the usually strongly sclerotized postero-proximal margin remains translucent. In such specimens there is generally a more extensive sclerotization of the antero-distal margin. This sclerotization after extending along the distal margin then progressively occludes the corner to, at the extreme, form a virtually quadrate sclerite. This is always separated from the posterior sclerotized region (even in *E. ruwenzorius* which has both areas very strongly pigmented there is a narrow break between these areas). A very few individuals have a slight thickening of the posterior margin of the proximal invagination. Similar though less extensive variation of this type does occur in other species of this species-group. We have found no correlation between colour and sclerite form.

Remarks. This species is distinct in the form of the proximal sclerite. Apart from this it is very closely related to *E. seminiger* and it is questionable whether the difference in proximal sclerite should be given such taxonomic significance. It is possible that the two sclerites are merely morphs of the same as we do not know what factors influence the shape of this sclerite. We have treated the two as distinct species as both have a name and the characters used permit separation. We remain very uncertain about their status.

Immature stages. Cephalic capsule of final instar larva as in Fig. 802. Hypostoma sclerotized, broad, turned through about 65°, hypostomal spur of moderate length and breadth; pleurostoma and epistoma of moderate length, confluent with sclerotized region of hypostoma; mandibles rather long, evenly narrowed, not curved; sclerotized oral bar small but discernible; labial sclerite normal; posterior hypostomal process small; stipital sclerite short and stout.

The long mandibles and extensive dorsal sclerotization of the hypostoma distinguish this species from its closest relatives.

Cocoon 13-15mm long, about 0.3 times as broad as long, with outer surface fibrous, dark brown with a pale equatorial band.

Host records. This species has been reared from *Catelebeda tamsi* Hering (Lep., Lasiocampidae), *Pachypasa capensis* L. and *P. denticula* Bethune & Baker (Lep., Lasiocampidae) and from two unidentified Lasiocampid larva.

Distribution. This species is widely distributed throughout Africa and is often very common. It has been taken in Madagascar but is quite rare on that island (Map 71).

Material examined. *Ophion bi-impessus* Brullé, holotype ♀, 'AFRIQUE AUSTRALE' (Delalande) (MNHN). *Henicospilus pallidiceps* Cameron, holotype ♀, SOUTH AFRICA: Transvaal, no further data (BMNH). *Stauropodoctonus alienus* Morley, holotype ♀, Patria Incognita, ?ASIA (?UGANDA), no further data (BMNH).

Non-type material. CENTRAL AFRICAN REPUBLIC: 2♂, Haute Sangha, xi.64, on cocoa (*Boulard*) (MNHN); 1♀, 1♂, La Maboke, 1968 (MNHN). CONGO: 1♀, Brazzaville, 1964 (*Villiers*) (MNHN); 1♂, Kungelungu Mt, v.67 (*Malaisse*) (TC). DAHOMEY: 1♀, Porto Novo, 1912 (*Waterlot*) (MNHN). ETHIOPIA: 1♀, Addis Ababa, 1959 (*Ward*) (BMNH); 1♀, 4♂, Asmara, ix.49, ex *Pachypasa denticula* (*de Lette*) (BMNH). IVORY COAST: 5♀, Bingerville, iii.62 (*Decelle*) (MRAC). MADAGASCAR: 1♀, Bekily, xii.33 (*Seyrig*) (MNHN); 4♂, Bekily, x-xii.36 (*Seyrig*) (MNHN); 1♀, Bekily, ii.37 (*Seyrig*) (MNHN); 1♀, Rogez, iii.37 (*Seyrig*) (MRAC). MALAWI: 1♀, Mlanje, xi.12 (*Neave*) (BMNH). NIGERIA: 1♀, Ife-Ife, viii.74 (*Medler*) (TC); 2♀, Ikerre, ix.74 (*Medler*) (TC). RHODESIA: 1♀, Marandellas, iii.72 (*Ginn*) (TC); 1♂, Salisbury, ii.45 (BMNH). RWANDA: 1♀, Kigali, xii.61 (*Kiss*) (MRAC). SIERRA LEONE: 1♀, Freetown, iv.56 (*Phipps*) (BMNH); 5♂, Freetown, 1967 (*Owen*) (TC); 1♀, 1♂, Freetown, 1969 (*Owen*) (TC); 1♂, Njala, xi.33 (*Hargreaves*) (BMNH). SOUTH AFRICA: 2♀, Grahamstown, xi.70 (*Gess*) (TC); 22♀, Grahamstown, xi.71-iv.72 (*Gess*) (TC); 1♂, Jonkershoek near Stellenbosch, ix.70 (*H. & M. Townes*) (TC); 1♀, St. Lucia Estuary, xi.70 (*H. & M. Townes*) (TC); 2♀, Transvaal, Jessievale, xi.49, ex *Pachypasa capensis* (*Grobler*) (BMNH); 1♂, no further locality, 1906 (*Smith*) (BMNH). TANZANIA: 1♂, W Usambara Mt, Lushoto, ii.62 (*Heinrich*) (TC). UGANDA: 1♀, Kampala, x.23 (*Hancock*) (BMNH); 1♀, Kampala, xi.52 (*de Worms*) (BMNH); 1♀, Kampala, 1964 (*Owen*) (TC); 1♀, Kampala, v-xii.65 (*Unamba*) (TC); 3♀, Kawanda, x.43 (*Taylor*) (BMNH); 2♀, Mengo, Entebbe, ix-xi.64 (*Lancaster*) (TC); 83♀, 33♂, Mengo, Zika Forest, viii-xi.64 (*Lancaster*) (TC); 3♀, Nakawuka, iv.63, ex Lasiocampid larva (*Brown*) (BMNH). ZAIRE: 1♀, Bas Congo, Kinkenge, iii.51 (*Bequaert*) (MRAC); 1♀, Bas Congo, Lemfu, 1931 (*van Eyen*) (MRAC); 1♀, 1♂, Eala, iv.35 (*Ghesquière*) (MRAC); 1♂, Eala, vii.47 (*Henrard*) (MRAC); 7♀, 8♂, Gandajika, vi-viii.47, 1♂ ex Lasiocampid larva (*Henrard*) (MRAC); 1♀, Gandajika, 1956 (*Franquien*) (MRAC); 1♀, Ituri, Nioka, vii.34 (*Leroy*) (MRAC); 1♀, Kivu, Bukavu, xii.51 (*Bomans*) (MRAC); 2♀, 3♂, Kivu, Kadjudju, 1932 (*Babault*) (MNHN); 2♀, Kivu, Rwanki, viii.47 (*Leroy*) (MRAC); 1♂, Lubumbashi, vii.42, ex *Catelebeda tamsi* (*Seydel*) (MRAC); 1♀, 1♂, Lubumbashi, vii.51 (*Seydel*) (MRAC); 1♀, Lualabourg, vii.47 (*Poll*) (MRAC); 1♀, Mahagi, Niarembe, ix.35 (*Scops*) (MRAC); 1♂, Manyema, v.18 (*Mayné*) (MRAC); 1♀, Mayidi, 1942 (*van Eyen*) (MRAC); 1♀, Minibo, Likimi, x.27 (*Collaert*) (MRAC); 1♂, Nyangwe, v.18 (*Mayné*) (MRAC); 1♀, Sankuru, xi.51 (*Maréchal*) (MRAC); 1♀, Tshuapa, x.55 (*Leleup*) (MRAC). ZAMBIA: 1♂, Upper Luangwa River, viii.10 (*Neave*) (BMNH).

ENICOSPILUS SEMINIGER (Szépligeti)

(Figs 404, 621, 622)

Ophion (*Enicospilus*) *trimaculatus* Tosquinet, 1896 : 395. Lectotype ♀, GHANA (MNHU), designated by Townes & Townes (1973 : 183) [examined]. [Junior primary homonym of *Ophion trimaculatus* Olivier, 1811.]

Henicospilus trimaculatus (Tosquinet) Dalla Torre, 1901 : 184.

Pterospilus (*Trispilus*) *trimaculatus* (Tosquinet) Kriechbaumer, 1901 : 156.

Henicospilus seminiger Szépligeti, 1906 : 135. Holotype ♂, 'EAST AFRICA' (TMB) [examined]. [Synonymized by Townes & Townes, 1973 : 183.]

Henicospilus tosqinetti Morley, 1912a : 43. [Replacement name for *trimaculatus* Tosquinet.]

Enicospilus seminiger (Szépligeti) Townes & Townes, 1973 : 183.

Description. Mandibles fairly evenly narrowed, twisted about 40°, subequally bidentate; outer mandibular surface with weak median longitudinal concavity bearing fine hairs. Labrum 0.2-0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile more or less flat, margin slightly in-turned; clypeus in anterior aspect 1.3-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.65 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 75-80%; occipital carina complete. Antennae

very long with 74-77 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.4-2.6 times as long as broad.

Pronotum mediodorsally short; transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically somewhat out-turned; notauli absent. Mesopleuron polished, puncto-striate to striate; epicnemial carina distant from pleural margin but reaching above level of lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, finely alutaceous. Metapleuron striate; submetapleural carina narrow, somewhat abruptly expanded anteriorly. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely trans-striate. Posterior transverse carina of mesosternum complete.

Forewing length 18-22mm; discosubmarginal cell as in Fig. 404; AI = 0.85-1.00; CI = 0.49-0.65; ICI = 0.55-0.80; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with many scattered spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 621, 622.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal separated from anterior margin of tergite by 3.0-5.0 times its own length.

Ovipositor apically elongately acute, upper valves apically depressed. Sternites 6-8 of ♂ with long erect hairs and dense fine decumbent short pubescence; gonosquama distally subacute; genital claspers similar to *E. biimpressus*.

Colour generally yellow-orange; gaster with tergites 3+ badius; flagellum infuscate especially proximally.

Variation. The ♀ from Freetown, Sierra Leone differs in colour. Its general body colour is more reddish-brown than normal.

Remarks. This species is very similar to *E. biimpressus* (see above).

Distribution. This species is widely distributed throughout equatorial Africa (Map 72).

Material examined. *Ophion (Enicospilus) trimaculatus* Tosquinet, lectotype ♀, GHANA ('TOGO': Bismarkburg) no further data (MNHU). *Henicospilus seminiger* Szépligeti, holotype ♂, 'EAST AFRICA: Amu', no further data (TMB).

Non-type material. SIERRA LEONE: 1♀, Freetown, v.68 (Owen) (TC). UGANDA: 2♀, 3♂, Mengo, Zika Forest, viii-xi.63 (Lancaster) (TC). ZAIRE: 1♀, Lubumbashi, vii.26 (Seydel) (MRAC).

ENICOSPILUS AMARUS sp. n.

(Figs 405, 624, 625, 765)

Description. Mandibles proximally narrowed, distal 0.4 parallel sided, twisted about 15°, terminally with upper tooth 2.0-3.0 times as long as the lower; outer mandibular surface with a weak median longitudinal concavity bearing short sparse pubescence. Labrum 0.2 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile very convex, margin impressed; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.85 times as broad as long, closely and finely punctate. Genae moderately constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its maximum diameter; FI = 65%; occipital carina complete. Antennae long and slender with 64-67 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.0-2.5 times as long as broad.

Pronotum mediodorsally short; transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli weak on anterior 0.2 of scutum. Mesopleuron polished, puncto-striate ventrally grading to finely striate; epicnemial carina curved to and almost reaching anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, smooth with isolated punctures. Metapleuron coarsely wrinkled; submetapleural carina very narrow, anteriorly abruptly expanded. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area centrally reticulate laterally grading into parallel wrinkling. Posterior transverse carina of mesosternum complete.

Forewing length 15-17mm; discosubmarginal cell as in Fig. 405; AI = 0.65-0.80; CI = 0.50-0.55; ICI = 0.45-0.55; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia cylindrical with isolated spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws very slightly symmetrical, pectinate as in Figs 624, 625.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long erect stout hairs; gonosquama distally fairly long, subacute; genital claspers as in Fig. 765.

Colour generally orange-brown to reddish-brown, genae and vertex slightly paler; inter-ocellar area concolorous with vertex; flagellum slightly infuscate.

Remarks. This species belongs to the *E. rubens* species-group. It is the only species which lacks a distal sclerite, has ICI greater than 0.45 and has AI less than 1.00.

Distribution. This species is widely distributed throughout equatorial Africa (Map 73).

Material examined. Holotype ♀, SIERRA LEONE: Kambui Hills, iv.68 (Owen) (TC). Paratypes. ANGOLA: 1♀, Quirimbo, v.34 (Jordan) (BMNH). CENTRAL AFRICAN REPUBLIC: 1♂, La Maboke, 1968 (MNH). MALAWI: 2♀, Mlanje, xii.12 (Neave) (BMNH). NIGERIA: 1♀, 1♂, Ife-Ife, W State, viii-ix.74 (Medler) (TC). SIERRA LEONE: 1♂, Freetown, vii.67 (Owen) (TC); 1♀, Kambui Hills, iv.68 (Owen)

(TC); 11♀, Njala, vii.26-vi.27 (*Hargreaves*) (BMNH); 1♀, no further locality, vi.31 (*Walls*) (BMNH). TANZANIA: 1♀, Uluguru Mts near Morogoro, i.62 (*Heinrich*) (TC). UGANDA: 2♀, Chagwe, Mbira Forest, vii.11 (*Neave*) (BMNH); 1♀, Kampala, xi.15 (*Gowdey*) (BMNH); 2♀, Kampala, v-xii.65 (*Unamba*) (TC); 2♀, Kawanda, ii.44 (*Taylor*) (BMNH); 1♀, 4♂, Mengo, Zika Forest, viii-xi.63 (*Lancaster*) (TC). ZAIRE: 1♀, Lubumbashi, 1930 (*Lamoral*) (MRAC); 1♀, Semliki, Mutwanga, 1932 (*Van Hoof*) (MRAC); 1♀, Uelé, Bungu (*De Greeff*) (MRAC); 1♀, Uelé, Dingila, vii.33 (*Brédo*) (MRAC).

ENICOSPILUS RUBENS (Tosquinet)

(Figs 237, 406, 626)

Ophion (Enicospilus) rubens Tosquinet, 1896 : 382. Holotype ♀, GHANA (MNHU) [examined].

Henicospilus rubens (Tosquinet) Dalla Torre, 1901 : 184.

Pterospilus (Dispilus) rubens (Tosquinet) Kriechbaumer, 1906 : 156.

Henicospilus rubens (Tosquinet); Schulz, 1906 : 278.

Henicospilus rubens (Tosquinet); Morley, 1912a : 40.

Henicospilus rubens (Tosquinet); Morley, 1926 : 479.

Enicospilus rubens (Tosquinet) Seyrig, 1935 : 69.

Enicospilus rubens (Tosquinet); Townes & Townes, 1973 : 183.

Description. Mandibles proximally narrowed, distal 0.6 parallel sided, twisted about 5°, upper tooth 2.0-3.0 times as long as the lower; outer mandibular surface with very weak median longitudinal concavity bearing scattered hairs. Labrum 0.2 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile angularly convex, margin impressed; clypeus in anterior aspect 1.8-1.9 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.90 times as broad as long, finely punctate. Genae moderately constricted behind the eyes; posterior ocellus close to eye; FI = 60%; occipital carina complete. Antennae long with 66-68 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.1-2.3 times as long as broad.

Pronotum mediadorsally short; transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent or vestigial. Mesopleuron polished, striate; epicnemial carina vestigial above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, punctate. Metapleuron striate; submetapleural carina evenly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 17-19mm; discosubmarginal cell as in Fig. 406; AI = 1.40-1.60; CI = 0.45-0.50; ICI = 0.30-0.35; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediadorsally 0.1 times as long as broad; hind tarsal claws slightly asymmetrical, pectinate as in Fig. 626.

Gaster long and slender; sternite 2 with posterior margin at or behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-3.5 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally reddish-brown with genae alone paler yellowish-brown.

Remarks. Very similar to *E. nubeculatus* except that it has a distinct central sclerite and lacks the diagonal mandibular furrow.

Distribution. This species is widely distributed throughout equatorial Africa; rare (Map 74).

Material examined. *Ophion (Enicospilus) rubens* Tosquinet, holotype ♀, GHANA ('TOGO : Bismarkburg') (MNHU).

Non-type material. SIERRA LEONE: 1♀, Freetown, ii-vi.67 (*Owen*) (TC). UGANDA: 1♀, Mengo, Zika Forest, viii.63 (*Lancaster*) (TC).

ENICOSPILUS CORRUGANS (Enderlein)

(Figs 238, 407, 627)

Henicospilus corrugans Enderlein, 1921 : 28. Holotype ♀, TANZANIA (IZPAN) [examined].

Enicospilus corrugans (Enderlein) Townes & Townes, 1973 : 176.

Description. Mandibles fairly evenly narrowed, twisted about 10°, upper tooth 1.6-1.8 times as long as the lower; outer mandibular surface with weak median longitudinal concavity bearing isolated hairs. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.8-1.9 times as broad as long, terminally truncate. Lower face subquadrate, 0.90 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae long with tips missing; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.8-2.0 times as long as broad.

Pronotum mediadorsally short; transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically very weakly out-turned; notauli absent. Mesopleuron polished, striate; epicnemial carina curved to and almost reaching anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, weakly punctate. Metapleuron striate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 407; AI = 1.20-1.30; CI = 0.50-0.60; ICI = 0.35-0.45; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.2-0.3 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws very slightly asymmetrical, pectinate as in Fig. 627.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-3.5 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally orange-yellow to orange-red with genae alone very slightly paler.

Remarks. This species belongs to the *E. rubens* species-group. It is quite closely related to *E. amarus* but distinct from this and all other species in the species-group in the more evenly narrowed, less unequally bidentate mandibles.

Distribution. This species is recorded in central equatorial Africa; lowland forests (Map 74).

Material examined. *Henicospilus corrugans* Enderlein, holotype ♀, TANZANIA: 'Nyembe', no further data (IZPAN).

Non-type material. CAMEROUN: 1♀, Batouri (3°45'N : 13°45'E), (BMNH). TANZANIA: 1♀, Lulanguru, xii.17 (*Carpenter*) (BMNH). UGANDA: 1♀, Tero Forest, vii.12 (*Gowdey*) (BMNH). ZAIRE: 1♀, Bambesa, xii.33 (*Brédo*) (MRAC); 1♀, Beni a Lesse, vii.11 (*Murtula*) (MRAC); 1♀, Kivu, Kadjudju, 1932 (*Babault*) (MNH).

ENICOSPILUS BATUS sp. n.

(Figs 241, 245, 403, 623)

Description. Mandibles proximally narrowed, distally parallel sided, twisted about 20°, upper tooth conspicuously longer than the lower; outer mandibular surface with a weak groove extending from proximal corner to between bases of teeth. Labrum 0.4 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin impressed; clypeus in anterior aspect 2.3 times as broad as long, terminally truncate. Lower face transverse, 1.10 times as broad as long, with close coarse punctures. Genae somewhat inflated behind the eyes; posterior ocellus separated from eye by 0.2 times its own maximum diameter; FI = 50%; occipital carina complete. Antennae long and stout with 63 flagellar segments; 1st flagellar segment 1.8 times as long as 2nd, 20th segment 1.3 times as long as broad.

Pronotum mediodorsally short, transverse furrow impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, coarsely and closely punctate; epicnemial carina curved to but not reaching anterior margin of pleuron. Scutellum in profile moderately convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.4 times as long as broad anteriorly, punctate. Metapleuron coarsely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area coarsely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 14mm; discosubmarginal cell as in Fig. 403, AI = 0.54; CI = 0.48; ICI = 0.40; SDI = 1.40; *cu-a* subopposite *Rs&M*. Hindwing with 8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia flattened with numerous spines on outer surface; hind coxa in profile 1.6 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 623.

Gaster fairly stout; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 3.5 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally pale orange-yellow, gaster ventrally infusate, head dorsally yellowish.

Remarks. This species belongs to the *E. capensis* species-group. It differs from other species in having strong spines on the fore tibia and tarsus.

Distribution. The holotype and only known specimen is from South Africa.

Material examined. Holotype ♀, SOUTH AFRICA: Grahamstown, ii.71 (*Gess*) (TC).

ENICOSPILUS OVIUS sp. n.

(Figs 248, 408, 630)

Description. Mandibles evenly narrowed, twisted about 10°, upper tooth about 1.5 times as long as the lower; outer mandibular surface more or less flat with fine hair. Labrum 0.3 times as long as broad; malar space 0.8 times as long as basal mandibular width. Clypeus in profile flat, margin in-turned; clypeus in anterior aspect 1.9 times as broad as long, terminally truncate. Lower face subquadrate, 0.95 times as broad as long, with sparse punctures. Genae slightly swollen behind the eyes; posterior ocellus separated from eye by 0.4 times its own maximum diameter; FI = 45%; occipital carina complete. Antennae exceptionally short and stout with 45 flagellar segments; 1st flagellar segment 1.4 times as long as 2nd, 20th segment 1.3 times as long as broad.

Pronotum mediodorsally rather short; transverse furrow deep. Mesoscutum in profile evenly rounded, apically not out-turned; notauli discernible on anterior 0.2 of scutum. Mesopleuron polished, puncto-striate; epicnemial carina curved to but not reaching anterior margin of pleuron. Scutellum in profile moderately convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.7 times as long as broad anteriorly, punctate. Metapleuron punctate; submetapleural carina narrow, parallel sided. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 13.5mm; discosubmarginal cell as in Fig. 408; AI = 0.81; CI = 0.28; ICI = 0.43; SDI = 1.40; *cu-a* subopposite *Rs&M*. Hindwing with 7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened without spines; hind coxa in profile 1.7 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 630.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 2.0 times its own length.

Ovipositor concealed.

♂ unknown.

Colour entirely reddish-brown.

Remarks. Only a single ♀ of this remarkable species is known. It is distinctive in its short antennae, very broad malar space and wide orbital-ocellar space. Its affinity with other species is not clear.

Distribution. This species is recorded from East Africa (Map 78).

Material examined. Holotype ♀, TANZANIA: Utipa Plateau, Mbesi Forest, xii.62 (Heinrich) (TC).

ENICOSPILUS SPECIES 1

(Figs 247, 409, 633)

Description. Mandibles proximally narrowed, distal 0.5 parallel sided, twisted about 10°, upper tooth 3.0 times as long as the lower; outer mandibular surface with weak groove extending from base to between teeth. Labrum 0.2 times as long as broad; malar space 0.8 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.8 times as broad as long, terminally truncate. Lower face transverse, 1.05 times as broad as long, finely punctate. Genae swollen behind the eyes; posterior ocellus separated from eye by 0.6 times its own maximum diameter; FI = 35%; occipital carina complete. Antennae moderately long with 58 flagellar segments; 1st flagellar segment 2.0 times as long as 2nd, 20th segment 1.2 times as long as broad.

Pronotum mediodorsally short; transverse furrow strong. Mesoscutum in profile evenly rounded, apically not out-turned; notauli strongly impressed on anterior 0.2. Mesopleuron matt, deeply striate; epicnemial carina curved to but not reaching pleural margin above level of lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.7 times as long as broad anteriorly, punctate. Metapleuron striate; submetapleural carina posteriorly absent, anteriorly abruptly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 14mm; discosubmarginal cell as in Fig. 409; AI = 0.50; CI = 0.63; ICI = 0.70; SDI = 1.40; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 3 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia flattened bearing small scattered spines; hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 633.

Gaster long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 2.0 times its own length.

Ovipositor moderately stout.

♂ unknown.

Colour generally pale orange-brown with terminal segments of gaster blackish; lower face, inter-ocellar area and genae yellowish-brown; flagellum orange, distally infusate.

Remarks. This species appears to be quite close to the *E. capensis* species complex but is distinctive in head shape. Head shape alone is not always a reliable character as macrocephalous individuals do occur in some species of Ichneumonidae. We have therefore refrained from naming this species until more material is available for study.

Distribution. This species is only recorded from Tanzania (Map 75).

Material examined. TANZANIA: 1♀, Uluguru Mts, no further data (TC).

ENICOSPILUS RETI sp. n.

(Figs 243, 410, 631)

Description. Mandibles evenly narrowed, twisted about 40°, upper tooth about 1.5 times as long as the lower; outer mandibular surface with a strong groove from base to between teeth, this groove bearing fine dense hair. Labrum 0.3 times as long as broad; malar space 1.00 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 2.0 times as broad as long, terminally truncate. Lower face transverse, 1.10 times as broad as long, finely punctate. Genae swollen behind the eyes; posterior ocellus separated from eye by 0.6 times its own maximum diameter; FI = 35%; occipital carina complete. Antennae long and slender with 65-67 flagellar segments; 1st flagellar segment 2.0-2.1 times as long as 2nd, 20th segment 1.5-1.6 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow deep. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli weak but discernible. Mesopleuron polished, punctate; epicnemial carina curved above level of lower corner of pronotum, upper end distant from anterior margin of pleuron. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, punctate. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 12-14mm; discosubmarginal cell as in Fig. 410; AI = 0.35-0.65; CI = 0.25-0.35; ICI = 0.65-0.75; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.3 times its own length. Hindwing with 6 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 631.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 2.5 times its own length.

♀ unknown. Sternites 6-8 of ♂ with fine decumbent pubescence; gonosquama distally evenly rounded.

Colour generally yellowish-orange; terminal segments of gaster blackish; lower face and inter-ocellar area yellowish; flagellum orange-yellow.

Remarks. This species belongs to the *E. communis* species-group. It differs from other species in having the hind trochantelli short, the inter-ocellar area not black, the face transverse and the large value of the orbital-ocellar distance.

Distribution. This species is recorded from South Africa (Map 75).

Material examined. Holotype ♂, SOUTH AFRICA: Port St. John, i.24 (Turner) (BMNH); paratypes 1♂, Charlestown, 2,400m, ii.69 (Thomas) (ZC); 1♂, Drakensberg, xii.26 (Turner) (BMNH).

ENICOSPILUS VONTALIS sp. n.

(Figs 244, 411, 632, 648, 760)

Description. Mandibles evenly narrowed, twisted about 15°, upper tooth 1.2 times as long as the lower, strongly dorso-ventrally flattened; outer mandibular surface flat with long fine scattered hair. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile nasute, margin blunt; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face subquadrate, 0.90-0.95 times as broad as long, deeply punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 62-64 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.3-2.4 times as long as broad.

Pronotum mediodorsally moderately long, anterior margin slightly raised; transverse furrow shallow. Mesoscutum in profile evenly rounded, apically not out-turned; notauli strong on margin of scutum. Mesopleuron highly polished, punctate ventrally grading into puncto-striate; epicnemial carina curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, more or less smooth. Metapleuron puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 15-17mm; discosubmarginal cell as in Fig. 411; AI = 0.70-0.75; CI = 0.50-0.55; ICI = 0.45-0.50; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 8 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 632, 648.

Gaster elongate; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, oval, separated from anterior margin of tergite by about 5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long stout erect hairs and short fine decumbent pubescence; gonosquama distally evenly rounded; genitalia as in Fig. 760.

Colour generally orange-red; inter-ocellar area black or infuscate; lower face whitish.

Remarks. This species is immediately recognizable on account of its nasute clypeal profile. The ♀ is unusual in having the central pectinae of the hind tarsal claw very long, longer than either the distal pectinae or the distal tooth. The affinities of this species are not clear but it may possibly be related to the *E. betanimenus* species-group. It is similar to the Asian species *E. nasutus* Chiu.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Bekily, xii.33 (*Seyrig*) (MNHN); paratypes 2♀, Bekily, iv-x.32 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, xii.33 (*Seyrig*) (BMNH); 16♀, 3♂, Bekily, 1933 (*Seyrig*) (MNHN); 1♀, 2♂, Bekily, v-x.36 (*Seyrig*) (MNHN).

ENICOSPILUS ANAXEUS sp. n.

(Figs 249, 412)

Description. Mandibles evenly narrowed, twisted about 70°, upper tooth 1.5 times as long as the lower; outer mandibular surface flat, with long fine scattered hair. Labrum 0.3 times as long as broad; malar space 0.4 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70 times as broad as long, virtually impunctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 63%; occipital carina complete. Antennae long and slender with distal flagellar segments missing; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 3.5-3.6 times as long as broad.

Pronotum mediodorsally short; transverse furrow impressed. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli absent. Mesopleuron subpolished, puncto-striate grading ventrally into striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.2 of its length; scutellum dorsally 1.8 times as long as broad anteriorly, finely coriaceous. Metapleuron striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile elongately and evenly rounded, dorsally slightly curved; anterior transcarina vestigial; anterior area striate, spiracular area smooth, posterior area smooth. Posterior transverse carina of mesosternum complete.

Forewing length 16mm; discosubmarginal cell as in Fig. 412; AI = 1.10; CI = 0.45; ICI = 0.43; SDI = 1.40; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 6 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia cylindrical without spines; hind coxa in profile 2.4 times as long as deep; hind trochantellus mediodorsally 1.2 times as long as broad; hind tarsal claws symmetrical.

Gaster very long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 6.0 times its own length.

Ovipositor short and stout.

♂ unknown.

Colour generally orange-yellow except inter-ocellar area which is black.

Remarks. This species is extremely closely related to *E. arduus* from which it differs in having a larger value of AI, the inter-ocellar area black and the alar sclerites of a rather different shape. Both species are remarkable in having a very long evenly curved propodeum which has the posterior area virtually devoid of sculpture and vestigial scutellar carinae. The rather stout ovipositor and long trochantelli would seem to ally these species with the *E. communis* species-group although the head is much more constricted posteriorly.

Distribution. This species is recorded from the Ruwenzori Mountains in Uganda (Map 77).

Material examined. Holotype ♀, UGANDA: Ruwenzori Range, Semiliki Forest, 950m, viii-ix.52 (*Fletcher*) (BMNH); paratype 1♀, Ruwenzori Range, viii.52 (*Fletcher*) (BMNH).

ENICOSPILUS BEBELUS sp. n.

(Figs 414, 634, 635)

Description. Mandibles evenly narrowed, twisted about 25-40°, upper tooth subequal to the lower, strongly flattened; outer mandibular surface flat with fine scattered hair. Labrum 0.1-0.2 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat or weakly convex, margin in-turned slightly; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.80 times as broad as long, impunctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae long and slender with 60-63 flagellar segments; 1st flagellar segment 1.8-2.1 times as long as 2nd, 20th segment 2.5-3.0 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow weakly impressed. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli absent. Mesopleuron polished, finely striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile very weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, virtually smooth. Metapleuron alutaceous; submetapleural carina very narrow, slightly expanded anteriorly. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area with transverse or irregular wrinkles. Posterior transverse carina of mesosternum complete.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 414; AI = 0.90-1.70; CI = 0.30-0.46; ICI = 0.20-0.40; SDI = 1.20-1.30; *cu-a* virtually opposite *Rs&M*. Hindwing with 5-6 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.7-2.0 times as long as deep; hind trochantellus mediodorsally 0.1-0.6 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 634, 635.

Gaster long and slender; sternite 2 with posterior margin about opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically moderately long. Sternites 6-8 of ♂ with numerous long erect hairs; gonosquama distally evenly rounded.

Colour generally orange-brown; lower face orange-red, terminal segments of gaster slightly infusate; inter-ocellar area black; flagellum brownish.

Variation. This species exhibits a rather large range of variation in the length of the hind trochantellus. Some specimens have the distal sclerite separated from the proximal sclerite and are fairly evenly crescentic whilst in other individuals the two sclerites are confluent and the distal sclerite is distally rather abruptly angled to approach *Rs+2r* at almost 90°.

Remarks. This species belongs to the *E. dolosus* species-group. It is distinctive in having the hind tarsal claws strongly angled through about 110° and with very short pectinae.

Distribution. This species is recorded from equatorial Africa (Map 76).

Material examined. Holotype ♀, UGANDA: Mengo, Zika Forest, viii.63 (*Lancaster*) (TC). Paratypes. CENTRAL AFRICAN REPUBLIC: 1♀, La Maboque, ix.70 (*Matile*) (MNH). IVORY COAST: 1♂, Daloa, Zephreghé, vii.61 (*Decelle*) (MRAC). NIGERIA: 1♂, Ife-Ife, v.73 (*Medler*) (TC); 1♀, Ilora, W State, viii.74 (*Medler*) (TC). SIERRA LEONE: 1♀, 1♂, Freetown, ii-vi.67 (*Owen*) (TC). UGANDA: 3♀, 1♂, Mengo, Zika Forest, viii-xi.63 (*Lancaster*) (TC). ZAIRE: 1♂, Gandajika, v.59 (*Decelle*) (MRAC); 1♂, Yangambi, 1940 (*INEAC*) (MRAC).

ENICOSPILUS CEDNUS sp. n.

(Figs 413, 636, 637, 638)

Description. Mandibles evenly narrowed, twisted about 70°, upper tooth about 1.2 times as long as the lower, strongly flattened; outer mandibular surface more or less flat with long sparse hairs. Labrum 0.2 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 50%; occipital carina complete. Antennae long and slender with 51-52 flagellar segments; 1st flagellar segment 2.0-2.2 times as long as 2nd, 20th segment 2.8-3.1 times as long as broad.

Pronotum mediodorsally short, transverse furrow impressed moderately. Mesoscutum in profile abruptly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, finely striate; epicnemial carina curved to but not reaching anterior pleural margin above lower corner of pronotum. Scutellum in profile strongly convex, laterally carinate

for 0.9 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, smooth, posteriorly wrinkled. Metapleuron aluto-striate; submetapleural carina very narrow, anteriorly somewhat expanded. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area aluto-striate. Posterior transverse carina of mesosternum centrally weak.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 413; AI = 1.10-1.25; CI = 0.25-0.35; ICI = 0.30-0.40; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 5-6 hamuli on R_1 ; $1A$ proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws asymmetrical, pectinate as in Figs 636, 637, 638.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by about 5.0 times its own length.

Ovipositor somewhat angularly curved, apically elongately acute. Sternites 6-8 of ♂ with long fine pubescence; gonosquama distally subtruncate.

Colour generally pale orange-brown; lower face and genae yellowish-brown; inter-ocellar area black; flagellum orange.

Remarks. This species belongs to the *E. dolosus* species-group but the unusual alar sclerites distinguish it from other species. It appears to be most closely related to *E. sliochus* from which it differs in having a central sclerite and a more ellipsoidal proximal sclerite.

Distribution. This species is recorded from Uganda (Map 77).

Material examined. Holotype ♀, UGANDA: Mengo, Zika Forest, viii.63 (*Lancaster*) (TC); paratypes 1♀, Kampala, vi.16 (*Gowdey*) (BMNH); 1♀, Kampala, i.18 (*Gowdey*) (BMNH); 1♂, Kampala, vii.64 (*Owen*) (TC).

ENICOSPILUS DAULUS sp. n.

(Figs 415, 639, 640)

Description. Mandibles short, strongly narrowed, twisted about 70°, teeth exceptionally long and slender, the upper tooth 1.2 times the lower, flattened; outer mandibular surface with a weak median longitudinal groove. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.3 times as broad as long, terminally truncate. Lower face elongate, 0.88 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 50%; occipital carina mediodorsally interrupted. Antennae slender with terminal flagellar segments missing; 1st flagellar segment 2.1 times as long as 2nd.

Pronotum mediodorsally moderately long with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically strongly out-turned; notauli weak. Mesopleuron polished, striate; epicnemial carina vestigial above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.6 of its length; scutellum dorsally 1.4 times as long as broad anteriorly, with isolated punctures. Metapleuron virtually without sculpture; submetapleural carina parallel sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina weak but complete; anterior area exceptionally short, striate, spiracular area smooth, posterior area finely transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 15mm; discosubmarginal cell as in Fig. 415; AI = 2.40; CI = 0.46; ICI = 0.21; SDI = 1.40; *cu-a* opposite *Rs&M*. Hindwing with 7 hamuli on R_1 ; $1A$ proximally straight.

Foreleg with tibia subcylindrical without spines; hind coxa in profile 2.1 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws asymmetrical, pectinate as in Figs 639, 640.

Gaster long and slender; sternite 2 with posterior margin just behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally yellow-orange; mesothorax dorsally and ventrally badius; lower face centrally blackish, inter-ocellar area black; flagellum yellow.

Remarks. This species belongs to the *E. dolosus* species-group. It is distinctive in having a short mandible with long sharp teeth, a linear central sclerite and the anterior propodeal area short.

Distribution. This species is recorded from Uganda.

Material examined. Holotype ♀, UGANDA: 'Beunga', v.26 (BMNH).

ENICOSPILUS FURIUS Seyrig

(Figs 416, 641, 642)

Enicospilus furius Seyrig, 1935 : 74. Lectotype ♀, KENYA (MNHN), designated by Townes & Townes (1973 : 177) [examined].

Enicospilus furius Seyrig; Townes & Townes, 1973 : 177.

Description. Mandibles evenly narrowed, twisted about 20-30°, upper tooth about 1.2 times as long as the lower, not at all flattened; outer mandibular surface virtually flat with fine scattered hairs. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.4-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, finely punctate. Genae weakly constricted behind the eyes; posterior ocellus close to eye; FI = 60%; occipital carina complete. Antennae long and slender with 57-67 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd,

20th segment 3.3-3.7 times as long as broad.

Pronotum mediodorsally rather long, anterior margin flat; transverse furrow weak. Mesoscutum in profile abruptly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, virtually impunctate; epicnemial carina curved forward but usually vestigial above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, virtually impunctate. Metapleuron finely alutaceous to smooth; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area coriaceous, spiracular area smooth, posterior area finely and irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 416; AI = 0.40-0.85; CI = 0.35-0.45; ICI = 0.40-0.55; SDI = 1.30-1.50; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia cylindrical virtually without spines; hind coxa in profile 2.0-2.1 times as long as deep; hind trochantellus mediodorsally 0.5-0.6 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 641, 642.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor slightly shorter and stouter than is normal for species of this genus. Sternites 6-8 of ♂ with dense long stout erect pubescence; gonosquama distally evenly rounded.

Colour generally orange-yellow; face and genae paler; inter-ocellar area black; flagellum orange-brown.

Variation. One group of specimens from the central part of Africa (Eastern Zaire, Uganda, Burundi) differ in being entirely badious with posterior orbits yellow and inter-ocellar area black. Apart from this, no difference could be discerned between these specimens and the normal form.

Remarks. This species belongs to the *E. communis* species-group. It is rather similar to *E. antefurcalis* from which it differs in having the inter-ocellar area black and the central sclerite of a different shape.

Distribution. This species is recorded from equatorial Africa, apparently more common in the east (Map 79).

Material examined. *Enicospilus furius* Seyrig, lectotype ♀, KENYA: Nairobi, vi.32 (*Seyrig*) (MNHN); paralectotypes 1♀, same data as lectotype; 3♀, Nairobi, viii.04 (*Alluaud*) (MNHN).

Non-type material. BURUNDI: 2♀, Bururi, iii.53 (*Basilewsky*) (MRAC). CAMEROUN: 1♀, Mt Cameroon, Oneyanga, i.32 (*Steele*) (BMNH). KENYA: 1♀, Kakamega, xii.70 (*Stubbs*) (BMNH); 1♀, Karen, Nairobi, x.72 (*Cunningham & van Someren*) (TC); 1♀, Krarura Forest, Nairobi, vii.49 (*Riley*) (BMNH); 1♀, Nairobi, xii.70 (*Stubbs*) (BMNH). NIGERIA: 1♂, Obudu, iv.73 (*Medler*) (TC). TANZANIA: 6♀, 5♂, Mt Meru, vi-vii.62 (*Heinrich*) (TC). UGANDA: 1♂, Kampala, xii.64 (*Owen*) (TC); 1♀, Mabira Forest, vii.11 (*Neave*) (BMNH); 1♂, Mungongo, ii.36 (*Hancock*) (BMNH). ZAIRE: 1♀, Kivu, Mt Biega, vi.49 (*Marlier*) (MRAC); 1♂, Lomami, Kishindi, ix.31 (*Quarré*) (MRAC).

ENICOSPILUS SPECIES 2

(Figs 250, 253, 256, 420)

Description. Mandibles evenly narrowed, twisted about 10°, terminally subequally bidentate; outer mandibular surface with weak median longitudinal groove, finely pubescent. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus close to eye; FI = 60%; occipital carina complete. Antennae long and slender with 67-68 flagellar segments; 1st flagellar segment 1.4-1.6 times as long as 2nd, 20th segment 2.0-2.3 times as long as broad.

Pronotum mediodorsally moderately long; transverse furrow weak. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, impunctate, finely striate; epicnemial carina strongly curved to pleural margin above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, impunctate. Metapleuron almost without sculpture; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-13mm; discosubmarginal cell as in Fig. 420; AI = 0.50-0.65; CI = 0.40-0.60; ICI = 0.40-0.50; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with fine scattered spines; hind coxa in profile 2.1-2.3 times as long as deep; hind trochantellus mediodorsally 0.9-1.1 times as long as broad; hind tarsal claws symmetrical, similar to those of *E. diabolicus*.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia oval, small, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor moderately elongately acute. Sternites 6-8 of ♂ with moderately long, dense hair; gonosquama distally evenly rounded.

Colour generally reddish-brown with alitrunk almost entirely badious; lower face and genae yellowish; inter-ocellar area black; flagellum reddish-orange.

Remarks. This species is very similar to *E. diabolicus* with which it may well prove to be synonymous. It differs from *E. diabolicus* in having a strongly sclerotized central sclerite and having the distal and proximal sclerites confluent.

Distribution. This species is recorded from equatorial Africa (Map 78).

Material examined. GABON: 1♀, Libreville, 1900 (*Chalot*) (MNHN). TANZANIA: 1♀, Mdando Forest, 48km S of Njombe, x.62 (*Heinrich*) (TC); 2♂, Utipa Plateau, 2500m, Mbesi Forest, xii.62 (*Heinrich*) (TC).

ENICOSPILUS COMMUNIS (Szépligeti)
(Figs 251, 252, 255, 417, 643, 644, 766, 786)

- Henicospilus communis* Szépligeti, 1906 : 137. Lectotype ♀, TANZANIA (TMB), designated by Townes & Townes (1973 : 176) [examined].
- Henicospilus communis* Szépligeti; Szépligeti, 1908 : 46.
- Enicospilus communis* (Szépligeti) Roman, 1924 : 8.
- Henicospilus fulvescens* Masi, 1939 : 74. Holotype ♀, ETHIOPIA (MCSN) [examined]. Syn. n.
- Amesospilus communis* (Szépligeti) Seyrig, 1935 : 56, in part.
- Amesospilus laevis* Seyrig, 1935 : 59. Holotype ♀, KENYA (MNHN) [examined]. Syn. n.
- Amesospilus rupeus* Seyrig, 1935 : 64. Holotype ♂ (not ♀), KENYA (MNHN) [examined]. Syn. n.
- **Amesospilus communis* (Szépligeti); Paulian & Viette, 1955 : 286.
- **Enicospilus? communis* (Szépligeti); Coaker, 1959 : 501.
- **Enicospilus communis* (Szépligeti); Risbec, 1960 : 639.
- **Amesospilus communis* (Szépligeti); Brenière, 1965 : 347.
- Enicospilus communis* (Szépligeti); Townes & Townes, 1973 : 176.
- Enicospilus fulvescens* (Masi) Townes & Townes, 1973 : 177.
- Enicospilus laevis* (Seyrig) Townes & Townes, 1973 : 178.

The four references prefixed with an asterisk allude to the Ichneumonid as a parasite of economically important Lepidoptera larvae. We doubt their accuracy as there was at that period a great deal of confusion between *E. communis* and *E. dolosus*. These records could refer to either species.

Description. Mandibles evenly narrowed, twisted about 15°, terminally with upper tooth from 1.5-3.0 times as long as the lower; outer mandibular surface flat or with a weak median longitudinal groove. Labrum 0.2-0.3 times as long as broad; malar space 0.3-0.6 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.85 times as broad as long, finely punctate. Genae moderately constricted behind the eyes; posterior ocellus very close to eyes; FI = 60-65%; occipital carina complete. Antennae long and slender with 60-64 flagellar segments; 1st flagellar segment 1.5-1.8 times as long as 2nd, 20th segment 3.0-3.2 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow rather weakly impressed. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, upper part punctate, lower part punctostriate; epicnemial carina strongly curved to but not reaching anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, punctate. Metapleuron closely and shallowly punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete, occasionally weak; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 417; AI = 0.75-0.90; CI = 0.40-0.50; ICI = 0.45-0.65; SDI = 1.30-1.50; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 6-8 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia subcylindrical with a few scattered spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.3-1.0 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 643, 644.

Gaster long and slender; sternite 2 with posterior margin at or slightly behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor a little stouter than is normal for species of this genus. Sternites 6-8 of ♂ with numerous dense long hairs; gonosquama distally evenly rounded; genital claspers as in Fig. 766.

Colour generally orange-brown; lower face and genae yellowish-brown; inter-ocellar area black.

Variation. This is a very variable species and may represent a complex of closely inter-related species. The most notable areas of variation are in the relative sizes of the mandibular teeth, length of the malar space, the relative length of the hind trochantellus and the presence or absence of the distal and central sclerites. We were unable to find any correlation between these variations.

Remarks. This species is closely related to a number of others in the *E. communis* species-group. The pleural thoracic sculpture, shape of mandibles, shape of claws and colour are the main characters for separating *E. communis* from *E. apicalis*, *E. drakensbergi*, *E. diabolicus*, *E. justus* and *E. braunsii*.

Host records. This species is recorded as a parasite of *Anomis auragoides* Guenée* (Lep., Noctuidae) by Paulian and Viette (1955), *Heliiothis armigera* Hubner* (Lep., Noctuidae) by Coaker (1959) and *Anomis flava* F.* (Lep. Noctuidae) by Brenière (1965).

Coaker (1959) found that *E. ?communis* was a common parasite of *H. armigera* in Uganda. Up to a maximum of 14% of field collected larvae were found to be parasitized by this Ichneumonid in September, with the parasite occurring less commonly in larvae collected during August and October to December. Although *Heliiothis* larvae were also common from April to July, very few specimens (less than 2%) of *Enicospilus* were reared from larvae collected during this period.

Distribution. This species is widely distributed throughout Africa predominantly in east Africa from Kenya to Tanzania (Map 47).

Material examined. *Henicospilus communis* Szépligeti, lectotype ♀, TANZANIA: Kilimandjaro, x.04 (TMB). *Henicospilus fulvescens* Masi, holotype ♀, ETHIOPIA: [Sidamo-] Borana, Moyale (MCSN). *Amesospilus laevis* Seyrig, holotype ♀, KENYA: Kinangop, ii.11 (*Alluaud & Jeannel*) (MNHN). *Amesospilus rupeus* Seyrig, holotype ♂, KENYA: Mt Elgon, vi.32 (*Seyrig*) (MNHN).

Non-type material. KENYA: 1♂, Aberdare Mts, Katamayo, x.34 (*Edwards*) (BMNH); 1♂, Nairobi, vi.37 (*van Someren*) (BMNH); 1♀, Nanyuki, v.48 (*van Someren*) (BMNH). RHODESIA: 1♀, Leopard Rock, Vumba Mt, iii.57 (*Krauss*) (BMNH); 1♂, Marandellas, iii.72 (*Ginn*) (TC). SOUTH AFRICA: 1♂, Boshof, xi.26 (*Nel*) (BMNH). SOUTH WEST AFRICA: 1♀, Gobiswater Farm, 18km N of Grootfontein, iv.72 (*Day*) (BMNH). TANZANIA: 1♂, Amani, 1200m, iv.62 (*Heinrich*) (TC); 1♂, Lushoto, W Usambara Mts, ii.62 (*Heinrich*) (TC); 1♀, Matengo Plateau, Ugano, 1936 (*Zimmer*) (BMNH); 2♂, Mt Meru, vii.62 (*Heinrich*) (TC); 1♀, Old Shinyanga, vi.35 (*Burt*) (BMNH); 1♂, no further locality, 1935 (*Cooper*) (BMNH). UGANDA: 1♂, Bulambuli, viii.25 (*Hancock*) (BMNH); 1♀, Bulambuli, Mt Elgon, 1935 (*Ford*) (BMNH); 1♀, Chagwe, Mabira Forest, vii.11 (*Neave*) (BMNH). ZAIRE: 1♀, Bumba, Lisala, vii.38 (*Ghesquière*) (IRSNB); 1♂, Lubumbashi, ii.35 (*Seydel*) (BMNH); 1♀, Lubumbashi, ii.35 (*Seydel*) (MRAC); 1♀, Lubumbashi, iv.67 (*Bourgeois*) (TC).

ENICOSPILUS FETUS sp. n.

(Figs 419, 645, 646, 761)

Description. Mandibles evenly narrowed, twisted about 80°, upper tooth slightly the longer but distinctly the broader; outer mandibular surface flat with fine isolated hairs. Labrum 0.2 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile almost flat, margin slightly in-turned; clypeus in anterior aspect 1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 75-80%; occipital carina complete. Antennae long and slender with 71-73 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 2.4-2.5 times as long as broad.

Pronotum mediodorsally short, transverse furrow very strong. Mesoscutum in profile abruptly rounded, apically out-turned; notauli weak on anterior 0.2 of scutum. Mesopleuron polished, upper part punctate, lower part obsolete punctate with fine reticulation between punctures; epicnemial carina curved above level of lower corner of pronotum, not reaching anterior margin of pleuron. Scutellum in profile more or less flat, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, alutaceous. Metapleuron punctate; submetapleural carina broad, evenly expanded anteriorly. Propodeum in profile evenly rounded, dorsally deplanate; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly wrinkled, the wrinkles becoming regularly concentric posteriorly. Posterior transverse carina of mesosternum complete.

Forewing length 18-20mm; discosubmarginal cell as in Fig. 419; AI = 1.15-1.40; CI = 0.60-0.80; ICI = 0.55-0.65; SDI = 1.60-1.70; *cu-a* proximal to *Rs&M* by 0.3 times its own length. Hindwing with 8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 645, 646.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hair and fine decumbent pubescence; gonosquama distally evenly rounded.

Colour generally orange-yellow; genae and inter-ocellar area paler yellowish; flagellum brownish-red.

Remarks. This species is distinctive on account of the alar sclerites. It may be related to species in the *E. lanafius* complex.

Distribution. This species is recorded from Madagascar.

Material examined. Holotype ♀, MADAGASCAR: Mandraka, xii.44 (*Seyrig*) (MRAC); paratypes 1♀, Ambatofitorahana (*Inst. Res. Mad.*) (MRAC); 1♂, Rogez, ii.32 (*Seyrig*) (MNHN); 1♂, Tsinjoarivo, ii.32 (*Seyrig*) (MNHN).

ENICOSPILUS GLARUS sp.n.

(Figs 257, 418, 649, 653)

Description. Mandibles evenly narrowed, twisted about 45°, lower margin of mandible angularly projecting; upper tooth 1.2 times as long as the lower, strongly flattened; outer mandibular surface flat with a central band of hairs. Labrum 0.2 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile almost flat, margin straight; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, obsolete punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70%; occipital carina complete. Antennae long and slender with 64-66 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 2.7-3.0 times as long as broad.

Pronotum mediodorsally moderately long with moderately impressed transverse furrow. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli vestigial. Mesopleuron polished, puncto-striate ventrally grading to striate; epicnemial carina reaching to level of lower corner of pronotum, distant from pleural margin. Scutellum in profile slightly convex, laterally carinate to posterior margin; scutellum dorsally 1.4-1.6 times as long as broad anteriorly, longitudinally wrinkled. Metapleuron finely striate; submetapleural carina narrow with conspicuous fringe of hair. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina strong; anterior area striate, spiracular area smooth, posterior area irregularly transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 17-19mm; discosubmarginal cell as in Fig. 418; AI = 1.00-1.20; CI = 0.70-0.75; ICI = 0.45-0.55; SDI = 1.60-1.70; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 1.8-1.9 times as long as deep; distal margin of mid and hind trochanters exceptional in being produced into an acute tooth; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws asymmetrical, the inner more abruptly curved than the outer, pectinate as in Figs 649, 653.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally pale orange-brown, terminal segments of gaster and often mesoscutum slightly infusate.

Remarks. This species is unique in the genus *Enicospilus* in having peculiarly angulate mandibles and spinose trochanters. In these characters it resembles *Stauropoctonus* but in all other features it is typical *Enicospilus*. This is another striking example of morphological convergence within the Ophioninae; such convergence often obscures true phylogenetic relationships. The affinities of *E. glarus* with other species of *Enicospilus* are unknown.

Distribution. This species is recorded from west Africa (Map 80).

Material examined. Holotype ♀, SIERRA LEONE: Freetown, ii.vi.67 (Owen) (TC); paratypes 1♀, same data as holotype; 1♀, Freetown, ix.67 (Owen) (TC); 1♀, Freetown, v.68 (Owen) (TC); 1♀, Freetown, iv.69 (Owen) (TC).

ENICOSPILUS HOPLUS sp.n.

(Figs 259, 421, 422, 647, 650)

Description. Mandibles evenly narrowed, twisted about 40°, upper tooth about 1.3-1.5 times as long as the lower; outer mandibular surface flat with scattered hairs. Labrum 0.2 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin slightly impressed; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.64-0.75 times as broad as long, with isolated punctures, areas between punctures alutaceous. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65%; occipital carina complete. Antennae long and slender with 60-63 flagellar segments; 1st flagellar segment 1.6-1.9 times as long as 2nd, 20th segment 2.6-2.8 times as long as broad.

Pronotum mediodorsally short, transverse furrow very deep. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron weakly polished, alutaceous; epicnemial carina curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate weakly to posterior margin; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, alutaceous. Metapleuron alutaceous; submetapleural carina broad, evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area finely punctate, spiracular area alutaceous, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-15mm; discosubmarginal cell as in Figs 421, 422; AI = 0.90-1.20; CI = 0.40-0.60; ICI = 0.40-0.50; SDI = 1.30-1.40; *cu-a* subopposite *Rs&M*. Hindwing with 7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia cylindrical with isolated spines; hind coxa in profile 1.9-2.0 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws asymmetrical, the inner claw more strongly curved than the outer, pectinate as in Figs 647, 650.

Gaster long and slender; sternite 2 with posterior margin at or slightly before spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 4.0-4.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous elongate erect hairs; gonosquama distally subtruncate.

Colour generally dark red-brown, head paler yellowish, margins of thoracic sclerites paler yellow; lower face yellowish, centrally infusate; genae and vertex including inter-ocellar area yellowish; flagellum reddish-orange; 1st tergite of gaster blackish.

Variation. There is considerable variation in the size of the central sclerite. At one extreme it is very large, closer to *Rs+2r* than its own minimum diameter whilst at the other extreme it is more strongly sclerotized, small and separated from *Rs+2r* by more than its own maximum diameter. Intermediates exist so we have included all as a single species. In some South African specimens the distal sclerite is absent, but it is present in others. All East African specimens seem to have the distal sclerite present.

Remarks. This species resembles *E. expeditus* from which it may be separated by having the hind claws more markedly asymmetrical, the mesopleuron more polished, the submetapleural carina much broader and the central sclerite in a different position. The affinities of this species are not clear.

Distribution. This species is recorded from eastern Africa, from South Africa to Tanzania (Map 80).

Material examined. Holotype ♀, SOUTH AFRICA: Pietermaritzburg, xi.70 (*H. & M. Townes*) (TC); paratypes 2♀, Karkloof near Howick, x.70 (*H. & M. Townes*) (TC); 2♀, Magoebaskloof, i.71 (*H. & M. Townes*) (TC); 1♀, 2♂, Pietermaritzburg, xi.70 (*H. & M. Townes*) (TC). TANZANIA: 1♂, Mdando Forest, 8km S of Njombe, x.62 (*Heinrich*) (TC); 1♀, Rungwe Mts, xi.62 (*Heinrich*) (TC); 1♀, 2♂, W Usambara Mts, iii.62 (*Heinrich*) (TC).

ENICOSPILUS EXPEDITUS (Tosquinet)

(Figs 261, 423, 424, 425, 654, 655, 767)

Ophion (Enicospilus) expeditus Tosquinet, 1896. Holotype ♀ TOGO (MNHU) [examined].

Henicospilus expeditus (Tosquinet) Dalla Torre, 1901 : 181.

Pterospilus (Dispilus) expeditus (Tosquinet) Kriechbaumer, 1901 : 156.

Henicospilus expeditus (Tosquinet); Schulz, 1906 : 278.

Enicospilus expeditus (Tosquinet) Townes & Townes, 1973 : 177.

Description. Mandibles evenly narrowed, twisted about 60°, upper tooth 1.3 times as long as the lower, flattened; outer mandibular surface smooth with fine sparse hair. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin almost flat; clypeus in anterior aspect 1.5-1.6 times as broad

as long, terminally truncate. Lower face elongate, 0.65-0.70 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65%; occipital carina complete. Antennae long and slender with 58-60 flagellar segments; 1st flagellar segment 1.6-1.7 times as long as 2nd, 20th segment 2.8-3.1 times as long as broad.

Pronotum mediodorsally short, transverse furrow moderately impressed. Mesoscutum in profile abruptly rounded, apically somewhat out-turned; notauli absent or vestigial. Mesopleuron matt, alutaceous, ventrally with traces of striae; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.7 of its length; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, alutaceous. Metapleuron aluto-striate; submetapleural carina narrow, almost parallel sided. Propodeum in profile declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area alutaceous with fine wrinkling and few punctures. Posterior transverse carina of mesosternum complete.

Forewing length 13-15mm; discosubmarginal cell as in Figs 423-5; AI = 0.50-1.30; CI = 0.50-0.65; ICI = 0.45-0.55; SDI = 1.10-1.30; *cu-a* opposite *Rs&M*. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1-0.3 times as long as broad; hind tarsal claws slightly asymmetrical, the inner claw more abruptly turned, pectinate as in Figs 654, 655.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-4.0 times its own length. Sternites 6-8 of ♂ with long erect hairs in a narrow central band; gonosquama distally subtruncate; genital claspers as in Fig. 767.

Colour of ♀ generally dark reddish-brown, except legs and genae slightly paler; ♂ is apparently paler orange.

Variation. There are two sympatric variants which may well prove to be different species. The typical variant has the proximal angle of the proximal sclerite about 60°, the distal sclerite fairly strongly pigmented, almost half circular and has AI = 0.50-0.90. The other variant has the proximal angle of the proximal sclerite 90°, the distal sclerite rather weakly pigmented and often with a very faint thickening of the quadra below it and AI = 0.95-1.30. In other characters these two variants seem to be identical so we have deferred describing the second as a new species until such time as more material can be studied.

Remarks. This species belongs to the *E. betanimenus* species-group. It is distinct in the microsculpture of the alitrunk and in the form of the tarsal claws. Townes & Townes (1973) list *E. pallidus* (Taschenberg) Morley (in part) as a misidentification of this species. We have only been able to find specimens of *E. betanimenus* labelled as *E. pallidus* by Morley.

Host records. This species has been reared from an unidentified Lepidopterous pupa.

Distribution. This species is widely distributed throughout equatorial Africa, as far north as the D. R. Yemen and eastwards to Madagascar.

Material examined. *Ophion (Enicospilus) expeditus* Tosquinet, holotype ♀, TOGO (may possibly be that part of the former German colony of Togo which was annexed to Ghana in 1918); no further data (Kling) (MNHU).

Non-type material. DEM. REP. OF YEMEN: 1♂, Jebel Jihaf, x.37 (Scott & Britton) (BMNH). MADAGASCAR: 1♀, Andida, xi.33 (Seyrig) (MNHN); 1♀, Ranomafana (Inst. Res. Mad.) (MRAC); 1♀, Rogez, iii.33 (Seyrig) (MNHN); 1♀, Rogez, i.37 (Seyrig) (MNHN); 2♀, Sandrangato (Inst. Res. Mad.) (MRAC). SÃO TOMÉ: 1♀, no further locality, xi.32 (Tams) (BMNH). SIERRA LEONE: 1♀, Njala, x.34, ex Lepidopterous pupa (Hargreaves) (BMNH). UGANDA: 13♀, 2♂, Mengo, Zika Forest, viii-xi.63 (Lancaster) (TC). ZAIRE: 1♀, Eala, xi.35 (Ghesquière) (MRAC); 2♀, Tshuapa, Flandria, xi.47 (Hulstaert) (MRAC).

ENICOSPILUS OCTUS sp.n.

(Figs 258, 427, 651, 652)

Description. Mandibles evenly narrowed, twisted about 15°, upper tooth about 1.3 times as long as the lower, very slightly flattened; outer mandibular surface flat, finely pubescent. Labrum 0.2-0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile more or less flat, margin straight; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.85 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60%; occipital carina complete. Antennae long and slender with 61-63 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.6-2.7 times as long as broad.

Pronotum mediodorsally of moderate length, rather weakly impressed transverse furrow present. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, punctate; epicnemial carina reaching above level of lower corner of pronotum, not turned to anterior margin of pleuron. Scutellum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area transversely more or less concentrically wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 16-17mm; discosubmarginal cell as in Fig. 427; AI = 1.00-1.15; CI = 0.35-0.50; ICI = 0.40-0.50; SDI = 1.40-1.50; *cu-a* subopposite *Rs&M*. Hindwing with 7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia flattened slightly with scattered spines; hind coxa in profile 1.7-1.9 times as long as deep, externally conspicuously flattened; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws asymmetrical, the inner claw more geniculate, pectinate as in Figs 651, 652.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally uniformly reddish-brown, the genae alone paler yellowish.

Remarks. This species belongs to the *E. betanimenus* species-group. It appears to be very closely related to *E. expeditus* and *E. nesius* from which it can be separated using the key characters.

Distribution. This species is only recorded from Sierra Leone (Map 81).

Material examined. Holotype ♀, SIERRA LEONE: Freetown, ii-vi.67 (*Owen*) (TC); paratypes 1♀, Freetown, ii-vi.67 (*Owen*) (TC); 1♀, Freetown, ix.67 (*Owen*) (TC); 1♀, Njala, iv.17 (*Hargreaves*) (BMNH); 2♀, Njala, x.35 (*Hargreaves*) (BMNH); 1♀, no further data (BMNH).

***ENICOSPILUS NESIUS* sp. n.**

(Figs 260, 428, 657, 658, 659)

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth 1.2-1.3 times as long as the lower, slightly flattened; outer mandibular surface virtually flat with fine scattered pubescence. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile flat, margin straight; clypeus in anterior aspect 1.3-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.81 times as broad as long, obsolete punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60%; occipital carina complete. Antennae long and slender with 60-63 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.2-2.4 times as long as broad.

Pronotum mediodorsally short with very deep transverse furrow. Mesoscutum in profile evenly rounded, apically out-turned; notauli absent. Mesopleuron polished, dorsally punctate, ventrally puncto-striate; epicnemial carina barely reaching above lower corner of pronotum distant from anterior margin of pleuron. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.4-1.5 times as long as broad anteriorly, polished, wrinkled longitudinally. Metapleuron aluto-striate; submetapleural carina narrow. Propodeum in profile moderately declivitous, dorsally flattened; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area transversely concentrically wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 17-20mm; discosubmarginal cell as in Fig. 428; AI = 1.00-1.35; CI = 0.40-0.65; ICI = 0.44-0.56; SDI = 1.20-1.40; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with moderate number of short spines; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws asymmetrical, inner claw more strongly curved, pectinate as in Figs 657-659.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long stout hairs and scattered fine decumbent pubescence; gonosquama distally subacute.

Colour generally variable, of holotype reddish-brown, paler on margin of mesoscutum and in longitudinal scutal stripes and also on vertex, inter-ocellar area, genae and lower face.

Variation. One ♂ from the Zika Forest is paler orange with only 3 vittae on mesoscutum and terminal segments of gaster darker brownish-orange. South African specimens tend to be paler yellow with darker areas on mesoscutum, pleurae and mesosternum. Madagascan specimens are uniformly reddish-brown except for the vertex and genae. These specimens also have the central sclerite more extensive.

Remarks. This species belongs to the *E. betanimenus* species-group. It is closely related to *E. octus* from which it differs not only in pleural sculpture and shape of the alar sclerites but also in having the pronotum mediodorsally shorter with a very strongly impressed transverse furrow.

Distribution. This species is widely distributed throughout Africa and Madagascar (Map 82).

Material examined. Holotype ♀, UGANDA: Mengo, Zika Forest, x.63 (*Lancaster*) (TC). Paratypes. MADAGASCAR: 24♀, Bekily, 1933-36 (*Seyrig*) (MNHN); 2♂, Rogez, 1933-35 (*Seyrig*) (MNHN). SIERRA LEONE: 1♀, Freetown, ii.70 (*Owen*) (TC). SOUTH AFRICA: 2♀, Kenton on Sea, ii.71 (*Jubb*) (TC). UGANDA: 1♀, 1♂, Mengo, Zika Forest, viii.63 (*Lancaster*) (TC).

***ENICOSPILUS LICTUS* sp. n.**

(Figs 264, 429, 660, 661)

Description. Mandibles strongly narrowed, twisted about 35°, upper tooth about 1.3 times as long as the lower, slightly flattened; outer mandibular surface flat with long scattered pubescence. Labrum 0.1-0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin straight; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.55-0.65 times as broad as long, finely punctate, ventrally becoming sparser. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65%; occipital carina complete. Antennae long and slender with 61-64 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 1.9-2.1 times as long as broad.

Pronotum mediodorsally of moderate length, transverse furrow rather weakly impressed. Mesoscutum in profile evenly rounded, apically out-turned; notauli virtually absent. Mesopleuron polished, dorsally punctate, ventrally puncto-striate; epicnemial carina obsolescent above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate to posterior margin; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, finely and irregularly wrinkled. Metapleuron puncto-striate; submetapleural carina posteriorly obsolete, anteriorly abruptly expanded into triangular flange. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area strongly transversely wrinkled, almost rugose. Posterior transverse carina of mesosternum complete.

Forewing length 19-23mm; discosubmarginal cell as in Fig. 429; AI = 0.85-0.95; CI = 0.60-0.65; ICI = 0.70-0.80; SDI = 1.50-1.60; *cu-a* proximal to *Rs&M* by 0.1 times its own length. Hindwing with 7-9 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with scattered spines, hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 660, 661.

Gaster long but stoutish; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia very small, oval, separated from anterior margin of tergite by 5.0-7.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long sparse hairs and virtually no short fine ones; gonosquama distally evenly rounded.

Colour generally uniformly reddish-orange.

Remarks. The characteristic alar sclerites distinguish this from other species. It belongs to the *E. betanimenus* species-group rather than the *E. bimpressus* species-group as the quadra is not invaginated.

Host records. This species has been reared from a *Lasiocampid* cocoon.

Distribution. This species is recorded from equatorial Africa (Map 83).

Material examined. Holotype ♀, IVORY COAST: Bingerville, iii.63 (*Decelle*) (MRAC). Paratypes. IVORY COAST: 1♀, 1♂, Bingerville, i.63 (*Decelle*) (BMNH); 12♀, 6♂, Bingerville, i-iii.63 (*Decelle*) (MRAC). KENYA: 2♀, Kaimosi, iv.32 (*van Someren*) (BMNH). UGANDA: 1♂, Entebbe, iv.64 (*Lancaster*) (TC); 3♀, Kampala, xi.16 (*Gowdey*) (BMNH); 6♀, 3♂, Mengo, Zika Forest, ix-xi.63 (*Lancaster*) (TC); 1♀, Mpenga, x.26 (*Hargreaves*) (BMNH); 1♀, Mutundwe, xii.21 (*Hargreaves*) (BMNH). ZAIRE: 1♂, Likete, Lomela, vi.36 (*Ghesquière*) (MRAC); 1♀, Rwanki, Lake Kivu, viii.47 (*Leroy*) (MRAC).

ENICOSPILUS MNOUS sp. n.

(Figs 263, 426, 656)

Description. Mandibles evenly narrowed, twisted about 25°, upper tooth about 1.3 times as long as the lower; outer mandibular surface flat with scattered hairs. Labrum 0.2 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile flat, margin flat; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.80 times as broad as long with isolated punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 75-80%; occipital carina complete. Antennae stout with 43-45 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 1.6-1.7 times as long as broad.

Pronotum mediadorsally moderately short with transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished with isolated punctures; epicnemial carina reaching to level of lower corner of pronotum, remote from anterior pleural margin. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6 times as long as broad anteriorly with isolated punctures. Metapleuron striate; submetapleural carina anteriorly abruptly expanded into a triangular lobe. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-14mm; discosubmarginal cell as in Fig. 426; AI = 1.00-1.05; CI = 0.25-0.30; ICI = 0.50-0.55; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia flattened slightly with isolated scattered spines; hind coxa in profile 1.6-1.7 times as long as deep; hind trochantellus mediadorsally 0.1 times or less as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 656.

Gaster moderately long; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 2.5-5.0 times its own length.

Ovipositor apically rather shortly acute. Sternites 6-8 of ♂ with short decumbent hairs; gonosquama distally evenly rounded.

Colour generally pale yellow, flagellum slightly more orange. The Kenyan specimen has 3 dark stripes on the mesoscutum.

Remarks. This species is obviously quite closely related to *E. pacificus* from which it may be distinguished by the characters mentioned in the key.

Distribution. This species is restricted to the dry areas of Africa and Madagascar (Map 81).

Material examined. Holotype ♀, SOUTH WEST AFRICA: Okjikoko, ii.72 (*Day*) (BMNH). Paratypes. KENYA: 1♀, Hola, vii.77 (*Kooyman*) (ZC). MADAGASCAR: 1♀, Marojely, xii.60 (*Soga*) (MNHN). SOUTH WEST AFRICA: 1♀, Okahandja, i.28 (*Turner*) (BMNH); 1♀, 1♂, Okjikoko, ii.72 (*Day*) (BMNH).

ENICOSPILUS PACIFICUS (Holmgren)

(Figs 18, 262, 430, 662, 663, 768, 805)

Ophion pacificus Holmgren, 1868. Holotype ♀, SOUTH AFRICA (NR) [examined].

Ophion (Enicospilus) sericatus Tosquinet, 1896 : 384. Holotype ♂, ETHIOPIA (MCSN) [examined]. [Synonymized by Townes & Townes, 1973 : 181.]

Henicospilus sericatus (Tosquinet) Dalle Torre, 1901 : 184.

Ophion pacificus Holmgren; Dalla Torre, 1901 : 197.

Pterospilus (Dispilus) sericatus (Tosquinet) Kriechbaumer, 1901 : 156.

Henicospilus sericatus (Tosquinet); Schulz, 1906 : 278.

Henicospilus brevipennis Szépligeti, 1906 : 135. Holotype ♀, TANZANIA (TMB) [examined]. [Synonymized by Townes & Townes, 1973 : 181.]

Henicospilus pacificus (Tosquinet); Roman, 1910 : 166.

Enicospilus lahimerus aethiopicus Seyrig, 1935 : 78. Lectotype ♀, KENYA (MNHN), designated by Townes & Townes (1973 : 182) [examined]. [Synonymized by Townes & Townes, 1973 : 182.]

Enicospilus lahimerus Seyrig, 1935 : 77. Lectotype ♀, MADAGASCAR (MNHN), designated by Townes & Townes (1973 : 181) [examined]. Syn. n.

Enicospilus pacificus lahimerus Seyrig; Townes & Townes, 1973 : 181.

Enicospilus pacificus pacificus (Holmgren) Townes & Townes, 1973 : 181.

Description. Mandibles evenly narrowed, twisted about 15-20°, upper tooth 1.2-1.4 times as long as the lower; outer mandibular surface with a groove from base to near middle of apical teeth. Labrum 0.2-0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.85 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus close to eye; FI = 50-60%; occipital carina complete. Antennae long and slender with 57-62 flagellar segments; 1st flagellar segment 2.3-2.7 times as long as 2nd, 20th segment 2.1-2.3 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow generally rather weakly impressed. Mesoscutum in profile abruptly rounded apically weakly out-turned; notauli absent. Mesopleuron polished, puncto-striate, often coarsely so; epicnemial carina curved to but not reaching pleural margin above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, coriaceous with punctures. Metapleuron coarsely punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior striate, spiracular area smooth, posterior area coarsely punctate. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 430; AI = 0.40-0.70; CI = 0.31-0.41; ICI = 0.45-0.60; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.7-2.0 times as long as deep; hind trochantellus mediodorsally 0.1-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 662, 663.

Gaster long and slender; sternite 2 with posterior margin more or less opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with numerous long stout erect hair and isolated decumbent short hairs; gonosquama distally evenly rounded; genital claspers as in Fig. 768.

Colour generally uniformly orange-red; genae and inter-ocellar area sometimes slightly paler.

Variation. There is some variation in the form of the alar sclerites. We have seen one specimen without a central sclerite though otherwise it is present. Its shape varies from small and circular to slightly larger and definitely oval. The distal sclerite is usually narrow but in a few specimens (such as the type-series of *lahimierus* Seyrig) this sclerite is much more stout. Townes & Townes retained the form with a broader distal sclerite as a separate subspecies, but we have seen definite intermediates so we retain all as a single species.

Remarks. This is one of the commonest African species of *Enicospilus* and it is easily recognized by its very characteristic alar sclerites. It is related to *E. mnous* and *E. icterus* but it possibly has a close affinity to some undescribed Oriental species as well.

Immature stages. Final instar larva with cephalic capsule as in Fig. 805. Hypostoma sclerotized, quite slender, curved through 70°; hypostomal spur stout; pleurostoma and epistoma short, not stout; mandible short, weakly curved; sclerotized oral bar absent; labial sclerite normal; posterior hypostomal process small; stipital sclerite stout.

This species resembles *E. drasmosus* but has the labial sclerite more evenly rounded ventrally.

Cocoon about 12mm long, 0.35 times as broad as long, with outer surface nacreous, dark brownish with a pale equatorial band.

Distribution. One of the most widely distributed Ethiopian species occurring as far north as Socotra and east into Madagascar where it is apparently rarer than it is on the mainland (Map 84).

Material examined. *Ophion pacificus* Holmgren, holotype ♀, SOUTH AFRICA: Cape of Good Hope (NR). *Ophion (Enicospilus) sericatus* Tosquinet, holotype ♂, ETHIOPIA: Shoa, Let Marefia (MCSN). *Henicospilus brevipedis* Szépligeti, holotype ♀, TANZANIA: Kibosho (TMB). *Enicospilus lahimierus* Seyrig, lectotype ♀, MADAGASCAR: Bekily, i.34 (Seyrig) (MNHN); paralectotypes 20♀, 11♂, Bekily, 1933-34 (Seyrig) (MNHN). *Enicospilus lahimierus aethiopicus* Seyrig, lectotype ♀, KENYA: Nairobi, 1800m, vi.32 (Seyrig) (MNHN).

Non-type material. ANGOLA: 1♂, Cacolo, i.58 (TC); 1♂, 30km N of Quiçulungo, ix-x.57 (TC). BOTSWANA: 1♀, Nathan, i.74 (Ginn) (TC). BURUNDI: 1♂, Bururi, iii.53 (Basilewsky) (MRAC). CENTRAL AFRICAN REPUBLIC: 1♀, Bambari, i.64 (Pierrard) (MRAC). CONGO: 1♀, no further data (Dybowski) (MNHN). DEM. REP. YEMEN: 1♀, Socotra, Adho Demalu, iii.53 (Popov) (BMNH); 1♀, Socotra, Damellus, ii.99 (BMNH); 1♀, Socotra, Deneherari, iii.53 (Popov) (BMNH). IVORY COAST: 2♀, 1♂, Bingerville, iii.62 (Decelle) (MRAC). KENYA: 1♀, Masongalani, iv.11 (Neave) (BMNH); 3♀, Meru, vi.43 (van Someren) (BMNH); 1♀, Muguga, v.69 (Brown) (BMNH); 1♂, Nairobi, vi.33 (Seyrig) (MNHN); 1♀, Nairobi, xi.70 (Stubbs) (BMNH); 5♀, 4♂, Nairobi, viii-x.71 (Cunningham & van Someren) (TC); 1♀, Nairobi, ix.72 (Cunningham & van Someren) (TC); 1♀, Teita Hills, vi.47 (Steele) (BMNH); 1♂, Wema Is., Lake Victoria, ii.19 (Carpenter) (BMNH). MADAGASCAR: 1♀, Behara, iv.37 (Seyrig) (MRAC); 1♀, Behara, xii.40 (Seyrig) (MNHN); 2♀, Bekily, v.36 (Seyrig) (MNHN); 1♂, Ihosy, ii.33 (Seyrig) (MNHN); 2♀, Ivondro, x.44 (Seyrig) (MRAC). NIGERIA: 1♂, Obudu, iv.73 (Medler) (TC); 1♂, Samaru, vii.70 (Ward) (BMNH). RWANDA: 1♂, Astrida, iii.55 (Fain) (MRAC); 1♂, Rukira, ii.53 (Basilewsky) (MRAC). SIERRA LEONE: 1♀, Freetown, iv.70 (Owen) (TC). SOUTH AFRICA: 2♂, Cape, Gxulu River, xii.70 (Londt) (TC); 11♀, 7♂, Cape, Mossel Bay, v.32 (Turner) (BMNH); 2♂, Cape, Stellenbosch, iii.23 (Brain) (BMNH); 1♀, Cape, Stellenbosch, ix.23 (Nel) (BMNH); 3♀, Cape Town, i.63 (TC); 1♂, Grahamstown, xii.70 (Londt) (TC); 2♀, 1♂, Grahamstown, x.70 (H. & M. Townes) (TC); 62♀, 2♂, Grahamstown, 1971 (Gess) (TC); 2♀, Hluhluwe Game Res., xi.70 (H. & M. Townes) (TC); 3♀, 1♂, Kenton on Sea, iii.72 (Jubb) (TC); 1♂, Natal, Kloof, ix.26 (Turner) (BMNH); 1♀, 1♂, Natal, Ngome Forest, xi.70 (H. & M. Townes) (TC); 1♀, Natal, Valley of 1000 Hills, viii.55 (Clark) (BMNH); 1♀, Natal, Weenen, xii.23 (Thomasser) (BMNH); 14♀, 4♂, Pietermaritzburg, x.70 (H. & M. Townes) (TC); 3♀, 3♂, Port St. John, vi.23 (Turner) (BMNH); 1♀, 1♂, Port St. John, xii.70 (H. & M. Townes) (TC); 2♀, Transvaal, Magoebaskloof near Tzaneen, i.71 (H. & M. Townes) (TC); 2♀, 1♂, Transvaal, Pretoria, i.71 (H. & M. Townes) (TC); 2♀, Transvaal, Tzaneen, i.70 (H. & M. Townes) (TC); 1♀, Umhlanga Rocks, xi.70 (H. & M. Townes) (TC). SUDAN: 6♀, W. Darfur, Jebel Murra, v.32 (Steele) (BMNH). TANZANIA: 1♀, Amani, Usambara Mts, iii.63 (Heinrich) (TC); 4♀, Lushoto, W Usambara Mts, ii.62 (Heinrich) (TC); 2♂, Mbeya, xii.62 (Heinrich) (TC); 4♀, 1♂, Mt Meru, vi-vii.62 (Heinrich) (TC); 1♂, Sarandra, ii.33 (Burgeon) (MRAC); 1♀, 1♂, Uluguru Mts (Heinrich) (TC). UGANDA: 1♀, Bududa, ix.11 (Neave) (BMNH); 1♂, Entebbe, viii.11 (Gowdey) (BMNH); 17♀, 4♂, Kampala, 1917-18 (Gowdey) (BMNH); 1♀, 1♂, Kampala, iii-v.65 (Owen) (TC); 1♂, Kampala, v-xii.65 (Unamba) (TC); 6♀, 1♂,

Kampala, ix.75 (Owen) (TC); 1♀, Lukuli, i.21 (Gowdey) (BMNH); 1♀, 11♂, Mengo, Zika Forest, viii-x.63 (Lancaster) (TC); 1♀, Ruwenzori, Ibanda, ix.52 (Fletcher) (BMNH). ZAIRE: 1♀, Ituri, Beni, 1926 (Claiseus) (MRAC); 1♀, Ituri, Bulembo, vii.29 (Van Riel) (MRAC); 1♂, Kivu, Cheff, (Cartier) (MRAC); 3♀, 1♂, Kivu, Kadjudju, 1932 (Babault) (MNHN); 1♀, Kivu, Katana, xi.32 (Burgeon) (MRAC); 1♀, Kivu, S Kahuzi, iii.53 (Basilevsky) (MRAC); 1♂, Kivu, Tshumva, ix.37 (Ghesquière) (MRAC); 1♀, 2♂, Lubumbashi, vii.51 (Seydel) (MRAC); 1♀, Lubumbashi, xi.60 (Bourgeois) (TC).

ENICOSPILUS NERVELLATOR Aubert

(Figs 266, 431)

Enicospilus nervellator Aubert, 1966 : 43. Holotype ♀, ALGERIA (AC) [examined].

Description. Mandibles proximally narrowed, distal 0.3 parallel sided, twisted about 10°, upper tooth about 2.0 times as long as the lower; outer mandibular surface flat without a groove. Labrum 0.4 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat to weakly convex, margin flat; clypeus in anterior aspect 2.0-2.1 times as broad as long, terminally truncate. Lower face elongate, 0.80-0.90 times as broad as long, with isolated punctures. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 65-70%; occipital carina complete. Antennae short and stout with 50-52 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 1.2-1.3 times as long as broad.

Pronotum mediodorsally moderately long, anteriorly flattened, transverse furrow moderately impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli vestigial. Mesopleuron polished, punctate; epicnemial carina angled to pleural margin above lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.1-1.4 times as long as broad anteriorly with isolated punctures. Metapleuron puncto-striate; submetapleural carina rather abruptly expanded anteriorly. Propodeum in profile abruptly rounded, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 11-14mm; discosubmarginal cell as in Fig. 431; AI = 0.50-0.65; CI = 0.35-0.40; ICI = 0.60-0.80; SDI = 1.30-1.50; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 6 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia flattened slightly with scattered spines; hind coxa in profile 1.6-1.7 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical.

Gaster moderately long, stout; sternite 2 with posterior margin before spiracle of tergite 2; thyridia ovate, large, separated from anterior margin of tergite by 1.5-2.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with fine short decumbent scattered pubescence; gonosquama distally evenly rounded.

Colour generally reddish-brown, paler yellow on margins of pronotum, margin and longitudinal lines on mesoscutum, entire subalar prominence, posterior corner of mesopleuron and scutellum; lower face yellow, centrally reddish; genae, inter-ocellar area and vertex yellow; flagellum reddish-brown.

Remarks. This species is distinguished by the unequal mid tibial spurs, the inner of which is always reduced in size, the colour and the rather sparse alar pubescence. It is not really an Ethiopian species but appears to belong to a Moroccan-Iranian species-group. It is the only species in this group to reach below the 20th parallel in the Arabian peninsula.

Material examined. *Enicospilus nervellator* Aubert, holotype ♀, ALGERIA: Beni-Abbes, Sahara, v.65 (Mateu) (AC).

Non-type material. ALGERIA: 1♀, Ain Sefra, v.13 (BMNH); 1♀, Bordj Fergau, 41 km E of Touggourt, 1912 (Hartaert) (BMNH). SAUDI ARABIA: 3♀, Hejaz, Jidda, i.28 (Philby) (BMNH); 6♀, Jeddah, no further data (BMNH); 2♀, 1♂, 30km S of Jeddah, ii.56 (Greathead) (BMNH); 7♀, 3♂, Khafs, ii.35 (Philby) (BMNH); 2♀, Najd, Hall Dist., iv.44 (Shammar) (BMNH); 1♂, Rub' al Khali, Hawaya, ii.32 (Philby) (BMNH); 20♀, 7♂, 26°25' N : 45°35' E, ii.46 (Gibbons) (BMNH).

ENICOSPILUS EMCEDIUS sp. n.

(Figs 269, 432, 664)

Description. Mandibles evenly narrowed, twisted about 10°, upper tooth 1.6 times as long as the lower; outer mandibular surface flat with isolated pubescence. Labrum 0.3 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile flat, margin flat; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.73 times as broad as long with isolated punctures. Genae constricted behind the eyes; posterior ocellus close to eye; FI = 62%; occipital carina complete. Antennae quite long, incomplete; 1st flagellar segment 1.6 times as long as 2nd, 20th segment 1.7 times as long as broad.

Pronotum mediodorsally moderately long; transverse furrow moderately strong with a median concave region anteriorly. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, coarsely punctate; epicnemial carina reaching above lower corner of pronotum, distal from anterior margin of pleuron. Scutellum in profile very convex, laterally carinate to posterior margin; scutellum dorsally 1.7 times as long as broad anteriorly, alutaceous. Metapleuron swollen, punctate; submetapleural carina anteriorly expanded into triangular flange. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina vestigial; anterior area striate, spiracular area smooth, posterior area coriaceous. Posterior transverse carina of mesosternum complete.

Forewing length 11mm; discosubmarginal cell as in Fig. 432; AI = 0.53; CI = 0.25; ICI = 0.70; SDI = 1.30; *cu-a* subopposite *Rs&M*. Hindwing with 5 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 1.6 times as long as deep; hind trochantellus mediodorsally less than 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 664.

Gaster long and slender; sternite 2 with posterior margin just before spiracle of tergite 2; thyridia large, ellipsoidal, separated from anterior margin of tergite by 2.0 times its own length.

♀ unknown.

Sternites 6-8 of ♂ with fine decumbent hair only; gonosquama distally evenly rounded.

Colour generally uniformly very pale yellowish with only flagellum more orange.

Remarks. This small species is known from the ♂ holotype only. It is distinct from others in the form of the alar sclerites, the unusual claws, and the combination of flat clypeus, very convex scutellum and coarse mesopleural sculpture. The affinities of this species are not clear.

Distribution. This species is recorded from South West Africa (Map 85).

Material examined. Holotype ♂, SOUTH WEST AFRICA: Swakopmund, i.72 (Day) (BMNH).

ENICOSPILUS NOPS sp. n.

(Figs 268, 433, 665)

Description. Mandibles evenly narrowed, twisted about 25°, upper tooth about 1.2 times as long as the lower; outer mandibular surface flat with isolated pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat or very slightly convex, margin in-turned; clypeus in anterior aspect 1.5 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.80 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 75-80%; occipital carina complete. Antennae moderately short and stout with 48-56 flagellar segments; 1st flagellar segment 1.7 times as long as 2nd, 20th segment 2.0-2.7 times as long as broad.

Pronotum mediodorsally moderately short, transverse furrow deeply impressed. Mesoscutum in profile abruptly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, finely punctate; epicnemial carina reaching above lower corner of pronotum, distant from anterior margin of pleuron. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, smooth. Metapleuron puncto-striate; submetapleural carina expanded anteriorly into triangular lobe. Propodeum in profile evenly rounded, dorsally almost flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-14mm; discosubmarginal cell as in Fig. 433; AI = 0.50-0.55; CI = 0.25-0.30; ICI = 0.65-0.70; SDI = 1.10-1.20; *cu-a* proximal to *Rs&M* by about 0.2 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with short scattered spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 665.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia oval, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally pale yellow with ill defined area of orange on alitrunk.

Variation. A few specimens are darker yellowish but the scutellum remains pale.

Remarks. The exceptionally strong crescentic distal sclerite and the cuniform proximal sclerite distinguish this species from all others. We are not sure of its affinities but it may be related to *E. emcedius*. It is possible they are related to species of the *E. rufus* species-group.

Distribution. This species seems to prefer dry regions of the southern parts of Africa (Map 85).

Material examined. Holotype ♀, ZAIRE: Lubumbashi, xii.56 (Seydel) (TC). Paratypes. BOTSWANA: 1♀, Gabelones, 1915 (Ellenberger) (MNHN). ZAIRE: 1♀, Lubumbashi, xii.56 (Seydel) (TC). ZAMBIA: 2♀, Lake Bangweulu, xi.46 (Steele) (BMNH).

ENICOSPILUS ODAX sp. n.

(Figs 434, 666)

Description. Mandibles evenly narrowed, twisted about 35°, subequally bidentate; outer mandibular surface flat with fine scattered hairs. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin straight; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.82 times as broad as long, without punctures. Genae constricted weakly behind the eyes; posterior ocellus contiguous with eye; FI = 60%; occipital carina complete. Antennae incomplete; 1st flagellar segment 1.5 times as long as 2nd, 20th segment 1.6 times as long as broad.

Pronotum mediodorsally very short, transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically out-turned. Mesopleuron polished, coarsely closely punctate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.4 times as long as broad anteriorly, alutaceous. Metapleuron puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14mm; discosubmarginal cell as in Fig. 434; AI = 0.75; CI = 0.28; ICI = 0.47; SDI = 1.40; *cu-a* proximal to *Rs&M* by 0.2 times its own length. Hindwing with 8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical, virtually devoid of spines; hind coxa in profile 1.7 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 666.

Gaster long and slender; sternite 2 with posterior margin well before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0 times its own length.

Ovipositor broken.

♂ unknown.

Colour generally orange-red, lower face brown, orbits yellowish; vertex and inter-ocellar area whitish; flagellum red.

Remarks. An extremely distinct species on account of its aberrant alar sclerites. Its affinities are not clear but it does not appear to be close to any other Ethiopian species. It is possibly related to some undescribed Oriental species.

Distribution. This species is recorded from Dem. Rep. Yemen.

Material examined. Holotype ♀, DEM. REP. YEMEN: Adh Dāli, x.35 (*Darling*) (BMNH).

***ENICOSPILUS PLUVIUS* sp. n.**

(Figs 275, 435, 667)

Description. Mandibles elongately narrowed, twisted about 10°, upper tooth 1.5 times the lower; outer mandibular surface flattened with long scattered pubescence. Labrum 0.4 times as long as broad; malar space 0.4 times as long as basal mandibular width. Clypeus in profile flat, margin straight; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.77 times as broad as long, coarsely punctate. Genae slightly constricted behind the eyes; posterior ocellus separated from eye by 0.2 times its own maximum diameter; FI = 70%; occipital carina complete. Antennae incomplete; 1st flagellar segment 1.6 times as long as 2nd.

Pronotum mediodorsally moderately short, transverse furrow impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli strong on anterior 0.2 of scutum. Mesopleuron polished, coarsely puncto-striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile slightly convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.5 times as long as broad anteriorly, fore part punctate, hind part coriaceous. Metapleuron rugulose; submetapleural carina evenly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area wrinkled, posterior area irregularly reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 12mm; discosubmarginal cell as in Fig. 435; AI = 0.43; CI = 0.40; ICI = 0.48; SDI = 1.20; *cu-a* subopposite *Rs&M*. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 667.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.9 times its own length.

Ovipositor apically very elongately acute.

♂ unknown.

Colour generally reddish-brown, only genae a little paler; alar sclerites and veins blackish.

Remarks. The widely separated proximal and central sclerites and the extremely broad fenestra distinguish this from other species occurring in Africa. There are a number of Australasian species with similar fenestrae but whether *E. pluvius* is related to these is not clear.

Distribution. This species is recorded from Cape Province South Africa (Map 85).

Material examined. Holotype ♀, SOUTH AFRICA: Jonkershoek near Stellenbosch, x.70 (*H. & M. Townes*) (TC).

***ENICOSPILUS RUIDUS* sp. n.**

(Figs 276, 436, 677, 678, 769, 799)

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth 1.2-1.5 times as long as the lower, flattened; outer mandibular surface flat with isolated hair. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat or almost so, margin flat; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.80 times as broad as long, with isolated punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae moderately long with 48-52 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 1.6-1.8 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow weak. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, punctate with few striations; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate almost entire length; scutellum dorsally 1.8-1.9 times as long as broad anteriorly, obsolete punctate. Metapleuron very closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11-13mm; discosubmarginal cell as in Fig. 436; AI = 0.50-0.70; CI = 0.20-0.25; ICI = 0.55-0.65; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 677, 678.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-5.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with short erect fine hairs and isolated decumbent ones; gonosquama distally evenly rounded; genital claspers as in Fig. 769.

Colour generally yellowish-orange; lower face whitish; genae and inter-ocellar area yellow; flagellum orange.

Remarks. This species belongs to the *E. betanimenus* species-group. It differs from other species in having the fenestra larger and *Rs+2r* more sinuous.

Immature stages. Cephalic capsule of final instar larva as in Fig. 799. Hypostoma sclerotized, stout, posteriorly indistinctly delineated, curved through about 90°; hypostomal spur moderately long, slender; pleurostoma and epistoma long, stout; mandibles small with blade arising from centre, weakly curved; sclerotized oral bar present indistinctly delineated; labial sclerite normal; posterior hypostomal process large; stipital sclerite quite stout.

This species is distinct on account of the form of the mandible and the broad pleurostoma/epistoma.

Cocoon 14mm long, 0.35 times as broad as long, outer surface finely fibrous, nacreous.

Distribution. This species is recorded from southeast Madagascar (Map 79).

Material examined. Holotype ♀, MADAGASCAR: Fort Dauphin, iii.31 (*Seyrig*) (MNHN); paratypes 7♀, Behara, iv.37 (*Seyrig*) (MRAC); 1♀, Behara, xi.47 (*Seyrig*) (MNHN); 36♀, 16♂, Bekily, 1930-34 (*Seyrig*) (MNHN); 1♀, Bekily, x.43 (*Seyrig*) (MNHN); 1♀, 1♂, Fort Dauphin, iii.31 (*Seyrig*) (BMNH); 14♀, 32♂, Fort Dauphin, iii.31 (*Seyrig*) (MRAC); 2♂, Rogez, Andalandraka, vi.37 (*Seyrig*) (MRAC); 1♀, Rogez, iii.44 (*Seyrig*) (MRAC).

ENICOSPILUS OCULATOR Seyrig

(Figs 285, 437, 669, 670)

Enicospilus oculator Seyrig, 1935 : 76. Holotype ♀, KENYA (MNHN) [examined].

Enicospilus oculator Seyrig; Townes & Townes, 1973 : 181.

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth about 1.5 times as long as the lower; outer mandibular surface with long sparse pubescence. Labrum 0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in anterior aspect 1.7-1.8 times as broad as long, terminally truncate. Lower face subquadrate, 0.90-1.00 times as broad as long, weakly punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 90-92%; occipital carina complete. Antennae short and stout with 44-46 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.8-2.1 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow weak. Mesoscutum in profile abruptly rounded, apically strongly out-turned; notauli weak but discernible to centre of scutum. Mesopleuron polished with large regular punctures; epicnemial carina divergent from anterior pleural margin, vestigial above lower corner of pronotum. Scutellum in profile convex, laterally carinate to posterior margin; scutellum dorsally 1.3-1.4 times as long as broad anteriorly, virtually smooth and impunctate. Metapleuron closely punctate; submetapleural carina parallel sided, narrow. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina present but weak; anterior area striate, spiracular area finely wrinkled, posterior area coarsely wrinkled. Posterior transverse carina of mesosternum complete or centrally obsolescent.

Forewing length 8-10mm; discosubmarginal cell as in Fig. 437; AI = 0.74-0.86; CI = 0.20-0.25; ICI = 0.40-0.55; SDI = 1.10-1.30; *cu-a* opposite *Rs&M*. Hindwing with 5 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.5-1.6 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 669, 670.

Gaster long and slender; sternite 2 with posterior margin at or before spiracle of tergite 2; thyridia poorly delineated, ellipsoidal, separated from anterior margin of tergite by 2.0 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of ♂ with fine sparse pubescence only; gonosquama distally evenly rounded.

Colour generally dark reddish-brown, ivory on lower face laterally and clypeus ventrally, vertex, genae, anterior edge of pronotum, mesoscutal margin, subalar prominences, a mark on anterior and posterior margin of mesopleuron, scutellum and postscutellum; proximal 0.5 of tergite 1 of gaster blackish.

Remarks. A small distinctive species recognized by its colour, unusually swollen *Rs+2r*, short flagellum and pleural puncture. This species may well be closely related to species of the *E. rufus* species-group from which it differs in having a central sclerite.

Distribution. This species is recorded from southeast and east Africa (Map 85).

Material examined. *Enicospilus oculator* Seyrig, holotype ♀, KENYA: Voi, iv.04 (*Alluaud*) (MNHN).

Non-type material. SOUTH AFRICA: 4♀, 2♂, Grahamstown, i-ii.71 (*Gess*) (TC).

ENICOSPILUS ARDUUS sp. n.

(Figs 270, 438, 673)

Description. Mandibles evenly narrowed, twisted about 70°, upper tooth 1.5 times as long as the lower; outer mandibular surface flat, with long fine scattered hairs. Labrum 0.3 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile convex, margin in-turned; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, virtually impunctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 60-65%; occipital carina complete. Antennae very long and slender with 70-75 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 3.5-4.0 times as long as broad.

Pronotum mediodorsally short, transverse furrow slightly impressed. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli absent. Mesopleuron subpolished, puncto-striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate at most for 0.2 of its length; scutellum dorsally 1.8-1.9 times as long as broad anteriorly, finely coriaceous. Metapleuron striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile elongately and evenly rounded, dorsally almost flat; anterior transcarina weak or vestigial; anterior area striate, spiracular area smooth, posterior area almost smooth or finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 15-17mm; discosubmarginal cell as in Fig. 438; AI = 0.60-0.80; CI = 0.50-0.60; ICI = 0.30-0.45; SDI = 1.30-1.40; *cu-a* subopposite *Rs&M*. Hindwing with 6 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia cylindrical, without spines; hind coxa in profile 2.3-2.4 times as long as deep; hind trochantellus mediodorsally 1.0-1.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 673.

Gaster very long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 5.0-6.0 times its own length.

Ovipositor short and fairly stout.

♂ unknown.

Colour generally uniformly orange-yellow; inter-ocellar area yellow.

Remarks. See under *E. anaxeus* (p. 125).

Distribution. This species is restricted to the Ruwenzori mountains (Map 85).

Material examined. Holotype ♀, UGANDA: Ruwenzori Range, Misigo, 2800m, viii.52 (*Fletcher*) (BMNH); paratypes 1♀, Ruwenzori, Mahoma River, 2300m; viii.52 (*Fletcher*) (BMNH); 2♀, Ruwenzori, Misigo, viii.52 (*Fletcher*) (BMNH); 2♀, Ruwenzori, Nyamgasani Valley, 3000 m, xi.34 (*Buxton*) (BMNH).

ENICOSPILUS PALLIDUS (Taschenberg)

(Figs 439, 671, 672)

Ophion pallidus Taschenberg, 1875 : 436. Holotype ♀, SUDAN (FZLU).

Henicospilus pallidus (Taschenberg) Szépligeti, 1905 : 26.

Henicospilus damarensis Cameron, 1906 : 81. Holotype ♀, SOUTH AFRICA (SAM) [examined]. [Synonymized by Townes & Townes, 1973 : 182.]

Henicospilus sinicarinatus Enderlein, 1918 : 218. Holotype ♂, SOUTH WEST AFRICA (MNHU) [examined]. [Synonymized by Townes & Townes, 1973 : 182.]

Henicospilus Techowi Enderlein, 1918 : 219. Holotype ♂, SOUTH WEST AFRICA (MNHU) [examined]. [Synonymized by Townes & Townes, 1973 : 182.]

Henicospilus Dinteri Enderlein, 1918 : 220. Holotype ♀, SOUTH WEST AFRICA (MNHU) [examined]. [Synonymized by Townes, 1973 : 182.]

Enicospilus pallidus (Taschenberg) Townes & Townes, 1973 : 182.

Description. Mandibles evenly narrowed, twisted about 15°, upper tooth 1.3 times as long as the lower, slightly flattened; outer mandibular surface flat with isolated hairs. Labrum 0.2-0.4 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile flat, margin flat; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60-65%; occipital carina complete. Antennae of moderate length with 60-65 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.2-1.5 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron polished, punctate to puncto-striate; epicnemial carina reaching above lower corner of pronotum, upper end remote from anterior margin of pleuron. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, punctate. Metapleuron closely punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 439; AI = 0.70-0.80; CI = 0.20-0.35; ICI = 0.60-0.70; SDI = 1.10-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.6-1.7 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 671, 672.

Gaster long, fairly stout; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long scattered erect hairs and fine short pubescence; gonosquama distally evenly rounded.

Colour generally uniformly pale whitish-yellow, terminal segments of gaster ventrally infuscate.

Variation. There is slight variation in the shape of the alar sclerites but insufficient to be exceptional. Enderlein (1918) used these trivial differences to divide this into 3 species. It is patently obvious to any person familiar with the range of intraspecific variation occurring in species of this genus that such differences do not warrant specific distinction.

Remarks. This species belongs to the *E. betanimenus* species-group. It is often rather difficult to separate *E. betanimenus* and *E. pallidus* but the flagella of the latter are always stouter with more quadrate segments.

Distribution. This species is apparently restricted to dry areas but widely distributed from Southwest Africa to the Sudan (Map 86).

Material examined. *Henicospilus damarensis* Cameron, holotype ♀, SOUTH AFRICA: Damaraland, Walvis Bay (SAM). *Henicospilus sinicarinatus* Enderlein, holotype ♂, SOUTH WEST AFRICA: Windhoek (MNHU). *Henicospilus Techowi* Enderlein, holotype ♂, SOUTH WEST AFRICA: Windhoek (MNHU). *Henicospilus Dinteri* Enderlein, holotype ♀, SOUTH WEST AFRICA (MNHU).

Non-type material. CHAD: 1♂, Gouri, viii.58 (*Renaud*) (MRAC). ETHIOPIA: 1♀, Alamatra, v.57 (*Lane*) (USNM). KENYA: 1♀, Nairobi, ii.70 (*Brown*) (BMNH). SIERRA LEONE: 1♂, Freetown, ii-vi.67 (*Owen*) (TC); 1♂, Freetown, iv.68 (*Owen*) (TC). SOUTH AFRICA: 1♀, 1♂,

Grahamstown, i-iii.71 (*Gess*) (TC); 1♀, Pietermaritzburg, xii.70 (*H. & M. Townes*) (TC); 1♀, Natal, Mpendle, xii.70 (*H. & M. Townes*) (TC); 1♀, Royal Natal Nat. Pk., i.71 (*H. & M. Townes*) (TC); 1♀, St. Lucia Estuary, xi.70 (*H. & M. Townes*) (TC). SUDAN: 1♀, Wad el Mansi, N. Managil, ix.64 (*Schulz*) (WAU); 1♀, Wadi Medani, x.63 (*Schulz*) (WAU). UGANDA: 1♀, Kampala, v-xii.65 (*Unamba*) (TC). UPPER VOLTA: 2♂, Bobo, iii.76 (*Jolivet*) (BMNH). ZAIRE: 1♂, Kasompi, x.56 (*Leleup*) (MRAC); 5♀, 1♂, Lubumbashi, xii.56 (*Seydel*) (TC); 2♂, Lubumbashi, xi.61 (*Maréchal*) (MRAC).

ENICOSPILUS MENISCUS sp. n.

(Figs 278, 440, 674)

Description. Mandibles evenly narrowed, twisted about 50°, upper tooth about 1.4 times as long as the lower, dorso-ventrally flattened; outer mandibular surface flat, sparsely hirsute. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin blunt; clypeus in anterior aspect 1.5 times as broad as long, terminally truncate. Lower face elongate, 0.65 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70%; occipital carina complete. Antennae very long and slender, terminal segments missing; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.3-2.4 times as long as broad.

Pronotum mediodorsally short, transverse furrow impressed. Mesoscutum in profile abruptly rounded, apically weakly out-turned; notauli vestigial. Mesopleuron submatt, puncto-striate; epicnemial carina vestigial above lower corner of pronotum. Scutellum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area alutaceous, posterior area transversely strongly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-15mm; discosubmarginal cell as in Fig. 440; AI = 1.10-1.20; CI = 0.60-0.65; ICI = 0.55-0.60; SDI = 1.20; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical, with isolated spines; hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 674.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally badius blending into reddish-brown; legs except coxae flavous, gaster with tergite 1 posteriorly and tergite 2 entirely yellow-brown; lower face badius, orbits pale yellow; inter-ocellar area brownish; flagellum yellow-brown; marginal angle infumate.

Remarks. This species is distinctive in colour, the shape of the central sclerite and in having the mesoscutum obviously alutaceous, not punctate as most other species.

Distribution. This species is only recorded from Sierra Leone.

Material examined. Holotype ♀, SIERRA LEONE: Freetown, ii-vi.67 (*Owen*) (TC); paratype 1♀, Freetown, v.68 (*Owen*) (TC).

ENICOSPILUS SESAMIAE Delobel

(Figs 267, 441, 675, 676, 776, 804)

[*Ophion antankarus* Saussure; Bordage, 1898 : 522. Misidentification]

[*Ophion antankarus* Saussure; Bordage, 1914 : 378. Misidentification.]

[*Ophion (Henicospilus) antankarus* Saussure; d'Emmerez de Charmoy, 1916 : 13. Misidentification.]

[*Henicospilus antankarus* (sic) (Saussure); d'Emmerez de Charmoy & Gebert, 1921 : 184. Misidentification.]

[*Henicospilus antankarus* (Saussure); Moutia, 1934 : 36. Misidentification.]

[*Henicospilus antankarus* (Saussure); Moutia, 1936 : 32. Misidentification.]

[*Henicospilus antankarus* (sic) (Saussure); Moutia & Mamet, 1947 : 28. Misidentification.]

Enicospilus species Moutia & Courtois, 1952 : 343.

Enicospilus sesamiae Delobel, 1974a : 102. Holotype ♀, MADAGASCAR (MNHN) [examined].

Description. Mandibles evenly narrowed, twisted about 20°, teeth subequal in length; outer mandibular surface with fine sparse hairs, flat. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat but separated from face, margin acute, out-turned; clypeus in anterior aspect 1.5-1.6 times as broad as long, deeply punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 70%; occipital carina complete. Antennae moderately long with 55-59 flagellar segments; 1st flagellar segment 1.4-1.5 times as long as 2nd, 20th segment 2.3-3.0 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow strongly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli absent. Mesopleuron polished, upper half punctate, lower part puncto-striate; epicnemial carina strongly curved to anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.5-1.7 times as long as broad anteriorly, rugulose. Metapleuron puncto-striate; submetapleural carina parallel sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area puncto-striate. Posterior transverse carina of mesosternum complete.

Forewing length 9-11mm; discosubmarginal cell as in Fig. 441; AI = 0.55-0.85; CI = 0.20-0.35; ICI = 0.45-0.62; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.4-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 675, 676.

Gaster long and slender; sternite 2 with posterior margin before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hairs and sparse fine pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 776.

Colour generally evenly orange-brown, lower face, genae and inter-ocellar area paler yellowish-orange.

Variation. Specimens from Mauritius tend to be slightly paler than mainland form.

Remarks. The clypeus of this species distinguishes it from all other Ethiopian *Enicospilus*. The affinities of this species are not clear. This species was misidentified as *antankarus* (= *capensis*) and remained so until 1952 when Moutia & Courtois recognized it as separate. It remained un-named until the work of Delobel.

Immature stages. The immature stages and life history are given by Moutia & Courtois (1952 : 333-347). Cephalic capsule of final instar larva as in Fig. 804. Hypostoma sclerotized, narrow, curved through about 80°; hypostomal spur quite long and slender; proximally swollen; pleurostoma and epistoma long, quite slender; mandibles short, moderately curved; sclerotized oral bar present, peripherally indistinctly delineated; labial sclerite ventrally incompletely sclerotized; posterior hypostomal process moderately large; stipital sclerite long and slender.

This species is distinctive in having moderately curved mandibles and a ventrally incomplete labial sclerite.

The cocoon of this species is longer and more slender than that of other species (13mm x 3 mm) with the outer surface smooth and sandy-brown coloured.

Host records. Moutia (1934) recorded this species (as *E. antankarus*) as a parasite of *Sesamia vuteria* Stoll (Lep., Noctuidae) and *Proceras venosatum** Walker (Lep., Pyralidae) on sugarcane (*Saccharum officinarum*) in Mauritius. He noted at times this ichneumonid could account for 60% of the parasitism of the lepidopterous larvae but generally was between 0-15%.

Delobel (1974a) records this species from *Sesamia calamistis* Hampson (Lep., Noctuidae). d'Emmerez de Charmoy & Gebert (1921) record this species (as *E. antankarus*) as a parasite of *Sesamia vuteria* Stoll (Lep., Noctuidae) on maize (*Zea mais*) in Mauritius.

Distribution. This species is recorded from the Mascarene Archipelago, Madagascar and equatorial Africa west to Sierra Leone (Map 87).

Material examined. *Enicospilus sesamiae* Delobel, holotype ♀, MADAGASCAR: Ivoloina, i.65 ex *Sesamia* sp. (MNHN); paratypes 1♀, 3♂, same data as holotype (MNHN); 1♀, 1♂, Ambilobe, 1969 (MNHN). MAURITIUS: 1♀, 1♂, Henrietta, ii.69, ex *Sesamia calamistis* (Wallace) (MNHN).

Non-type material. MAURITIUS: 1♀, Henrietta, xi.49, ex *Sesamia vuteria* (Moutia) (BMNH); 2♀, 2♂, Henrietta, ii.69, ex *Sesamia calamistis* (Williams) (BMNH); 4♀, Hermitage, viii.49 (Moutia) (BMNH); 4♀, 2♂, Reduit, vii.42, ex *Sesamia vuteria* Stoll (Moutia) (BMNH); 2♀, 3♂, Reduit, xi.49 (Courtois) (BMNH); 3♀, Union Park, iv.50, ex *Sesamia vuteria* (Courtois) (BMNH). NIGERIA: 5♀, Ilora, viii.74 (Medler) (TC); 4♀, 2♂, near Oyo, ix.74 (Medler) (TC). REUNION: 1♀, no further locality, viii.51, ex *Sesamia vuteria* (Williams) (BMNH). SIERRA LEONE: 4♀, 5♂, Freetown, v-ix.67 (Owen) (TC); 3♀, Freetown, vi.69 (Owen) (TC). TANZANIA: 1♂, Mbeya Mts, xii.62 (Heinrich) (TC).

ENICOSPILUS BAJULUS sp. n.

(Fig. 442)

Description. Mandibles proximally narrowed, distally parallel sided, twisted about 10°, upper tooth about 3.0 times as long as the lower; outer mandibular surface with a diagonal furrow extending from upper proximal corner to between bases of teeth, the furrow bearing scattered hairs. Labrum 0.4 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 2.3 times as broad as long, terminally truncate. Lower face transverse, 1.10 times as broad as long, deeply punctate. Genae slightly buccate behind the eyes; posterior ocellus separated from eye by 0.2 times its own maximum diameter; FI = 45%; occipital carina complete. Antennae short and stout with 51 flagellar segments; 1st flagellar segment 1.5 times as long as 2nd, 20th segment 1.7 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow moderately impressed. Mesoscutum in profile evenly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, punctate ventrally grading to puncto-striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate to posterior margin; scutellum dorsally 1.5 times as long as broad anteriorly. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11.5mm; discosubmarginal cell as in Fig. 442; AI = 0.65; CI = 0.54; ICI = 0.35; SDI = 1.40; *cu-a* opposite *Rs&M*. Hindwing with 7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 1.9 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws symmetrical, similar to those of *E. capensis*.

Gaster long and slender; sternite 2 with posterior margin opposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.2 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally dark brown; lower face, flagellum, genae and inter-ocellar area brownish-orange.

Remarks. This species is recognizable on account of having a glabrous proximal sclerite and sparsely pubescent discosubmarginal cell. It is otherwise rather similar to *E. capensis* to which it is undoubtedly quite closely related.

Distribution. This species is recorded from Cape Province, South Africa.

Material examined. Holotype ♀, SOUTH AFRICA: Cape Garies, ix.70 (*H. & M. Townes*) (TC).

ENICOSPILUS SPECIES 3

Very similar to typical *E. capensis* except that the labrum is shorter (0.2 times as long as basally broad), the anterior transverse carina of propodeum is absent, the metapleuron is exceptionally coarsely punctate and the ♀ hind tarsal claws have fewer shorter, more triangular pectinae. Forewing length 8mm.

This specimen may well represent a distinct species but as only a single ♀ is available and it is so closely allied to *E. capensis*, which is a very variable species, we have chosen not to describe it as yet. It may be merely an unusually small specimen of *E. capensis*.

Material examined. SOUTH AFRICA: 1♀, Grahamstown, iii.70 (*Gess*) (TC).

ENICOSPILUS CAPENSIS (Thunberg) (Figs 246, 273, 282, 443, 679, 680, 770, 809)

- Ichneumon capensis* Thunberg, 1822 : 314. Holotype ♀, SOUTH AFRICA (ZIUU).
Ophion antankarus Saussure, 1892 : 15. (?Holo)type ♂, MADAGASCAR (MNHN) [examined]. [Synonymized by Townes & Townes, 1973 : 174.]
Ophion antancarus Saussure, 1892 : 21. [Misspelling of *antankarus* Saussure.]
 [*Ophion (Enicospilus) rufus* Brullé; Tosquinet, 1896 : 379. Misidentification.]
 [*Pterospilus (Dispilus) rufus* (Brullé) Kriechbaumer, 1901 : 156. Misidentification.]
Enicospilus sp. Kirby, 1903 : 278.
Henicospilus anarkarus (sic) (Saussure) Morley, 1912a : 39. In part.
 [*Henicospilus bimpressus* (Brullé); Morley, 1912a : 40. Misidentification.]
Henicospilus antarkarus (sic) (Saussure); Morley, 1912b : 172. In part.
Henicospilus capensis (Thunberg) Roman, 1912 : 240.
 [*Henicospilus rufus* (Brullé); Roman, 1912 : 240. Misidentification.]
Henicospilus praedator Enderlein, 1921 : 28. Holotype ♀, MADAGASCAR (IZPAN) [examined]. [Synonymized by Townes & Townes, 1973 : 175.]
Henicospilus incarinatus Enderlein, 1921 : 30. Holotype ♂, MADAGASCAR (IZPAN) [examined]. [Synonymized by Townes & Townes, 1973 : 175.]
 [*Henicospilus rufus* (Brullé); Enderlein, 1921 : 31. Misidentification.]
 [*Henicospilus rufus* (Brullé) Szépligeti, 1922 : 912. Misidentification.]
 [*Henicospilus bisimpressus* (sic) (Brullé) Morley, 1926 : 479. Misidentification.]
Henicospilus euxoae Wilkinson, 1928 : 261. Holotype ♀, RHODESIA (BMNH) [examined]. [Synonymy suggested by Townes & Townes, 1973 : 175, here confirmed.]
Henicospilus antancarus (sic) (Saussure); Jack, 1930 : 921.
 [*Enicospilus rufus* (Brullé) Seyrig, 1935 : 68. Misidentification.]
Enicospilus obnoxius Seyrig, 1935 : 75. Lectotype ♀, KENYA (MNHN), designated by Townes & Townes (1973 : 181) [examined]. Syn. n.
Henicospilus antankarus (Saussure) Jepson, 1939a : 43.
Henicospilus antankarus (Saussure): Jepson, 1939b : 44.
Henicospilus antakarus (sic) (Saussure); Moutia & Mamet, 1947 : 456.
Enicospilus antancarus (sic) (Saussure) Moutia & Courtois, 1952 : 343.
Enicospilus antankarus (Saussure); Williams & Mamet, 1954 : 10.
Henicospilus antancarus (sic) (Saussure); Bünzli & Büttiker, 1957 : 240.
Henicospilus euxoae Wilkinson; Bünzli & Büttiker, 1957 : 240.
Ophion antacarus (sic) Saussure; Risbec, 1960 : 636.
Enicospilus capensis (Thunberg) Townes & Townes, 1973 : 174.
Enicospilus obnoxius Seyrig; Townes & Townes, 1973 : 181.

Townes & Townes (1973) included *Ophion rufus* Brullé as a synonym of *capensis*. We have retained *rufus* as a separate species (see page 110).

Description. Mandibles proximally narrowed, distally parallel sided, twisted about 5-10°, upper tooth more than 2.0 times as long as the lower; outer mandibular surface with a diagonal groove extending from upper proximal corner to between bases of teeth, the groove usually bearing elongate hair. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile very convex, margin impressed; clypeus in anterior aspect 2.0-2.2 times as broad as long, terminally truncate. Lower face subquadrate to transverse, 0.85-1.10 times as broad as long, coarsely punctate. Genae slightly swollen behind the eyes; posterior ocellus separated from eye by 0.1-0.3 times its own maximum diameter; FI = 45-50%; occipital carina complete. Antennae short and stout with 47-54 flagellar segments; 1st flagellar segment 1.5-1.7 times as long as 2nd, 20th segment 1.5-1.8 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow rather weakly impressed. Mesoscutum in profile evenly rounded, apically weakly out-turned; notauli weak, usually discernible on anterior 0.4 of scutum. Mesopleuron polished, punctate to puncto-striate; epicnemial carina inclined to but not reaching anterior pleural margin. Scutellum in profile moderately convex, laterally carinate more or less its entire length; scutellum dorsally 1.4-1.6 times as long as broad anteriorly, coarsely punctate. Metapleuron punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete, rarely weak; anterior area striate, spiracular area punctate, posterior area coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 11-15mm; discosubmarginal cell as in Fig. 443; AI = 0.40-0.80; CI = 0.35-0.50; ICI = 0.40-0.60; SDI = 1.30-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 5-7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediadorsally 0.1-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 679, 680.

Gaster long and fairly slender; sternite 2 with posterior margin subopposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 1.5-2.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with sparse decumbent pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 770.

Colour generally reddish-orange, often with genae and inter-ocellar area whitish; lower face yellow, centrally reddish; flagellum orange.

Variation. There is considerable range of variation in the closeness and coarseness of the puncturation of the alitrunk and in the length of the hairs on the mandibles. A few specimens have the central sclerite slightly more elongate than the typical form and odd individuals have the central sclerite rather weak. Variation in the length of the upper mandibular tooth, which is usually 2.0-3.0 times as long as the lower is the result of abrasion, the most worn specimens being the shorter.

Remarks. The face and mandibles characterize this and a few related species which may be separated using the characters mentioned in the key. This is one of the most common Ethiopian species.

Immature stages. Cephalic capsule of the final instar larva as in Fig. 809. Hypostoma weakly sclerotized but distinctly delineated, not broad; abruptly turned through about 70°; hypostomal spur long and relatively slender; pleurostoma very stout; epistoma short, narrowed; mandible abruptly narrowed, not curved; sclerotized oral bar absent; labial sclerite normal; posterior hypostomal process absent; stipital sclerite stout.

The absence of a posterior hypostomal process and the broad pleurostoma surmounted by a small epistoma distinguish this species.

Cocoon 14-15mm; 0.4 times as broad as long, fairly smooth, dark brown, often enclosed in hard earthen cell.

Host records. This species has been recorded as a parasite of many species of Lepidoptera; a number of records originating from Mauritius need verification. Morley (1926) recorded this species from *Ophiosema* sp* (Lep., Noctuidae) and Wilkinson (1928) recorded it from *Agrotis segetum* Denis & Schiffermüller (Lep., Noctuidae). Jack (1930) reared *E. capensis* from *Spodoptera exempta* Walker* (Lep., Noctuidae) larvae on tobacco (*Nicotiana* sp.) in Rhodesia. He noted that this species pupated in the host pupa under the ground. Jepson (1939a, b) recorded this species from *Proceras sacchariphagus* Bojer* (Lep., Pyralidae) but not from *Sesamia vuteria* Stoll. Bünzli & Büttiker (1957) recorded it from *Agrotis* sp. (Lep., Noctuidae). We have seen specimens reared from *Cactoblastis cactorum* Berg (Lep., Pyralidae) and from 'a cutworm on sweet potato (*Dioscorea* sp.)'.

Distribution. This species is widely distributed through-out Africa extending to Madagascar, the Mascarene Archipelago, Socotra and the south of the Arabian peninsula. Probably it is associated with dry areas or seasons (Map 88).

This species has been recorded under the name *antankarus* from the Oriental region (Chatterjee & Misra (1974) summarize records). We don't know whether or not the oriental species is conspecific with the African one as we have not seen any material on which identifications have been made. We have seen some undetermined Indian specimens in the BMNH which appear to be very close to *E. capensis*. More material may show them to be conspecific. Wide geographical distribution is not uncommon in the genus *Enicospilus*. Gauld (1977) cites several examples of species with ranges extending from India and Japan through the Australo-Papuan region to the Pacific Islands.

Material examined. *Ophion antankarus* Saussure (?Holo)type ♂ (wings only remaining), MADAGASCAR: no further data (MMHN). *Henicospilus praedator* Enderlein, holotype ♀, MADAGASCAR: Ambohimanga, no further data (IZPAN). *Henicospilus incarinatus* Enderlein, holotype ♂, MADAGASCAR: Ambohimanga, no further data (IZPAN). *Henicospilus euxoae* Wilkinson, holotype ♀, RHODESIA: Salisbury, xii.27 (Roberts) (BMNH); paratypes 4♀, 1♂, same data as holotype (BMNH). *Enicospilus obnoxius* Seyrig, lectotype ♀, KENYA: Taveta, ii.12 (Alluaud & Jeannel) (MNHN).

Non-type material. BURUNDI: 1♀, Bururi, iii.53 (Basilewsky) (MRAC). DEM. REP. YEMEN: 1♀, 1♂, Adho Demalu, Socotra, iv.67 (Guichard) (BMNH); 1♂, Kishin, Socotra, iv.67 (Guichard) (BMNH). DJIBOUTI: 3♀, Massif du Day, xi.72 (Menier) (MNHN). KENYA: 1♀, Bura Teita, 1700m, ii.39 (van Someren) (BMNH); 1♀, Elgon, vi.61 (Jackson) (BMNH); 2♀, Kabete, iii.22 (Box) (BMNH); 1♀, Nairobi, xi.52 (De Worms) (BMNH); 1♀, between Voi & Ndi, v.97 (Betton) (BMNH). LESOTHO: 2♀, Leribe, 1923 (Ellenberger) (MNHN). MADAGASCAR: 1♀, Andohanambatoafa, xii.64 (Soga) (MNHN); 1♀, 1♂, Andoharisambirano, xii.64 (Soga) (MNHN); 2♀, Antsirabé, xi.36 (Seyrig) (MNHN); 1♀, 1♂, Bekily, xii.30 (Seyrig) (BMNH); 7♀, Bekily, 1936 (Seyrig) (MNHN); 1♂, Fianarantsoa, xii.40 (Seyrig) (MNHN); 2♂, Maroantsetra, 1962 (Vadon) (MRAC); 4♂, Perinet (Inst. Res. Mad.) (MRAC); 1♂, Rogez, vi.46 (Lamberton) (TC); 2♀, St Marie, no further data (MNHN); 1♀, Tananarive, 1928 (Decary) (MNHN); 1♂, Tananarive, xii.33 (Seyrig) (MNHN); 5♀, Vatondransy, xii.29 (Seyrig) (MNHN). MALAWI: 1♀, Maiwale, ex cocoon in ground (Lambourn) (BMNH). MAURITIUS: 4♀, 1♂, no further locality, xi.21 (Carle) (MNHN); 2♀, no further locality, 1926 (Antelme) (BMNH). RHODESIA: 4♀, Marandellas, x-xii.72 (Ginn) (TC); 1♀, 1♂, Wellesley, x.49, ex *Agrotis segetis* (Bünzli) (BMNH). RWANDA: 1♀, Kisenyi, xii.51 (Bertrand) (MRAC). SAUDI ARABIA: 1♀, Asir Suda, vii.62 (Popov) (BMNH). SENEGAL: 1♀, Djourbel, 1930 (Trochan) (MNHN). SIERRA LEONE: 1♀, Freetown, viii.99 (Austen) (BMNH); 1♀, Freetown, ii-vi.67 (Owen) (TC); 1♀, Mando, v.25 (Hargreaves) (BMNH). SOUTH AFRICA: 1♀, Barberton (Rendall) (BMNH); 1♀, Beaufort, x.56 (Clark) (BMNH); 1♀, Boshof, ii.26 (Nel) (BMNH); 1♀, Cape, Garies, ix.70 (H. & M. Townes) (TC); 1♀, Cape, Jansenville, x.41, ex *Cactoblastis cactorum* (Petty) (TC); 1♀, Cape, Katberg, i.33 (Turner) (BMNH); 5♀, Cape, Mossel Bay, v.21 (Turner) (BMNH); 1♂, Cape, Stellenbosch, iii.23 (Brain) (BMNH); 6♀, 2♂, Deelfontein, 1903 (Sloggett) (BMNH); 1♀, Grahamstown, xi.70 (Farquharson) (TC); 2♀, Grahamstown, xii.70 (Gess) (TC); 21♀, 3♂, Grahamstown, i-iii.71 (Gess) (TC); 1♀, Grahamstown, v.72 (Gess) (TC); 2♀, Johannesburg, 1932 (Ellenberger) (MNHN); 2♀, Johannesburg, ix.62 (Haeselbarth) (TC); 7♀, 2♂, Kenton on Sea, xii.70-ii.71 (Jubb) (TC); 1♀, Lady Grey, xi.24 (Nel) (BMNH); 1♀, Natal, Drakensberg, i.27 (Turner) (BMNH); 1♂, Natal, Weenen, i.26 (Thomasset) (BMNH); 1♀, Orange Free State, Bloemfontein, x.14 (BMNH); 1♀, Orange Free State, Modderpoort, x.14 (BMNH); 1♀, Pietermaritzburg, xi.63 (Haeselbarth) (TC); 1♀, Pirie Forest, x.70 (Farquharson) (TC); 1♀, Port St. John, v.23 (Turner) (BMNH); 1♀, Pretoria, 1924 (Curzon) (BMNH); 3♀, 1♂, St. Lucia Estuary, xi.70 (H. & M. Townes) (TC); 1♀, 1♂, Umhlanga Rocks, xi.70 (H. & M. Townes) (TC); 1♀, Van Reenen, Drakensberg, x.26 (Turner) (BMNH). SOUTH WEST AFRICA: 1♀, Ameib Farm, 36km NW of Karibib, ii.72 (Day) (BMNH); 1♂, Hoffnung, x.32 (Jordan) (BMNH); 1♂, Kombat, iv.72 (Day) (BMNH); 1♀, Okahandja, ii.28 (Turner) (BMNH); 1♀, Okjikoko, ii.72 (Day) (BMNH). TANZANIA: 1♂, Utipa Plateau, Mbesi

Forest, xii.62 (*Heinrich*) (TC). UGANDA: 3♀, Ibanda, Ruwenzori Range, viii.52 (*Fletcher*) (BMNH); 1♂, Kigezi, xii.34 (*Ford*) (BMNH); 1♀, Mengo, Zika Forest, ix-x.63 (*Lancasiér*) (TC). ZAIRE: 1♂, Bas Congo, Kisantu, v.45 (*Anastase*) (MRAC); 1♀, Beni, vii.11 (*Murtula*) (MRAC); 1♂, Beni, vi.35 (*Brédo*) (MRAC); 1♀, Bukama, viii.21 (*Cockerell*) (BMNH); 1♂, Gandajika, 1956 (*Francoen*) (MRAC); 1♂, Ituri, Kilo, ii.32 (*Ghesquière*) (MRAC); 1♀, Ituri, Ndele, vii.37 (*Ghesquière*) (MRAC); 1♀, Kamogobe, iii.36 (*Lippens*) (MRAC); 1♀, Kivu, Kibare, 1954 (*St. Famille*) (MRAC); 1♂, Kivu, Kissonyi, ii.28 (*Seydel*) (MRAC); 3♀, Kolwezi, x.53 (*Gilbert*) (MRAC); 1♀, Lubumbashi, xii.56 (*Seydel*) (TC); 1♀, Mulunbu, vi.46, ex cutworm on sweet potato (*Lefevre*) (BMNH); 1♀, Rutshuru, i.28 (*Seydel*) (MRAC); 1♂, Rutshuru, i.37 (*Ghesquière*) (MRAC).

ENICOSPILUS RUSCUS sp. n.

(Figs 271, 279, 444, 681, 682, 771, 810)

Description. Mandibles evenly narrowed, twisted about 10°, upper tooth about 1.2 times as long as the lower, very slightly flattened; outer mandibular surface with a fairly weak diagonal groove extending from upper proximal corner to bases of teeth, the distal half of the groove bearing long dense pubescence. Labrum 0.2-0.3 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.5 times as broad as long, terminally transverse. Lower face elongate, 0.65-0.70 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 60-63 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.2-2.4 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, coarsely striate; epicnemial carina curved toward and almost reaching anterior margin of pleuron. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.7-1.8 times as long as broad anteriorly, rugulose, often finely so. Metapleuron almost reticulate; submetapleuron carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally slightly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area reticulately wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-15mm; discosubmarginal cell as in Fig. 444; AI = 0.25-0.50; CI = 0.30-0.45; ICI = 0.45-0.55; SDI = 1.20-1.40; *cu-a* proximal to *Rs&M* by about 0.1 times its own length. Hindwing with 6 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia slightly flattened with isolated spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 681, 682.

Gaster long and slender; sternite 2 with posterior margin slightly before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with scattered long erect and fine dense decumbent pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 771.

Colour generally brownish-orange; lower face orange-yellow centrally more rufescent; inter-ocellar area and genae yellowish; flagellum orange-brown.

Remarks. This species belongs to the *E. antefurcalis* species-group. It differs from the other species by the characters given in the key, in having a rather more strongly developed brush of hair on the mandibles and in having a longer flagellum.

Immature stages. Cephalic capsule of final instar larva as in Fig. 810. Hypostoma sclerotized, slender, curved through about 50°; hypostomal spur long, not slender; pleurostoma and epistoma long and slender; mandible small, abruptly narrowed, weakly curved; sclerotized oral bar absent; labial sclerite ventrally incompletely sclerotized; posterior hypostomal process small; stipital sclerite moderately broad.

This species is similar to *E. pacificus* from which it differs in the longer and more slender epistoma.

Cocoon 12mm; 0.3 times as broad as long; outer surface almost smooth with only scattered fibres, brownish with pale equatorial band.

Host records. This species has been reared from *Mythimna loreyi* Duponchel (Lep., Noctuidae) and *Sesamia vuteria* Stoll (Lep., Noctuidae).

Distribution. This species has been recorded from equatorial Africa eastward to Madagascar and Mauritius (Map 89).

Material examined. Holotype ♀, MAURITIUS: Reduit, x.50 (*Courtois*) (BMNH). Paratypes. MADAGASCAR: 1♀, Bekily, iv.32 (*Seyrig*) (MNHN); 11♀, 5♂, Bekily, vi-ix.33 (*Seyrig*) (MNHN); 2♀, 2♂, Bekily, iii-vi.34 (*Seyrig*) (MNHN); 1♂, Bekily, v.37 (*Seyrig*) (MNHN). MAURITIUS: 1♀, Hermitage, xii.49, ex *Sesamia vuteria* (*Courtois*) (BMNH); 2♀, 2♂, Highlands, xii.50, ex *Mythimna loreyi* (*Courtois*) (BMNH); 1♀, 1♂, Reduit, ix.50 (*Moutia*) (BMNH). NIGERIA: 1♀, Samaru, viii.70 (*Ward*) (BMNH). SENEGAL: 3♀, 2♂, Richard Toll, xi.51 (*Appert*) (BMNH). SIERRA LEONE: 1♀, Kambui Hills, iv.68 (*Owen*) (TC). TANZANIA: 1♀, 1♂, Mbeya, x-xii.62 (*Heinrich*) (TC). UGANDA: 4♀, 2♂, Kampala, iii-iv.18 (*Gowdey*) (BMNH). ZAIRE: 1♂, Mbandaka, ix.23 (*Savirar*) (MRAC); 1♀, Sukama, vii.33 (*Marée*) (MRAC).

ENICOSPILUS BICOLORATUS Cameron

(Figs 265, 281, 445, 683, 684, 772)

Enicospilus bicoloratus Cameron, 1912: 388. Holotype ♂, ZAIRE (MRAC) [examined].
Enicospilus bicoloratus Cameron; Townes & Townes, 1973: 173.

Description. Mandibles fairly evenly narrowed, twisted about 25°, upper tooth 1.1-1.5 times as long as the lower; outer mandibular surface with diagonal groove from upper proximal corner to between teeth, the groove bearing scattered hair. Labrum 0.2-0.3 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face

elongate, 0.70-0.85 times as broad as long, finely punctate. Genae moderately constricted behind the eyes; posterior ocellus very close to eye; FI = 55-60%; occipital carina complete. Antennae moderately long with 50-56 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.3-2.6 times as long as broad.

Pronotum mediodorsally moderately long, transverse furrow weakly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli vestigial. Mesopleuron polished, puncto-striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, punctate, posteriorly striate. Metapleuron closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area reticulate. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 445; AI = 0.45-0.95; CI = 0.35-0.55; ICI = 0.40-0.55; SDI = 1.20-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 5-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.8-2.0 times as long as deep; hind trochantellus mediodorsally 0.2-0.4 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 683, 684.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense elongate erect hair centrally; gonosquama distally evenly rounded; genital claspers as in Fig. 772.

Colour generally uniformly reddish-brown with terminal segments of gaster black.

Variation. This is a rather uniform species in most features. A few individuals have the distal sclerite very weakly sclerotized and more or less separated from the proximal sclerite.

Remarks. This species is distinctive on account of the mandible and black terminal segments of the gaster. Despite being very common there are very few references to it in the literature, indicating this species is probably not associated with areas of intensive agriculture.

Distribution. This species is widely distributed throughout Africa, often common (Map 90).

Material examined. *Enicospilus bicoloratus* Cameron, holotype ♂, ZAIRE: Lukombe (MRAC).

Non-type material. ANGOLA: 1♀, 30km N of Quiçulungo, x.57 (TC); 1♀, Roça Canzele, iii.54 (Heinrich) (TC). CAMEROUN: 1♀, Lembé, v.12 (Mayne) (MRAC); 1♂, Nkolbisson, Nyong-Sanaga, ix.63 (Segers) (MRAC); 1♂, Yaoundé, vii.67 (Matile) (MNHN). CENTRAL AFRICAN REPUBLIC: 1♂, Haute Sangha, xi.64 (Boulard) (MNHN). CONGO: 1♂, entre San Quito and N'Jole, 1900 (Bougssou) (MNHN). DAHOMEY: 1♀, Porto Novo, 1909 (Waterlot) (MNHN). ETHIOPIA: 1♂, Harar, 1906 (Zaphiro) (BMNH). IVORY COAST: 3♀, 3♂, Bingerville, iv.62 (Decelle) (MRAC); 1♀, Mt Nimba, viii.58 (WAU). KENYA: 1♀, Bwamba, vii.45 (van Someren) (BMNH); 1♀, Voi, ii.12 (Neave) (BMNH). MADAGASCAR: 1♀, Analandrakaka, vi.37 (Seyrig) (MRAC). MALAWI: 1♀, Mlanje, v.13 (Neave) (BMNH). NIGERIA: 3♀, Ife-Ife, v-vii.73 (Medler) (TC); 3♀, 3♂, Ife-Ife, viii.74 (Medler) (TC); 1♀, Obudu, iv.73 (Medler) (TC). PRINCIPE IS.: 1♀, no further locality, xi.32 (Tams) (BMNH). SIERRA LEONE: 1♂, Bonthe, vii.26 (Hargreaves) (BMNH); 2♀, 11♂, Freetown, ix-xii.67 (Owen) (TC); 9♀, 6♂, Freetown, 1969 (Owen) (TC); 7♀, 11♂, Freetown, iv-v.70 (Owen) (TC); 1♀, Newton, ix.29 (Hargreaves) (BMNH); 2♀, Njala, ix.30 (Hargreaves) (BMNH). SOUTH AFRICA: 3♀, Cape, Katberg, i.33 (Turner) (BMNH); 1♀, Karkloof, iv.71 (Stuckenber) (TC); 1♂, Natal, Dargle, xii.71 (H. & M. Townes) (TC); 1♀, Natal, Eshowe, xi.70 (H. & M. Townes) (TC); 1♂, Natal, Weenan, vi.25 (Thomasset) (BMNH); 16♀, 4♂, Pietermaritzburg, x.70 (H. & M. Townes) (TC). UGANDA: 1♀, Ankole, Kichwamba, iv.68 (Spangler) (USNM); 1♀, Bwambe, x.31 (Hancock) (BMNH); 3♀, 1♂, Entebbe, v.13 (Gowdey) (BMNH); 1♀, Kampala, ix.15 (Gowdey) (BMNH); 1♀, Kampala, vi.16 (Gowdey) (BMNH); 8♀, 2♂, Kampala, 1917-1918 (Gowdey) (BMNH); 1♀, Kampala, ii.27 (Hancock) (BMNH); 6♀, 1♂, Kampala, 1964 (Owen) (TC); 1♀, 10♂, Kampala, 1965 (Owen) (TC); 1♀, 1♂, Kampala, v-xii.65 (Unamba) (TC); 1♀, 1♂, Kampala, iii.66 (Owen) (TC); 1♀, Mt Kokanjero, viii.11 (Neave) (BMNH). ZAIRE: 1♂, Arebi, vii.25 (Schouteden) (MRAC); 1♂, Bambesa, ix.32 (Vrydagh) (MRAC); 2♀, Bambesa, ix.33 (Brédo) (MRAC); 1♀, Bambesa, x.33 (Leroy) (MRAC); 1♂, Basoko, vi.48 (Benoit) (MRAC); 1♀, Bukavu, vi.51 (Bomans) (MRAC); 1♂, Bumba, xii.39 (De Saeger) (MRAC); 1♀, Dingila, vii.33 (Brédo) (MRAC); 1♀, Eala, iv.36 (Ghesquière) (MRAC); 1♂, Gandajika, xi.58 (Maréchal) (MRAC); 1♂, Kamande, ix.35 (Lippens) (MRAC); 1♀, Kasenyi, viii.35 (Brédo) (MRAC); 1♂, Kibali-Ituri, Wamba, ii.58 (Castelain) (MRAC); 1♂, Kivu, Kabarazo, v.36 (Lippens) (MRAC); 1♀, Kivu, Kavivira, v.55 (Marlier) (MRAC); 1♂, Kivu, Kavuma, iv.51 (Bomans) (MRAC); 1♂, Lomami, Kambaye, vii.30 (Quarré) (MRAC); 1♀, Lubumbashi, v.46 (Lips) (MRAC); 1♀, Lubumbashi, v.67 (Kisenga) (TC); 2♂, Mongbwalu, 1937 (Scheitz) (MRAC); 1♂, Nyangwe, iv.18 (Mayné) (MRAC); 1♀, Rutshuru, iv.37 (Prophylactique) (MRAC); 1♀, St. Gabriel Mission (Torley) (MRAC); 1♂, Shaba, Mwema, vii.27 (Bayet) (MRAC); 1♀, Uelé, Mauda, iii.25 (Schouteden) (MRAC).

ENICOSPILUS ANTEFURCALIS (Szépligeti)

(Figs 446, 685, 686, 773, 803)

Henicospilus antefurcalis Szépligeti, 1908 : 46. Lectotype ♀, TANZANIA (NM), designated by Townes & Townes (1973 : 172) [examined].

[*Henicospilus sericatus* (Tosquinet); Morley, 1912a : 41. Misidentification.]

[*Henicospilus obscuriceps* Enderlein, 1921 : 31. Holotype ♀, TANZANIA (IZPAN) [examined]. Syn. n.]

[*Henicospilus congestus* (Szépligeti) Seyrig, 1935 : 67. In part, Misidentification.]

Enicospilus antefurcalis (Szépligeti) Townes & Townes, 1973 : 172.

Enicospilus obscuriceps (Enderlein) Townes & Townes, 1973 : 181.

Description. Mandibles evenly narrowed, twisted about 25°, upper tooth 1.3-1.5 times as long as the lower; outer mandibular surface with a diagonal groove extending from upper corner to bases of teeth, the groove sparsely pubescent. Labrum 0.2-0.4 times as long as broad; malar space 0.1-0.2 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.85 times as broad as long, finely punctate. Genae moderately constricted behind the eyes; posterior ocellus very close to eye; FI = 50-60%; occipital carina complete. Antennae moderately long with 52-54 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 2.2-2.5 times as long as broad.

Pronotum mediodorsally moderately long with transverse furrow fairly weakly impressed. Mesoscutum in profile evenly rounded, apically not out-turned; notauli vestigial. Mesopleuron polished, punctate to puncto-striate; epicnemial carina curved to approach anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex weakly, laterally carinate to posterior margin; scutellum dorsally 1.6-1.8 times as long as broad anteriorly, punctate, posteriorly striate. Metapleuron closely punctate; submetapleural carina evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area reticulately wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-14mm; discosubmarginal cell as in Fig. 446; AI = 0.30-0.50; CI = 0.30-0.45; ICI = 0.50-0.65; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 5-7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.2-0.4 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 685, 686.

Gaster long and slender; sternite 2 with posterior margin subopposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense long pubescence centrally; gonosquama distally evenly rounded; genital claspers as in Fig. 773.

Colour generally uniformly yellowish-brown, flagellum infuscate.

Remarks. This species is extremely close to *E. bicoloratus*, the two differing only in the colour of the terminal segments of the gaster. *E. antefurcalis* usually has the alar sclerite with its maximum diameter equal to or greater than the distance separating it from *Rs+2r* but a few specimens do have the sclerite smaller, very like that of *E. bicoloratus*. Both differ from *E. ruscus* in the shape of the alar sclerites. The central sclerite of *E. ruscus* tends to have its maximum diameter at 90° to *Rs+2r* whereas specimens of either *E. bicoloratus* or *E. antefurcalis* with an oval central sclerite have the maximum diameter parallel to *Rs+2r*.

Immature stages. Cephalic capsule of final instar larva as in Fig. 803. Hypostoma anteriorly sclerotized, narrow, curved through about 100°, posteriorly indistinctly delineated; hypostomal spur not very long nor slender; pleurostoma and epistoma long and slender; mandibles abruptly narrowed, very weakly curved; sclerotized oral bar absent; labial sclerite normal; posterior hypostomal process absent; stipital sclerite short and stout.

This species is recognizable on account of the absence of posterior hypostomal process and the strongly curved hypostoma.

Cocoon indistinguishable from that of *E. ruscus*.

Recorded hosts. This species has been reared from *Eldana saccharina* Walker (Lep. Pyralidae) and *Perigea* sp. (Lep. Noctuidae).

Distribution. This species is widely distributed throughout Africa and Madagascar (Map 91).

Material examined. *Henicospilus antefurcalis* Szepliget, lectotype ♀, TANZANIA: Kibongoto on Kilimanjaro, 1905 (Sjöstedt) (NM). *Henicospilus obscuriceps* Enderlein, holotype ♀, TANZANIA ('DEUTSCH OST-AFRIKA'): Nyumbe, 1911 (Hammerstein) (IZPAN). Non-type material. BOTSWANA: 1♀, Lobatsi, iii.34 (Ogilvie) (BMNH); 1♀, Nathane, i.74 (Ginn) (TC). CENTRAL AFRICAN REPUBLIC: 1♀, Dambari, i.64 (Pierrard) (MRAC). DEM. REP. YEMEN: 1♀, Al Huseini near Lahej, xi.37 (Scott & Britton) (BMNH). KENYA: 1♂, Meru, vii.43 (van Someren) (BMNH). MADAGASCAR: 2♂, Ambositra, x.28 (Seyrig) (MNHN); 4♀, Analandraraka, vi.37 (Seyrig) (MRAC); 3♀, Andriba, xi.33 (Seyrig) (MNHN); 3♀, 1♂, Anivorano, vii.28 (Seyrig) (MNHN); 6♀, 3♂, Anivorano, xii.29 (Seyrig) (MNHN); 1♂, Ankaratra, xii.31 (Seyrig) (MNHN); 1♂, Antsirabé, xi.36 (Seyrig) (MNHN); 1♀, Bekily, 1930 (Seyrig) (MNHN); 35♀, Bekily, 1932 (Seyrig) (MNHN); 2♀, 2♂, Bekily, vi.33 (Seyrig) (BMNH); 16♀, 3♂, Bekily, 1933 (Seyrig) (MNHN); 2♀, 7♂, Bekily, 1934 (Seyrig) (MNHN); 4♀, 3♂, Bekily, iv.36, ex larva *Perigea* sp. (Seyrig) (MNHN); 5♀, 1♂, Bekily, v-vi.36 (Seyrig) (MNHN); 1♀, 1♂, Betroka, v.33 (Seyrig) (MNHN); 1♀, 1♂, Diego-Suarez, 1893 (Alluaud) (MNHN); 1♂, Fianarantsoa, vi.33 (Seyrig) (MNHN); 1♂, Fort Dauphin, iv.32 (Seyrig) (MNHN); 1♀, Fort Dauphin, xi.35 (Seyrig) (MNHN); 1♀, Fort Dauphin, xii.36 (Seyrig) (MNHN); 1♀, Ihosy, xi.29 (Seyrig) (MNHN); 1♂, Ihosy, xi.31 (Seyrig) (MNHN); 1♀, Ihosy, ii.33 (Seyrig) (MNHN); 1♂, Ivondro, xii.40 (Seyrig) (MRAC); 1♂, Ivondro, ii.48 (Malet) (MRAC); 1♀, Lac Alaotra, viii.28 (Seyrig) (MNHN); 1♀, Maloantsiter, xi.34 (Seyrig) (MNHN); 1♂, Mandraka, xii.30 (Seyrig) (MNHN); 1♀, Maromandia, vi.23 (Decary) (MNHN); 1♀, Perinet, xi.30 (Seyrig) (MNHN); 1♀, 2♂, Perinet, xii.32 (Seyrig) (MNHN); 2♀, Perinet (Inst. Res. Mad.) (MRAC); 8♀, 5♂, Rogez, vii-xii.30 (Seyrig) (MNHN); 2♀, Rogez, iv-xii.31 (Seyrig) (MNHN); 3♀, Rogez, x.32 (Seyrig) (MNHN); 1♂, Rogez, iv.34 (Seyrig) (MNHN); 1♂, Rogez, 1935 (Seyrig) (MNHN); 1♂, Rogez, x.36 (Seyrig) (MNHN); 3♀, Rogez, iii.44 (Seyrig) (MRAC); 7♀, 6♂, Rogez, 1946 (Lamberton) (TC); 1♀, Rogez (Seyrig) (MNHN); 1♀, St. Marie, no further data (MNHN); 1♀, Sakaraha (Griveaud) (MRAC); 2♀, Sandrangato (Inst. Res. Mad.) (MRAC); 1♀, 2♂, Sombirano, xii.32 (Seyrig) (MNHN); 1♀, Tananarive, xii.33 (Seyrig) (MNHN); 3♀, Vatomandry, vii.28 (Seyrig) (MNHN); 1♀, Vatomandry, 1933 (Seyrig) (MNHN); 3♀, 4♂, Vatomandry (Seyrig) (MNHN); MALAWI: 1♀, Mlange, iii.13 (Neave) (BMNH). MAURITIUS: 1♀, Reduit, xii.58 (Williams) (BMNH). NIGERIA: 1♂, Ife-Ife, 1911 (Simpson) (BMNH); 1♀, Kano, ix.74 (Musa) (BMNH); 2♀, Zaria, Samaru, ix.69 (Ogidi) (BMNH). RHODESIA: 1♀, Victoria Falls Nat. Park, iv.68 (Spangler) (USNM). RODRIGUEZ IS.: 1♂, no further locality, viii.18 (Thomasset) (BMNH). SIERRA LEONE: 2♀, Freetown, x.66-ii.67 (Owen) (TC); 1♀, 1♂, Freetown, iv-xii.67 (Owen) (TC); 2♀, Freetown, ii-iv.68 (Owen) (TC); 1♀, 2♂, Freetown, ii-iii.70 (Owen) (TC). SOUTH WEST AFRICA: 1♀, 20km N of Grootfontein, iv.72 (Day) (BMNH). SUDAN: 1♀, Juba, 'Upper Nile', 1903 (Drury) (BMNH). TANZANIA: 1♀, Shinyanga, vii.35 (Burt) (BMNH). UGANDA: 1♀, Kampala, vii.17 (Gowdey) (BMNH). ZAIRE: 1♀, Ituri, Blukwa, xi.28 (Collart) (MRAC); 1♀, Katanga, Luashi, xii.33 (Freyn) (MRAC); 1♀, Kivu, Kavivira, iii.55 (Marlier) (MRAC); 1♀, Lubumbashi, iii.20 (Bequaert) (MRAC); 1♀, Lubumbashi, xii.36 (Seydel) (MRAC); 2♀, Lukolela, xii.20 (Schouteden) (MRAC); 1♀, Lulua, Kapanga, v.33 (Overlaet) (MRAC); 1♀, Mahagi-Niarembe, xi.35 (Scops) (MRAC); 1♀, Moyer Kwilu, Leverville (Vanderijst) (MRAC); 1♀, Yongambi, viii.52, ex *Eldana saccharina* (Decelle) (MRAC). ZAMBIA: 1♂, Mid Luangwa Valley, viii.10 (Neave) (BMNH).

ENICOSPILUS PSAMMUS sp. n.

(Figs 272, 447, 668)

Description. Mandibles evenly narrowed proximally, distally more or less parallel sided, twisted about 20°, upper tooth 2.0-3.0 times as long as the lower; outer mandibular surface with a weak groove extending from upper proximal corner to between bases of teeth, the groove bearing long hairs. Labrum 0.3-0.4 times as long as broad; malar space 0.1 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.8 times as long as broad as long, terminally truncate. Lower face subquadrate, 0.80-0.90 times as broad as long with isolated punctures.

Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 50-55%, occipital carina complete. Antennae short and stout with 44-48 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 1.3-1.4 times as long as broad.

Pronotum mediodorsally rather long, transverse furrow very weak. Mesoscutum in profile evenly rounded, apically very weakly out-turned; notauli absent. Mesopleuron polished, upper part puncto-striate, lower part coarsely punctate. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.8-1.9 times as long as broad anteriorly, coarsely punctate. Metapleuron puncto-striate; submetapleural carina slightly expanded anteriorly. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 6-9mm; discosubmarginal cell as in Fig. 447; AI = 0.50-0.60; CI = 0.30-0.40; ICI = 0.30-0.40; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 5-6 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia slightly flattened with scattered spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 668.

Gaster long and slender; sternite 2 with posterior margin before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute.

♂ unknown.

Colour generally reddish-brown, sometimes with propodeum and gaster infuscate; lower face, inter-ocellar area and genae yellowish-brown.

Variation. The mandibular groove is rather weakly impressed in this species and may be overlooked in odd specimens. To compensate this species is taken out of the key in two places.

Remarks. This species belongs to the *E. capensis* species-group. It is distinct in having a small value of ICI, a strongly constricted head and in its exceptionally small size.

Distribution. This is a desert living species recorded from Sudan to Arabia (Map 92). Fitzgerald noted (on paper appended to specimen) that they were found in burrows in the sand.

Material examined. Holotype ♀, SUDAN: Khor Arbaat Delta, iv.26 (Johnston) (BMNH). Paratypes, SAUDI ARABIA: 1♀, Aiban, xii.36 (Philby) (BMNH); 1♀, Al Lith, xii.45 (Fitzgerald) (BMNH); 2♀, Asir, 32km S of Qunfidha, 1947 (Waterston) (BMNH). SUDAN: 4♀, Khor Arbaat Delta, v.26 (Johnston) (BMNH).

ENICOSPILUS RUNDIENSIS Bischoff

(Figs 274, 280, 286, 448, 687, 688, 775)

Eniropilus (sic) (*Dispilus*) *rundiensis* Bischoff, 1915 : 476. Lectotype ♂, BURUNDI (MNHU), designated by Townes & Townes (1973 : 183) [examined].

[*Henicospilus rufus* (Brullé) Szépligeti, 1922 : 912. Misidentification.]

Enicospilus ruandensis Roman, 1924 : 8. Lectotype ♀, RWANDA (NR), designated by Townes & Townes (1973 : 183) [examined]. Syn. n.

Enicospilus rundiensis Bischoff; Seyrig, 1935 : 68.

Enicospilus ruandensis Roman; Townes & Townes, 1973 : 183.

Enicospilus rundiensis Bischoff; Townes & Townes, 1973 : 183.

Description. Mandibles proximally narrowed, distally parallel sided, twisted about 15°, upper tooth 1.5-2.2 times as long as the lower; outer mandibular surface flat with long fine sparse hairs. Labrum 0.2-0.3 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute, slightly in-turned; clypeus in anterior aspect 1.8 times as broad as long, terminally truncate or convex. Lower face elongate, 0.70-0.80 times as broad as long with large close punctures. Genae weakly constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its own maximum diameter; FI = 55-60%; occipital carina complete. Antennae rather short, quite stout with 58-61 flagellar segments; 1st flagellar segment 1.5-1.6 times as long as 2nd, 20th segment 1.8-2.0 times as long as broad.

Pronotum mediodorsally quite long, rather flat with transverse furrow weakly impressed. Mesoscutum in profile evenly rounded, apically more or less not out-turned; notauli vestigial. Mesopleuron matt or subpolished dorsally punctate sometimes puncto-striate ventrally; epicnemial carina curved to almost reach anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate to posterior margin; scutellum dorsally 1.7-1.9 times as long as broad anteriorly, closely and coarsely punctate. Metapleuron closely punctate; submetapleural carina evenly anteriorly expanded. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely and closely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-16mm; discosubmarginal cell as in Fig. 448; AI = 0.50-0.75; CI = 0.40-0.65; ICI = 0.45-0.70; SDI = 1.20-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.3 times its own length. Hindwing with 6-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia flattened with sparse spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.4-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 687, 688.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long fine erect hairs and scattered decumbent short pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 775.

Colour generally within the range from orange-brown to dark reddish-brown with only the genae slightly paler.

Variation. The central sclerite varies from oval and about 3 times as broad as long to allantoid and about 5 times as broad as long. It is always progressively less strongly sclerotized distally.

Remarks. This is a very distinctive species although all the characters are degrees of a range of variation occurring in species of *Enicospilus* rather than being exceptional or unique characters as found in *E. taxus*. *E. rundiensis* may be recognized by the combination of flat mandibles, rather more quadrate head than is normal, allantoid central sclerite and matt or weakly polished, rather coarsely punctate pleurae.

This species belongs to the *E. communis* species-group although it differs from the majority of other species in the shape of the central sclerite.

Distribution. This species is recorded from the eastern part of Africa ranging from the Dem. Rep. Yemen to South Africa. It is probably associated with mountainous terrain (Map 93).

Material examined. *Enicospilus* (sic) (*Dispilus*) *rundiensis* Bischoff, lectotype ♂, BURUNDI: ('German East Africa, W. Urundi'), ix.11 (Meyer) (MNHU); paralectotypes 1♀, same data as lectotype (MNHN); 1♀, same data as lectotype (TC). *Enicospilus ruandensis* Roman, lectotype ♀, RWANDA: 'Ruanda omradet', no further data (NR).

Non-type material. BURUNDI: 1♀, Bururi, iii.44 (*Francois*) (MRAC). DEM. REP. YEMEN: 1♀, Jebel Jihaf, x.37 (BMNH). ETHIOPIA: 1♀, Addis Ababa, 1911 (*Turner*) (BMNH); 1♂, Djem, Diem, 1926 (*Scott*) (BMNH); 1♀, Jimma, x.69 (*Cobben*) (WAU). KENYA: 2♀, Aberdare, Mt Nyere, ii.12 (*Alluaud & Jeannel*) (MNHN); 1♂, 1♀, Kijabe, xii.11 (*Alluaud & Jeannel*) (MNHN); 5♀, Kinangop Mt, x.34 (*Edwards*) (BMNH); 4♀, 1♂, Kinangop Mt, 1935 (*Edwards*) (BMNH); 4♀, 5♂, Mau Escarpment, 1932-33 (*Arambourg, Chappuis & Jeannel*) (MNHN); 1♀, Molo, Mau Scarp, iv.57 (*Basilewsky*) (MRAC); 8♀, 12♂, Mt Elgon, 1932-33 (*Arambourg, Chappuis & Jeannel*) (MNHN); 3♀, 2♂, Mt Elgon, iv.76 (*Bampton*) (TC); 2♂, Nairobi, viii.44 (*Copley*) (BMNH); 2♀, 9♂, Nairobi, iii-vi.69 (*Brown*) (BMNH); 1♀, Naivasha, iv.57 (*Basilewsky*) (MRAC). RWANDA: 1♀, Gite de Nkuli, iii.36 (*Lippens*) (MRAC); 1♀, Rutoru, Rugege, i.53 (*Basilewsky*) (MRAC); 1♀, no further locality, x.25 (MRAC). SOUTH AFRICA: 1♀, Cape, George, xi.22 (*Turner*) (BMNH); 3♀, Cape, Katberg, x.32 (*Turner*) (BMNH); 1♀, Cape, Somerset E., xi.30 (*Turner*) (BMNH); 1♀, Drakensberg, xi.26 (*Turner*) (BMNH); 1♀, Grahamstown, iii.54 (*Junor*) (MRAC); 1♀, 2♂, Grahamstown, 1963 (*Farquharson*) (TC); 7♀, Grahamstown, x-xi.70 (*Gess*) (TC); 4♀, 2♂, Grahamstown, i-iii.71 (*Gess*) (TC). TANZANIA: 1♀, Longido, Masai Dist., iv.57 (*Basilewsky*) (MRAC); 1♀, Lushoto, vi.53 (BMNH); 1♀, Malengo Plat., Ugano, 1936 (*Zimmer*) (BMNH). UGANDA: 1♀, Ankole, Kichwamba, iv.68 (*Spangler*) (USNM); 1♀, Kampala, xi.15 (*Gowdey*) (BMNH); 2♀, Mt Elgon, Butandiga, 1935 (*Ford*) (BMNH); 1♀, Ruwenzori, v.11 (*Gowdey*) (BMNH). ZAIRE: 1♀, Kabare, vi.52 (*Vandevelde*) (MRAC); 3♀, 1♂, Kivu, Ibanda, 1952 (*Vandelannoite*) (MRAC); 2♂, Kivu, Kjbati, xii.27 (*Seydel*) (MRAC); 1♀, Kivu, La Mutura, iii.28 (*Seydel*) (MRAC); 1♂, Kivu, Nzombe, 1952 (*Froidebise*) (MRAC); 1♀, Kivu, Rwanki, viii.47 (*Leroy*) (MRAC); 1♀, Kivu, Rwenkere, iii.28 (*Seydel*) (MRAC); 1♀, Kivu, Tshibinda, xii.27 (*Seydel*) (MRAC); 1♀, 3♂, Kivu, Tshumba, ix.37 (*Ghesquière*) (MRAC); 1♀, 1♂, Kivu, Uvira, v.54 (*Leleup*) (MRAC); 1♀, Lubumbashi, 1934 (*Seydel*) (MRAC); 1♂, Lubumbashi, ii.55 (*Seydel*) (MRAC); 1♀, Lulenga, 1933 (*De Wulf*) (MRAC); 1♀, Mt Goffart (*Chery*) (MRAC); 1♀, Rutshuru, vi.36 (*Lippens*) (MRAC); 2♀, Ruwenzori, Kalonge, vii.32 (*Burgeon*) (MRAC); 1♂, Uvira (Kavira), vi.55 (*Martier*) (MRAC). COUNTRY UNKNOWN: 1♀, Kanaba Gap, xi.34 (BMNH).

ENICOSPILUS KTESUS sp. n.

(Figs 277, 449, 689, 690)

Description. Mandibles proximally narrowed, distally parallel sided, twisted about 10°, upper tooth 2.5 times or more as long as the lower; outer mandibular surface flat. Labrum 0.4 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile convex, margin blunt, impressed; clypeus in anterior aspect 1.8-1.9 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.85 times as broad as long, finely punctate. Genae slightly swollen behind the eyes; posterior ocellus separated from eye by 0.1 times its own maximum diameter; FI = 55-60%; occipital carina complete. Antennae rather short and stout with 61-63 flagellar segments. 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.8-1.9 times as long as broad.

Pronotum mediodorsally long, flat; transverse furrow very weak. Mesoscutum in profile evenly rounded, apically not out-turned; notauli vestigial. Mesopleuron polished, puncto-striate; epicnemial carina curved to reach anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate to posterior margin; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, coarsely punctate. Metapleuron closely punctate to puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile fairly abruptly rounded, dorsally deplanate; anterior transcarina complete to present only as a central vestige; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-15mm; discosubmarginal cell as in Fig. 449; AI = 0.50-0.60; CI = 0.25-0.35; ICI = 0.40-0.50; SDI = 1.30-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia flattened with scattered spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.2-0.3 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 689, 690.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia small, ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long stout erect hair and few scattered fine hairs; gonostoma distally evenly rounded; genital claspers similar to those of *E. rundiensis*.

Colour generally yellowish-brown; lower face centrally reddish, orbits, genae and inter-ocellar area yellowish; flagellum reddish-brown.

Remarks. This species is rather similar to *E. rundiensis* and could be overlooked. The two are distinguishable by the following characters:

E. RUNDIENSIS

♀ hind tarsal claw distally with about 5 short stout pectinae.

E. KTESUS

♀ hind tarsal claw distally with about 8 long slender pectinae.

♂ hind tarsal claw distally with about 7 short, stout, fairly widely interspaced pectinae.

Labrum of moderate length, less than 0.3 times as long as basally broad.

Clypeus with margin acute.

CI greater than 0.40.

♂ hind tarsal claw distally with about 8-9 close, rather long slender pectinae.

Labrum long, about 0.4 times as long as basally broad.

Clypeus with margin blunt.

CI 0.35 or less.

Distribution. This species has been recorded from South Africa (Map 94).

Material examined. Holotype ♀, SOUTH AFRICA: Grahamstown, xi.70 (*Gess*) (TC); paratypes 31♀, 6♂, Grahamstown, x-xii.70 (*Gess*) (TC); 1♀, Grahamstown, x.70 (*H. & M. Townes & J. Guillardod*) (TC); 5♀, 1♂, Grahamstown, i-vii.71 (*Gess*) (TC); 1♀, Hluhluwe Game Reserve, x.70 (*H. & M. Townes*) (TC).

ENICOSPILUS LATUS sp. n.

(Figs 283, 450, 691)

Description. Mandibles very weakly narrowed, distally 0.5 times as broad as long, twisted about 5°, subequally bidentate; outer mandibular surface flat with fine scattered hairs but with a pronounced basal concavity. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat, margin blunt; clypeus in anterior aspect 1.5 times as broad as long, terminally truncate. Lower face elongate, 0.68 times as broad as long, coarsely punctate. Genae moderately constricted behind the eyes; posterior ocellus close to eye; FI = 65%; occipital carina complete. Antennae moderately long and slender with 64 flagellar segments; 1st flagellar segment 2.0 times as long as 2nd, 20th segment 2.3 times as long as broad.

Mesoscutum in profile fairly abruptly rounded, apically not out-turned; notauli absent. Mesopleuron polished, upper part punctate, ventrally puncto-striate; epicnemial carina curved to but not reaching anterior margin of pleuron above level of lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate to posterior margin; scutellum dorsally 1.7 times as long as broad anteriorly, punctate. Metapleuron puncto-striate; submetapleural carina evenly anteriorly broadened. Propodeum in profile abruptly declivitous, dorsally flat; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area reticulately wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14.5mm; discosubmarginal cell as in Fig. 450; AI = 0.57; CI = 0.56; ICI = 0.50; SDI = 1.30; *cu-a* subopposite *Rs&M*. Hindwing with 9 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia slightly flattened with isolated spines on outer surface; hind coxa in profile 1.8 times as long as deep; hind trochantellus mediodorsally 0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Fig. 691.

Gaster elongate; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 4.0 times its own length.

♀ unknown.

Sternites 6-8 of ♂ with dense long pubescence; gonosquama distally evenly rounded.

Colour generally orange-brown; lower face orange; genae and inter-ocellar area yellow-brown; flagellum infusate.

Remarks. This distinctive species is easily recognized on account of the broad weakly twisted mandibles and flat clypeus. The affinities of *E. latus* are unknown.

Distribution. This species is recorded from Angola (Map 95).

Material examined. Holotype ♂, ANGOLA: 30km N of Quiçulungo, ix-x.57 (*Heinrich*) (TC).

ENICOSPILUS FENESTRALIS (Szépligeti)

(Figs 284, 287, 451, 692, 693, 714)

Henicospilus fenestralis Szépligeti, 1906 : 134. Holotype ♂, TANZANIA (TMB) [examined].

Henicospilus grandis Szépligeti, 1908 : 45. Lectotype ♂, TANZANIA (NM), designated by Townes & Townes (1973 : 177) [examined]. [Junior secondary homonym in *Enicospilus* of *Pleuroneurophion grandis* Cameron, 1905.] [Synonymized by Townes & Townes, 1973 : 177.]

Enicospilus (sic) *grandis* (Szépligeti) Bischoff, 1915 : 476.

[*Enicospilus interstitialis* (Szépligeti); Seyrig, 1935 : 66. Misidentification.]

Enicospilus interstitialis var *nigricauda* Seyrig, 1935 : 67. Lectotype ♂, KENYA (MNHN), designated by Townes & Townes (1973 : 180) [examined]. [Junior secondary homonym in *Enicospilus* of *Ophion nigricauda* Taschenberg, 1875.]

Syn. n.

Enicospilus fenestralis (Szépligeti) Townes & Townes, 1973 : 177.

Enicospilus melanura Townes & Townes, 1973 : 180. [Replacement name for *nigricauda* Seyrig.]

Description. Mandibles fairly evenly narrowed, distal 0.3 parallel sided, twisted about 15-20°, upper tooth about 1.4 times as long as the lower, not at all dorsoventrally flattened; outer mandibular surface slightly concave, centrally rugulose sparsely pubescent with a small ventro-proximal concavity. Labrum 0.3-0.4 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute, straight; clypeus in anterior aspect 1.4-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 60-65%; occipital carina complete. Antennae long and slender with 56-76 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 2.2-2.8 times as long as broad.

Pronotum mediodorsally rather short; transverse furrow moderately impressed. Mesoscutum in profile evenly rounded,

apically weakly out-turned; notauli absent. Mesopleuron polished, upper part puncto-striate ventrally grading into striate; epicnemial carina curved to approach anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.8 of its length; scutellum dorsally 1.5-1.6 times as long as broad anteriorly, punctate, posteriorly coriaceous. Metapleuron finely alutaceous with isolated punctures; submetapleural carina more or less parallel sided. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area coriaceous, spiracular area smooth, posterior area finely irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 16-19mm; discosubmarginal cell as in Fig. 451; AI = 0.55-0.85; CI = 0.45-0.56; ICI = 0.55-0.70; SDI = 1.20-1.30; *cu-a* subopposite *Rs&M*. Hindwing with 7-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, with scattered spines on outer surface; hind coxa in profile 2.0-2.2 times as long as deep; hind trochantellus mediodorsally 0.7-1.0 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 692, 693.

Gaster long and slender; sternite 2 with posterior margin behind or subopposite spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of ♂ with dense long pubescence; gonosquama distally evenly rounded, genital claspers as in Fig. 774.

Colour generally orange-red; inter-ocellar area yellowish-orange, rarely slightly infuscate close to ocelli; lower face yellowish; flagellum reddish.

Variation. The flagellum is rather variable in the number of flagellar segments, having a range of 20. (The mean for the ♀ is 70, the ♂ is 72, which is rather higher than the median and is unusual.) A number of specimens have infuscate terminal gastral segments, whilst a number have the gaster terminally black. A few specimens are uniformly dark orange-brown.

Remarks. This species has frequently been misidentified in collections and is generally confused with *E. rundiensis* and *E. natalensis*. To prevent this confusion the diagnostic features of the three species are compared in Table 3.

E. fenestralis belongs to the *E. communis* species-group.

Distribution. This species is widely distributed throughout eastern Africa with isolated records from Madagascar and West Africa (Map 96).

Material examined. *Enicospilus fenestralis* Szépligeti, holotype ♂, TANZANIA: Kilimandjaro, x.04 (TMB). *Enicospilus grandis* Szépligeti, lectotype ♂, TANZANIA: Mt Meru, no further data (NM). *Enicospilus interstitialis* var *nigricauda* Seyrig, lectotype ♂, KENYA: Mt Elgon, Elgon Sawmill, 2470m, 1932-33 (*Arambourg, Chappuis & Jeannel*) (MNHN); paralectotypes 3♀, same data as lectotype (MNHN).

Non-type material. ETHIOPIA: 2♀, Bonchamps, 1899 (Michel) (MNHN). KENYA: 1♂, Aberdare, Mt Katamyo, i.29 (*Carpenter*) (BMNH); 2♀, Aberdare, Mt Kinangop, 2600m, x.34 (*Edwards*) (BMNH); 1♀, Buchi R., Kenya Forest, x.11 (*Neave*) (BMNH); 1♀, Kapenguria, v.76 (*Bampton*) (TC); 3♀, Kikuyu Scarp, Kijabe, iii.11 (*Neave*) (BMNH); 1♀, Kilimanjaro, 1909 (*Alluaud*) (MNHN); 1♂, Kilimanjaro, iv.12 (*Alluaud & Jeannel*) (MNHN); 1♀, Mfangano Is., iv.11 (*Neave*) (BMNH); 1♀, Mt Elgon, iv.76 (*Bampton*) (TC); 4♀, 1♂, Mt Kenya, ii.11 (*Neave*) (BMNH); 4♂, Mt Kenya, i.12 (*Alluaud & Jeannel*) (MNHN); 1♀, Nandi Escarpment, v.11 (*Neave*) (BMNH); 1♀, Nairobi, ii.63 (TC); 2♀, 4♂, Nairobi, viii.71 (*Cunningham & van Someren*) (TC); 1♀, Narok, Masai Res., xii.13 (*Luckman*) (BMNH); 1♂, Ngong Forest, iv.68 (*Spangler*) (USNM); 3♀, 11♂, Nyeri, vi.32 (*Seyrig*) (MNHN). MADAGASCAR: 1♂, Ambodivoangy (*Inst. Res. Mad.*) (MRAC). NIGERIA: 1♀, Samaru, viii.70 (*Ward*) (BMNH). SOUTH AFRICA: 1♀, Cape, Mossel Bay, ii.22 (*Turner*) (BMNH). TANZANIA: 1♀, Mdando Forest, 48km S of Njombe, x.62 (*Heinrich*) (TC); 1♂, Mt Meru, 2600m, i.38 (*Cooper*) (BMNH); 1♀, 1♂, Mt Meru, viii.57 (*Basilewsky*) (MRAC); 4♀, Mt Meru, 1800-2100m, vi.62 (*Heinrich*) (TC); 12♀, 14♂, Mt Meru, 2700m, vii.62 (*Heinrich*) (TC); 1♀, Nagama Forest, iii.76 (*Bampton*) (TC); 1♀, no further locality, 1935 (*Cooper*) (BMNH). UGANDA: 1♀, Bugishu, 3000m, x.34 (*Edwards*) (BMNH); 1♀, Kampala, x.15 (*Gowdey*) (BMNH); 1♂, Kawanda, iii.58 (*Whalley*) (BMNH); 1♀, L. Wamala, i.12 (*Neave*) (BMNH); 1♂, Mabira Forest, viii.18 (*Gowdey*) (BMNH); 1♀, Ruwenzori, Ft. Portal, i.35 (*Edwards*) (BMNH); 1♀, Ruwenzori, Ibanda, viii.52 (*Fletcher*) (BMNH). ZAIRE: 1♀, Beni (*Borgerhoff*) (MRAC); 1♀, 2♂, Ituri, Dgugu, xi.28 (*Collart*) (MRAC); 1♀, Kivu, Ibanda, vi.35 (*Vandelannoite*) (MRAC); 1♀, Kivu, Mulungu, iv.35 (*Leroy*) (MRAC); 1♀, Kivu, Rwanki, xi.47 (*Leroy*) (MRAC); 4♀, Rutshuru, vi.36 (*Lippens*) (MRAC); 2♀, Tshibinda, viii.31 (*Mackie*) (BMNH). ZAMBIA: 1♀, Luangwa Valley, viii.10 (*Neave*) (BMNH).

ENICOSPILUS INFLEXOCARINATUS (Enderlein)

(Figs 453, 694)

Enicospilus inflexocarinatus Enderlein, 1921 : 29. Holotype ♀, CAMEROUN (IZPAN) [examined].
Enicospilus inflexocarinatus (Enderlein) Townes & Townes, 1973 : 178.

Description. Mandibles evenly narrowed, twisted about 50°, upper tooth 1.5 times as long as the lower, dorso-ventrally flattened; outer mandibular surface flat with scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 2.0 times as broad as long, terminally truncate. Lower face elongate, 0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 80%; occipital carina complete. Antennae long, incomplete; 1st flagellar segment 1.6 times as long as 2nd, 20th segment 3.0 times as long as broad.

Pronotum mediodorsally rather short, transverse furrow weak. Mesoscutum in profile abruptly rounded, apically strongly out-turned; notauli very weak. Mesopleuron polished, finely striate; epicnemial carina vestigial above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6 times as long as broad anteriorly, smooth with isolated punctures. Metapleuron finely and weakly striate; submetapleural carina very narrow anteriorly abruptly expanded into a small lobe. Propodeum in profile evenly rounded, dorsally deplanate; anterior transcarina complete; anterior area finely rugulose, spiracular area more or less smooth, posterior area finely irregularly wrinkled. Posterior transverse carina of mesosternum broadly centrally incomplete.

Forewing length 10-12mm; discosubmarginal cell as in Fig. 453; AI = 2.40-2.50; CI = 0.20-0.25; ICI = 0.25-0.30; SDI = 1.20-1.30; *cu-a* subopposite *Rs&M*. Hindwing with 6 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical virtually without spines; hind coxa in profile 1.8-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 times as long as broad; hind tarsal claws symmetrical, exceptionally strongly curved, pectinate as in Fig. 694.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with isolated fine erect hairs; gonosquama distally evenly rounded.

Colour of head pale yellow, face centrally badius; alitrunk badius, margins of all sclerites pale yellow; legs, antennae and gaster yellowish-orange, terminal segments of gaster from orange to infusate or black; inter-ocellar area infusate close to ocelli.

Remarks. This species is distinct on account of the very strongly curved hind tarsal claws and the very large value of AI. Its affinities are not clear.

Distribution. This species is recorded from western Africa (Map 95).

Material examined. *Henicospilus inflexocarinatus* Enderlein, holotype ♀, CAMEROUN ('KAMERUN'): Barombi (Conradt) (IZPAN). Non-type material. IVORY COAST: 1♂, Bingerville, ix.62 (Decelle) (MRAC). ZAIRE: 3♀, Eala, x.36 (Ghesquière) (MRAC).

ENICOSPILUS NATALENSIS (Kriechbaumer)

(Figs 452, 695, 696)

Ophion (Dispilus) Natalensis Kriechbaumer, 1894 : 309. Holotype ♀, SOUTH AFRICA (TMP) [examined].

Dispilus Natalensis (Kriechbaumer) Dalla Torre, 1901 : 187.

Henicospilus interstitialis Szépligeti, 1908 : 49. Holotype ♀, TANZANIA (NR) [examined]. **Syn. n.**

Henicospilus natalensis (Kriechbaumer) Morley, 1912a : 41.

[*Henicospilus sericatus* (Tosquinet) Morley, 1912a : 41. In part. Misidentification.]

Henicospilus interstitialis Szépligeti; Szépligeti, 1922 : 912.

Enicospilus menamena Seyrig, 1935 : 78. LECTOTYPE ♀, MADAGASCAR (MNHN), by present designation [examined].

Syn. n.

Enicospilus interstitialis (Szépligeti) Townes & Townes, 1973 : 176.

Enicospilus natalensis (Kriechbaumer) Townes & Townes, 1973 : 181.

Description. Mandibles evenly narrowed, twisted about 30°, upper tooth about 1.5 times as long as the lower, slightly flattened; outer mandibular surface flat with fine scattered pubescence. Labrum 0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin in-turned; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.65 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eyes; FI = 65%; occipital carina complete. Antennae long and slender with 57-60 flagellar segments; 1st flagellar segment 1.8-2.0 times as long as 2nd, 20th segment 2.4-2.6 times as long as broad.

Pronotum mediodorsally short, transverse furrow very strongly impressed. Mesoscutum in profile evenly rounded, apically slightly out-turned; notauli absent. Mesopleuron polished, puncto-striate; epicnemial carina curved towards anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.9-2.0 times as long as broad anteriorly, finely alutaceous. Metapleuron finely striate dorsally subreticulate, submetapleural carina evenly anteriorly expanded. Propodeum in profile evenly rounded, dorsally deplanate; anterior transcarina complete; anterior area striate, spiracular area finely punctate, posterior area coarsely and irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-16mm; discosubmarginal cell as in Fig. 452; AI = 0.30-0.70; CI = 0.25-0.35; ICI = 0.35-0.40; SDI = 1.20-1.40; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 7 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines on outer surface; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 695, 696.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long, moderately dense pubescence; gonosquama distally evenly rounded.

Colour generally orange-brown, terminal segments of gaster often weakly infusate; lower face, vertex and inter-ocellar area yellowish; flagellum infusate.

Remarks. This species is quite closely related to *E. betanimenus* from which it differs in having the central sclerite smaller, separated from *Rs+2r* by a little more than its minimum diameter. The mesopleurae of *E. betanimenus* are far more impunctate and finely striate than are those of *E. natalensis*.

Immature stages. Cocoon 14mm long, 4mm wide, outer surface finely fibrous, blackish with a narrow cream equatorial band.

Distribution. This species is widely distributed but quite uncommon. It occurs from the west African islands to Madagascar (Map 95).

Material examined. *Ophion (Dispilus) Natalensis* Kriechbaumer, holotype ♀, SOUTH AFRICA: Durban, no further data (TMP). *Henicospilus interstitialis* Szépligeti, holotype ♀, TANZANIA: Kibongoto on Kilimanjaro, 1905 (Sjöstedt) (NR). *Enicospilus menamena* Seyrig, lectotype ♀, MADAGASCAR: Sombilan, no further data (MNHN); paralectotypes 2♀, KENYA: Nairobi, no further data (MNHN).

Non-type material. MADAGASCAR: 1♀, Perinet, i.34 (Seyrig) (MNHN); 1♀, Rogez, ii.31 (Seyrig) (MNHN); 1♀, Rogez, iv.34 (Seyrig) (MNHN). MOÇAMBIQUE: 1♀, Guengère, Valley Pungové, 1906 (Vasse) (MNHN). RODRIGUEZ IS.: 1♀, no further data (BMNH). SÃO TOMÉ IS.: 1♀, no further locality, x.32 (Tams) (BMNH). TANZANIA: 2♀, Pugu Hills, 80km S of Dar-es-Salaam, no further data (TC); 1♀, E Usambara Mts, iv.62 (Heinrich) (TC); 1♀, 1♂, W Usambara Mts, near Lushoto, ii.62 (Heinrich) (TC).

TABLE 3. COMPARISON OF THE CRITICAL CHARACTERS OF *ENICOSPILUS RUNDIENSIS*, *E. NATALENSIS* AND *E. FENESTRALIS*.

RUNDIENSIS	NATALENSIS	FENESTRALIS
Central sclerite oval to allantoid	Central sclerite oval.	Central sclerite allantoid.
Mandibles distally parallel sided, upper tooth not at all dorsoventrally flattened.	Mandibles evenly narrowed, upper tooth slightly dorsoventrally flattened.	Mandibles with distal 0.4 parallel sided, upper tooth not at all dorsoventrally flattened.
Metapleurae closely punctate.	Metapleurae striate, dorsally subreticulate.	Metapleurae alutaceous with weak isolated punctures.
Hind trochantellus 0.4-0.5 times as long mediadorsally as broad.	Hind trochantellus 0.1-0.2 times as long as broad.	Hind trochantellus 0.7-1.0 times as long as broad.
CI = 0.45-0.56.	CI = 0.25-0.35.	CI = 0.40-0.65.

ENICOSPILUS BRAUNSI (Kriechbaumer)

(Figs 454, 697, 698, 791)

- Dispilus Braunsii* Kriechbaumer, 1901 : 154. Holotype ♀, SOUTH AFRICA (MRAC) [examined].
Henicospilus africanus Szépligeti, 1906 : 135. Holotype ♀, TANZANIA (TMB) [examined]. Syn. n..
Henicospilus congestus Szépligeti, 1908 : 45. Lectotype ♂, TANZANIA (NR), designated by Townes & Townes (1973 : 176) [examined]. Syn. n..
Enicospilus congestus (Szépligeti) Seyrig, 1935 : 67.
Enicospilus medius Seyrig, 1935 : 72. Holotype ♂, KENYA (MNHN) [examined]. Syn. n..
Enicospilus africanus (Szépligeti) Townes & Townes, 1973 : 172.
Enicospilus braunsii (Kriechbaumer) Townes & Townes, 1973 : 174.
Enicospilus congestus (Szépligeti); Townes & Townes, 1973 : 176.
Enicospilus medius Seyrig; Townes & Townes, 1973 : 180.

Townes & Townes were unable to locate the type material of either *Ophion* (*Henicospilus*) *Braunsii* or *Dispilus Braunsii* and in their 1973 catalogue included both within the genus *Enicospilus*. *Dispilus Braunsii* became a junior secondary homonym. We subsequently located the holotype of *Dispilus Braunsii* in MRAC (although there is no indication of why this museum should contain a solitary Kriechbaumer type when all others are deposited in TMP) and confirmed its placement in *Enicospilus*. Due to the diligence of Mr M. J. Scoble the holotype of *Ophion* (*Henicospilus*) *Braunsii* was located in TMP. This species proved to belong to the genus *Dicamptus*. *Dispilus Braunsii* was therefore no longer a junior secondary homonym in *Enicospilus* and under Article 59c of the International Code of Zoological Nomenclature, *Enicospilus braunsii* (Kriechbaumer) is an available name and the correct name applicable to this species.

Description. Mandibles evenly narrowed, twisted about 25°, upper tooth 1.2-1.5 times as long as the lower, not deplanate; outer mandibular surface flat, sparsely pubescent with a weak proximo-ventral concavity. Labrum 0.4 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile moderately convex, margin in-turned; clypeus in anterior aspect 1.5-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.75-0.85 times as broad as long, finely punctate. Genae constricted moderately behind the eyes; posterior ocellus separated from eye by 0.1 times its own maximum diameter; FI = 60-65%; occipital carina complete. Antennae long and slender with 54-63 flagellar segments; 1st flagellar segment 1.5-1.8 times as long as 2nd, 20th segment 2.7-3.0 times as long as broad.

Pronotum mediodorsally quite long, flat with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically very weakly out-turned; notauli absent or vestigial. Mesopleuron polished, punctate ventrally grading to puncto-striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.8 or more of its length; scutellum dorsally 1.5-1.7 times as long as broad anteriorly, smooth with isolated punctures. Metapleuron puncto-striate; submetapleural carina narrow, evenly anteriorly broadened. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area irregularly transversely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 454; AI = 0.45-0.80; CI = 0.40-0.60; ICI = 0.35-0.55; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-8 hamuli on *R*₁; 1A proximally straight.

Foreleg with tibia subcylindrical, with isolated spines; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.3-0.4 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 697, 698.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor shorter and stouter than is normal for species of this genus. Sternites 6-8 of ♂ with long moderately dense erect hairs, the area between finely pubescent; gonosquama distally evenly rounded; genital claspers as in Fig. 781.

Colour generally reddish-brown; lower face yellowish-brown; inter-ocellar area usually yellowish, rarely almost imperceptibly infuscate.

Variation. One group of Madagascan specimens have CI from 0.20-0.30, the mesopleuron more evenly punctate and the hind trochantelli only 0.1 times as long as broad. It is possible these specimens (given the manuscript name *kaladius* by Seyrig in his collection at the MNHN) represent a separate species.

Remarks. This species differs from *E. natalensis* in the position of the central sclerite. Although this difference is rather small we believe it to be of a great phylogenetic significance as such a small difference is consistent between two species-groups, the *E. betanimenus* species-group and the *E. communis* species-group. Such a difference also correlates with subtle differences in head shape and ovipositor shape.

E. braunsii is undoubtedly very closely related to *E. communis* from which it differs most noticeably in the colour of the inter-ocellar area and the sculpture of the metapleuron.

Distribution. This species is widely distributed throughout East Africa extending to Madagascar and Mascarene Archipelago (Map 97).

Material examined. *Dispilus Braunsii* Kriechbaumer, holotype ♀, SOUTH AFRICA: Algoa Bay, no further data (MRAC). *Henicospilus africanus* Szépligeti, holotype ♀, TANZANIA: Kilimanjaro, no further data (TMB). *Henicospilus congestus* Szépligeti, lectotype ♂, TANZANIA: Kibongoto, Kilimanjaro, no further data (NR). *Enicospilus medius* Seyrig, holotype ♂, KENYA: Nairobi, no further data (MNHN).

Non-type material. KENYA: 1♀, E Aberdare Mts, ii.11 (*Neave*) (BMNH); 1♂, Ngong, iii.41 (*van Someren*) (BMNH). MADAGASCAR: 1♂, Ambohimanga, ii.36 (*Seyrig*) (MNHN); 2♂, Ambositra, x.28 (*Seyrig*) (MNHN); 1♂, Ambositra, xi.31 (*Seyrig*) (MNHN); 1♀, Ambositra, ii.34 (*Seyrig*) (MNHN); 1♀, Ambositra, xi.35 (*Seyrig*) (MNHN); 1♀, Anfaratra, i.56 (*Inst. Res. Mad.*) (MRAC); 3♀, Ankaratra, i.31 (*Seyrig*) (MNHN); 4♀, Ankaratra, xi-xii.31 (*Seyrig*) (MNHN); 2♂, Ankaratra, ii-iii.32 (*Seyrig*) (MNHN); 1♀, Antsirabé, xii.29 (*Seyrig*) (MNHN); 2♀, Bekily, xii.32 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, xii.33 (*Seyrig*) (MNHN); 2♀, 1♂, Bekily, i-ii.34 (*Seyrig*) (MNHN); 10♀, 8♂, Bekily, vi-xi.36 (*Seyrig*) (MNHN); 1♀, Bekily, iii.37 (*Seyrig*) (MNHN); 1♂, Fanorana, vi.33 (*Seyrig*) (MNHN); 1♂, Fianarantsoa, v.30 (*Seyrig*) (MNHN).

(MNHN); 2♀, 3♂, Fianarantsoa, vi.33 (*Seyrig*) (MNHN); 1♀, 5♂, Fianarantsoa, xi.36 (*Seyrig*) (MNHN); 2♀, Ihosy, ii-iv. 30 (*Seyrig*) (MNHN); 1♀, Mandraka, xii.29 (*Seyrig*) (MNHN); 1♀, Mandraka, xii.44 (*Seyrig*) (MRAC); 1♂, Mt Bity, i.30 (*Seyrig*) (MNHN); 1♀, Perinet, xi.30 (*Seyrig*) (MNHN); 1♂, Perinet, iii.35 (*Seyrig*) (MNHN); 1♀, Ralanbatitra, i.33 (*Seyrig*) (MNHN); 1♂, Rogez, xii.30 (*Seyrig*) (MNHN); 1♀, Rogez, xii.33 (*Seyrig*) (MNHN); 1♂, Rogez, vii.37 (*Seyrig*) (MNHN); 1♂, Tananarive, ii.34 (*Seyrig*) (MNHN); 1♀, Vatomaniry, xii.29 (*Seyrig*) (MNHN). MAURITIUS: 1♂, Henrietta, ii.69 (*Williams*) (BMNH). SOUTH AFRICA: 2♀, 3♂, Cape, Katberg, ii.33 (*Turner*) (BMNH); 2♀, Cape, Storm River, iii.63 (*Heinrich*) (TC); 1♀, Cape, Storm River, xii.64 (*Haeselbarth*) (TC); 2♀, Grahamstown, xii.71 (*Gess*) (TC); 1♀, Grahamstown, i.72 (*Gess*) (TC); 4♂, Hluhluwe Game Res., xi.70 (*H. & M. Townes*) (TC); 1♀, Johannesburg, vii.64 (*Haeselbarth*) (TC); 5♀, 7♂, Karkloof near Howick, x-xii.70 (*H. & M. Townes*) (TC); 7♀, 6♂, Magoebaskloof near Tzaneen, i.71 (*H. & M. Townes*) (TC); 1♀, Natal, Eshowe, xi.70 (*H. & M. Townes*) (TC); 1♂, Natal, Mpendle, xii.70 (*H. & M. Townes*) (TC); 1♂, Natal, Muden, xi.70 (*H. & M. Townes*) (TC); 3♀, 4♂, Natal, Ngome Forest, xi.70 (*H. & M. Townes*) (TC); 14♀, 27♂, Pietermaritzburg, x.70 (*H. & M. Townes*) (TC); 1♀, Pirie Bush, 1898 (*Stenning*) (BMNH); 1♂, Pretoria, i.71 (*H. & M. Townes*) (TC); 18♀, 2♂, Royal Natal Nat. Pk., i.71 (*H. & M. Townes*) (TC); 1♀, 6♂, St. Lucia Est., xi.70 (*H. & M. Townes*) (TC); 1♂, Transvaal, Mariepskop, iv.67 (*Haeselbarth*) (TC). TANZANIA: 1♀, Lake Embagai, viii.37 (*Cooper*) (BMNH); 1♀, Mt Meru, vi-vii.62 (*Heinrich*) (TC); 1♀, 3600m, no further locality, 1935 (*Cooper*) (BMNH). UGANDA: 1♂, Kampala, xi.15 (*Gowdey*) (BMNH); 1♂, Kampala, ii-iv.64 (*Owen*) (TC); 3♀, Kampala, x.65 (*Owen*) (TC); 1♀, Kampala, v-xii.65 (*Unamba*) (TC). ZAIRE: 1♂, Kibomo, x.30 (*Brédo*) (MRAC); 1♂, Lubumbashi, xi.56 (*Seydel*) (MRAC); 2♀, Lubumbashi, xii.56 (*Seydel*) (TC).

ENICOSPILUS KROSSUS sp. n.

(Figs 290, 455, 699, 700)

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth about 1.4 times as long as the lower, not flattened; outer mandibular surface flat with scattered hair, with a weak proximo-ventral concavity. Labrum 0.3 times as long as broad; malar space 0.2-0.3 times as long as basal mandibular width. Clypeus in profile flat, margin blunt, straight; clypeus in anterior aspect 1.6 times as broad as long, terminally truncate. Lower face elongate, 0.72-0.76 times as broad as long, with obsolete punctures. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 60%; occipital carina complete. Antennae long and slender with 56-58 flagellar segments; 1st flagellar segment 1.8-1.9 times as long as 2nd, 20th segment 2.2-2.3 times as long as broad.

Pronotum mediodorsally short, transverse furrow strongly impressed. Mesoscutum in profile abruptly curved, apically strongly out-turned; notauli absent. Mesopleuron polished, punctate grading to puncto-striate ventrally; epicnemial carina weak, turned to approach anterior margin of pleuron above lower corner of pronotum. Scutellum in profile slightly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.7-1.8 times as long as broad anteriorly; obsolete punctate. Metapleuron punctate to puncto-striate; submetapleural carina narrow, anteriorly abruptly expanded into triangular lobe. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area punctate, posterior area irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 15-18mm; discosubmarginal cell as in Fig. 455; AI = 0.80-1.20; CI = 0.40-0.50; ICI = 0.55-0.65; SDI = 1.40-1.50; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.7-1.8 times as long as deep; hind trochantellus mediodorsally 0.1 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 699, 700.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense fine pubescence; gonosquama distally evenly rounded.

Colour generally dark reddish-brown; lower face uniformly reddish-orange; vertex, genae and inter-ocellar area brownish-red; flagellum orange-red.

Remarks. This species belongs to the *E. transvaalensis* species-group. It is distinct on account of the combination of flat clypeus and punctate or puncto-striate pleurae and in having the submetapleural carina anteriorly expanded.

Distribution. This species is recorded from equatorial Africa and Madagascar (Map 98).

Material examined. Holotype ♀, SIERRA LEONE: Freetown, ii-vi.67 (*Owen*) (TC). Paratypes. MADAGASCAR: 2♀, Bekily, 1933 (*Seyrig*) (MNHN); 1♀, 1♂, Bekily, x-xii.36 (*Seyrig*) (MNHN); 1♀, Bekily, i.37 (*Seyrig*) (MNHN); 1♀, Perinet (*Inst. Res. Mad.*) (MRAC). NIGERIA: 1♀, Ibadan, ix.13 (*Lambourn*) (BMNH). SIERRA LEONE: 1♀, Freetown, xi.67 (*Owen*) (TC); 1♀, Freetown, v.68 (*Owen*) (TC); 1♀, Freetown, i.70 (*Owen*) (TC); 2♀, Njala, viii.27 (*Hargreaves*) (BMNH). UGANDA: 1♂, Mengo, Zika Forest, x.63 (*Lancaster*) (TC). ZAIRE: 1♀, Mayidi, 1942 (*van Eyen*) (MRAC).

ENICOSPILUS ADDENDUS sp. n.

(Figs 297, 456, 701, 702, 784)

Description. Mandibles proximally narrowed, distal 0.3 parallel sided, twisted about 40°, upper tooth about 1.5 times as long as the lower, not flattened; outer mandibular surface with weak median longitudinal concavity with long scattered pubescence. Labrum 0.3-0.4 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile weakly to moderately convex, margin blunt; clypeus in anterior aspect 1.4-1.5 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, strongly punctate. Genae weakly constricted behind the eyes; posterior ocellus separated from eye by 0.1 times its own maximum diameter; FI = 60%; occipital carina complete. Antennae long and slender with 65-68 flagellar segments; 1st flagellar segment 1.8 times as long as 2nd, 20th segment 2.0-2.1 times as long as broad.

Pronotum mediodorsally rather long, flattened with transverse furrow weak. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli discernible on anterior 0.2 of scutum. Mesopleuron polished puncto-striate ventrally grading to striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6 times as long as broad anteriorly, coarsely punctate. Metapleuron punctate to alutaceous; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 13-17mm; discosubmarginal cell as in Fig. 456; AI = 0.70-0.85; CI = 0.29-0.42; ICI = 0.45-0.60; SDI = 1.20-1.40; *cu-a* subopposite *Rs&M*. Hindwing with 6-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.8-2.1 times as long as deep; hind trochantellus mediodorsally 0.3-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 701, 702.

Gaster long and slender; sternite 2 with posterior margin at or slightly before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically moderately elongately acute. Sternites 6-8 of ♂ with dense coarse long pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 784.

Colour generally rather uniformly orange-red, the inner orbits not at all pale marked; flagellum infusate; inter-ocellar area sometimes weakly infusate close to ocelli.

Remarks. This species is distinctive in the combination of a large central sclerite and the subquadrate head. It belongs to the *E. addendus* species-group and is the only species in this group with such a central sclerite. It may be inadvertently confused with *E. transvaalensis* but the two are distinct, not only in head shape but also in the colour of the inner orbits.

Distribution. This species has been recorded from southern Africa and less commonly further north (Map 99).

Material examined. Holotype ♀, SOUTH AFRICA: Magoebaskloof, near Tzaneen, i.71 (*H. & M. Townes*) (TC). Paratypes. KENYA: 2♀, 3♂, Ngome Forest, iv.68 (*Spangler*) (USNM). SOUTH AFRICA: 1♀, Cape, Coffee Bay, x.70 (*Londt*) (TC); 2♀, 2♂, Natal, Van Reenen, xi.26 (*Turner*) (BMNH); 2♀, Pietermaritzburg, xi.70 (*H. & M. Townes*) (TC); 1♀, 1♂, Port St. Johns, xii.70 (*H. & M. Townes*) (TC); 1♂, St. Lucia Est., xi.70 (*H. & M. Townes*) (TC).

ENICOSPILUS VORAX Seyrig

(Figs 288, 295, 298, 300, 457, 703, 704, 783, 785)

Enicospilus vorax Seyrig, 1935 : 70. LECTOTYPE ♀, KENYA (MNHN), here designated [examined].

Description. Mandibles evenly narrowed, twisted about 40°, upper tooth 1.3-1.5 times as long as the lower, strongly flattened; outer mandibular surface flat with long fine scattered pubescence. Labrum 0.1-0.2 times as long as broad; malar space 0.3-0.4 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.60-0.70 times as broad as long, obsolete punctate. Genae constricted behind the eyes; posterior ocellus contiguous with eye; FI = 70%; occipital carina complete. Antennae long and slender with 63-65 flagellar segments; 1st flagellar segment 1.6-1.8 times as long as 2nd, 20th segment 2.4-2.5 times as long as broad.

Pronotum mediodorsally fairly short, transverse furrow deep. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli vestigial. Mesopleuron polished, coarsely striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.5-1.8 times as long as broad anteriorly, punctate. Metapleuron striate; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area coarsely wrinkled, subreticulate. Posterior transverse carina of mesosternum complete.

Forewing length 12-16mm; discosubmarginal cell as in Fig. 457; AI = 0.40-1.00; CI = 0.45-0.60; ICI = 0.35-0.45; SDI = 1.20-1.40; *cu-a* proximal to *Rs&M* by about 0.2 times its own length. Hindwing with 6-8 hamuli on R_1 ; 1A proximally straight.

Foreleg with tibia subcylindrical with scattered spines; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.1 or less times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 703, 704.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.0-3.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with long scattered stout and short fine decumbent hairs; gonosquama distally evenly rounded; genital claspers as in Fig. 783.

Colour generally orange-yellow; inter-ocellar area, vertex, genae and inner orbits above level of antennal insertion whitish; terminal segments of gaster infusate.

Remarks. This species probably belongs to the *E. betanimenus* species-group although it also has some characteristics of the *E. transvaalensis* species-group. It is very closely allied to *E. bonaberiensis* and also *E. finalis*. It requires care to separate these species but the characters given in the key and in Table 4 were found to work well.

Distribution. This species is widely distributed through equatorial Africa with a single record from Madagascar (Map 102).

Material examined. *Enicospilus vorax* Seyrig, lectotype ♀, KENYA: Mt Kenya, Meru, vi.32 (*Seyrig*) (MNHN); paralectotype 1♀, same data as lectotype (MNHN).

Non-type material. ETHIOPIA: 2♀, Jimma x.69, (*Cobben*) (WAU). IVORY COAST: 1♂, Bingerville, xi.62 (*Decelle*) (MRAC). KENYA: 1♀, Masongaleni, iii.11 (*Neave*) (BMNH); 1♀, Nandi Plateau, 1911 (*Neave*) (BMNH); 2♀, Narossura R., 1913 (*Lower*) (BMNH). MADAGASCAR: 1♀, Rogez, iv.31 (*Seyrig*) (MNHN). SIERRA LEONE: 3♀, 1♂, Freetown, 1969 (*Owen*) (TC); 1♀, Freetown, 1970 (*Owen*) (TC). SOUTH AFRICA: 1♂, Cape, Katberg, ii.33 (*Turner*) (BMNH); 1♀, Grahamstown, iii.63 (*Heinrich*) (TC); 1♀, Natal, Durban, x.31 (*Cockerell*) (BMNH); 1♀, Natal, Eshowe, iv.26 (*Turner*) (BMNH); 1♂, Natal, Weenen, ii.25 (*Thomasset*) (BMNH); 1♀, Orange Free State, Harrismith, ii.27 (*Turner*) (BMNH); 1♀, Pietermaritzburg, xi.63 (*Haeselbarth*) (TC); 1♀, Port St. John, ix.23 (*Turner*) (BMNH); 1♀, St. Lucia Estuary, xi.70 (*H. & M. Townes*) (TC). TANZANIA: 7♀, Morogoro, i-ii.62 (*Heinrich*) (TC); 19♀, 1♂, Mt Meru, vi-vii.62 (*Heinrich*) (TC); 3♀, Uluguru, xii.61 (*Heinrich*) (TC); 4♀, 1♂, W Usambara Mts, ii.62 (*Heinrich*) (TC). UGANDA: 1♀, Entebbe, 1912 (*Neave*) (BMNH); 2♀, Kampala, 1918 (*Gowdey*) (BMNH); 2♀, Kampala, 1964 (*Owen*) (TC); 1♀, Kampala, xi.65 (*Owen*) (TC). ZAIRE: 1♀, Kivu, Rutshuru, 1930 (*Luja*) (MRAC); 1♂, Ruwenzori, Kalonje, ii.71 (*Schwarz*) (MNHN).

TABLE 4. COMPARISON OF THE CRITICAL CHARACTERS OF *ENICOSPILUS VORAX*, *E. BONABERIENSIS*, *E. HOVA*, *E. TRANSVAALENSIS*, *E. BETANIMENUS* AND *E. FINALIS*.

CHARACTER	<i>E. VORAX</i>	<i>E. BONABERIENSIS</i>	<i>E. HOVA</i>	<i>E. TRANSVAALENSIS</i>	<i>E. BETANIMENUS</i>	<i>E. FINALIS</i>
Distal sclerite	+	+	+	+	+	-
Central sclerite	medially placed, oval, often with proximal margin weakly sclerotized	medially placed, oval, often with proximal margin weakly sclerotized	medially placed, kite-shaped, proximally weakly sclerotized	medially placed, D-shaped, often proximally weakly sclerotized	antero-distally placed, D-shaped uniformly sclerotized	medially placed, oval, uniformly sclerotized
Upper mandibular tooth	strongly flattened	strongly flattened	not flattened	not flattened	moderately flattened	moderately flattened
Mesopleural sculpture	striate	striate	punctostriate	punctate	striate	punctostriate
Metapleural sculpture	striate	striate	punctostriate	punctate	striate	punctostriate
Length of hind trochantellus mediodorsally <i>cf</i> with width	0.1-	0.3	0.3-0.5	0.3-0.5	0.1-0.2	0.1-0.2
Colour of lower face	uniformly orange-yellow	uniformly reddish-yellow	orange with orbits white	red-brown with orbits whitish	yellowish, centrally weakly infusate	uniformly red-brown

ENICOSPILUS BONABERIENSIS Strand

(Fig. 299)

Enicospilus (Dispilus) bonaberiensis Strand, 1917 : 42. Holotype ♀, CAMEROUN (DEI) [examined].
Enicospilus bonaberiensis Strand; Townes & Townes, 1973 : 174.

This species is similar to *E. vorax* from which it differs in having the hind trochantellus mediodorsally 0.3 times as long as broad and the propodeum finely wrinkled.

Remarks. This species is known only from a unique female. It is rather similar to *E. vorax* and may prove to be synonymous with it. However in view of the differences cited above and also the very little material available from the Cameroun (Map 99), we have decided to leave the two as distinct species for the present.

Material examined. *Enicospilus (Dispilus) bonaberiensis* Strand, holotype ♀, CAMEROUN: Bonaberi, no further data (DEI).

ENICOSPILUS HOVA sp. n.

(Figs 292, 458, 705, 706, 782, 801)

[*Ophion hova* Saussure, 1892 : 21. Nomen nudum.]
 [*Henicospilus hova* (Saussure); Moutia and Mamet, 1947 : 28. Nomen nudum.]
 [*Ophion howa* (sic) Saussure; Risbec, 1960 : 636. Nomen nudum.]
Enicospilus species, Townes & Townes, 1973 : 184.
Enicospilus hova sp. n. Holotype ♂, MAURITIUS (BMNH).

Saussure figured an unnamed variety of *hova*, not the species of *hova*. Thus *hova* Saussure being without description or figure is a nomen nudum. Neither of the subsequent usages of *hova* Saussure have included description or figures and thus *hova* has remained a nomen nudum. We have chosen to name this species *hova* sp. n. to continue the usage of the name.

Description. Mandibles evenly narrowed, twisted about 20°, upper tooth 1.3-1.4 times as long as the lower, not flattened; outer mandibular surface flat with fine sparse pubescence. Labrum 0.2 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.6-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.70-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 64-65 flagellar segments; 1st flagellar segment 1.7-1.9 times as long as 2nd, 20th segment 1.9-2.1 times as long as broad.

Pronotum mediodorsally short, transverse furrow strong. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli weak. Mesopleuron polished, puncto-striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate to posterior margin; scutellum dorsally 1.7-2.1 times as long as broad anteriorly, punctate to alutaceous. Metapleuron puncto-striate; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete to present only as a central vestige; anterior area striate, spiracular area smooth, posterior area finely wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-18mm; discosubmarginal cell as in Fig. 458; AI = 0.70-1.00; CI = 0.35-0.45; ICI = 0.35-0.50; SDI = 1.20-1.30; *cu-a* proximal to *Rs&M* by 0.1-0.2 times its own length. Hindwing with 6-7 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines on outer surface; hind coxa in profile 1.9-2.1 times as long as deep; hind trochantellus mediodorsally 0.3-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 705, 706.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with close fine pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 782.

Colour generally orange-brown, lower face laterally, inter-ocellar area and genae white.

Remarks. *E. hova* belongs to the *E. transvaalensis* species-group. It is distinct in the form of the central sclerite. It is a rather common species, especially on the Mascarene Islands.

Immature stages. Cephalic capsule of final instar larva as in Fig. 801. Hypostoma short, sclerotized, stout, turned through 55°; hypostomal spur moderately long, not slender; pleurostoma and epistoma short and broad; mandibles minute, not curved; sclerotized oral bar absent; labial sclerite unspecialized; posterior hypostomal process normally large; stipital sclerite anteriorly rather swollen.

This species can be recognized by the characteristic form of the hypostoma and pleurostoma.

Cocoon about 10mm long, 0.4 times as broad as long, almost smooth with ends narrowly dark brown and with a very broad sandy coloured equatorial band.

Host record. This species has been reared from *Charadrina* sp. (Lep., Noctuidae).

Distribution. This species is recorded from Madagascar, Reunion and Mauritius (Map 99).

Material examined. Holotype ♂, MAURITIUS: Reduit, x.49 (*Moutia*) (BMNH). Paratypes. MADAGASCAR: 1♀, Ambalavro, xii.30 (*Seyrig*) (MNHN); 3♀, Ambatofitorahana (*Inst. Res. Mad.*) (MRAC); 1♀, 1♂, Ambodivoangy, x.61 (*Vadon*) (MRAC); 1♀, Ambohimanga, xi.36 (*Seyrig*) (MNHN); 1♀, 1♂, Ambositra, x.28 (*Seyrig*) (MNHN); 1♀, 1♂, Ampandrandava, i-iii.40 (*Seyrig*) (TC); 1♀, Andevorante, 1901 (*Mathiaux*) (MNHN); 1♀, Anivorano, xii.29 (*Seyrig*) (MNHN); 2♂, Ankaratra, xii.31 (*Seyrig*) (MNHN); 3♀, Ankaratra, xii.34 (*Seyrig*) (MNHN).

(MRAC); 1♀, Ankaratra (*Seyrig*) (MNHN); 1♀, Antsirabé, ii.28 (*Seyrig*) (MNHN); 2♂, Antsirabé, xii.29 (*Seyrig*) (MNHN); 1♂, Antsirabé, i.30 (*Seyrig*) (MNHN); 1♀, 1♂, Antsirabé, xi.36 (*Seyrig*) (MNHN); 1♂, Bekily, iv.32 (*Seyrig*) (MNHN); 3♀, 4♂, Bekily, vi.33, 1♂ ex *Charadrina* sp. (*Seyrig*) (BMNH); 24♀, 24♂, Bekily, v-vi.33 (*Seyrig*) (MNHN); 1♂, Betroka, ii.32 (*Seyrig*) (MNHN); 1♂, Fianarantsoa, iii.28 (*Seyrig*) (MNHN); 2♀, 1♂, Fianarantsoa, xi-xii.30 (*Seyrig*) (MNHN); 1♀, 1♂, Fianarantsoa, xi.36 (*Seyrig*) (MNHN); 1♂, Fort Dauphin, xii.36 (*Seyrig*) (MNHN); 1♀, Ivondro, ii.40 (*Seyrig*) (TC); 5♂, Kalambatitra, i.33 (*Seyrig*) (MNHN); 1♀, Mandraka, xii.29 (*Seyrig*) (MNHN); 1♀, Mandraka, iii.34 (*Seyrig*) (MRAC); 1♀, 2♂, Perinet, xi.30 (*Seyrig*) (MNHN); 1♀, 4♂, Perinet, 1932 (*Seyrig*) (MNHN); 2♂, Perinet, i.34 (*Seyrig*) (MNHN); 1♀, Ranomafana, ii.40 (*Seyrig*) (TC); 4♀, 17♂, Rogez, ix-xii.30 (*Seyrig*) (MNHN); 15♀, 5♂, Rogez, 1930-36 (*Seyrig*) (MNHN); 8♀, Rogez, 1931 (*Seyrig*) (MNHN); 1♀, Rogez, x.32 (*Seyrig*) (MNHN); 3♀, Rogez, iv.34 (*Seyrig*) (MNHN); 1♀, Rogez, iii.34 (*Seyrig*) (MRAC); 1♂, Rogez, vi.37 (*Seyrig*) (MRAC); 4♀, 6♂, Rogez, v-xi.46 (*Lamberton*) (TC); 1♀, Tamatave, 1881 (BMNH); 1♀, Tamatave, no further data (MNHN); 1♀, Tampina, x.30 (*Seyrig*) (MNHN); 1♂, Tananarive, 1916 (*Waterlot*) (MNHN); 1♀, Tananarive, 1921 (*Decary*) (MNHN); 1♀, 1♂, Tananarive, xii.29 (*Seyrig*) (MNHN); 3♀, 3♂, Tananarive, i.32 (*Seyrig*) (MNHN); 2♀, Vatomaniry, xii.29 (*Seyrig*) (MNHN); 1♂, Vatomaniry (*Seyrig*) (MNHN); 1♀, no further data (*Grandid*) (MNHN). MAURITIUS: 2♂, Mt Raye, i.35 (*Jepson*) (BMNH); 7♀, 9♂, Reduit, 1949-50 (*Moutia*) (BMNH); 3♀, 11♂, Reduit, 1950 (*Courtois*) (BMNH); 9♀, 10♂, Reduit, 1958-59 (*Williams*) (BMNH); 1♂, no further locality, i.05 (*Carie*) (MNHN); 1♀, no further locality, 1914 (*Carie*) (MNHN); 1♀, no further locality, 1937 (*Newton*) (BMNH); 1♂, no further locality, x.71 (*Hardouin*) (MRAC); 1♀, no further data (*Antelme*) (BMNH); 1♂, no further data, (*Desjardins*) (MNHN); 2♂, no further data (MNHN). REUNION: 1♂, Salazie, 1897 (*Alluaud*) (MNHN).

ENICOSPILUS TRANSVAALENSIS Cameron

(Figs 291, 296, 459, 707, 708, 777)

Henicospilus natalensis Cameron, 1906 : 81. LECTOTYPE ♀, SOUTH AFRICA (SAM), by present designation [examined]. [Junior secondary homonym in *Enicospilus* of *Ophion* (*Dispilus*) *Natalensis* Kriechbaumer, 1894.]

Enieospilus (sic) *Transvaalensis* Cameron, 1911 : 182. Holotype ♀, SOUTH AFRICA (BMNH) [examined]. [Synonymized by Townes & Townes, 1973 : 184.]

Henicospilus renovatus Morley, 1912a : 38. [Replacement name for *natalensis* Cameron.]

Enicospilus transvaalensis Cameron; Townes & Townes, 1973 : 184.

Enicospilus ambositrensis Delobel, 1974 : 98. Holotype ♀, MADAGASCAR (MNHN) [examined]. Syn. n.

Description. Mandibles evenly narrowed, twisted about 25°, upper tooth 1.3-1.4 times as long as the lower, not flattened; outer mandibular surface flat with long fine pubescence. Labrum 0.3-0.4 times as long as broad; malar space 0.3 times as long as basal mandibular width. Clypeus in profile convex, margin impressed; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, finely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 56-69 flagellar segments; 1st flagellar segment 1.7-1.8 times as long as 2nd, 20th segment 1.8-2.1 times as long as broad.

Pronotum mediodorsally short, transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli absent or vestigial. Mesopleuron polished, punctate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.6-1.7 times as long as broad anteriorly, punctate. Metapleuron punctate; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally convex; anterior transcarina complete; anterior area striate, spiracular area finely wrinkled or smooth, posterior area coarsely reticulately wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 14-17mm; discosubmarginal cell as in Fig. 459; AI = 0.60-0.70; CI = 0.20-0.45; ICI = 0.35-0.50; SDI = 1.20-1.40; *cu-a* subopposite *Rs&M*. Hindwing with 6-8 hamuli on *R*₁; 1*A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.3-0.5 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 707, 708.

Gaster long and slender; sternite 2 with posterior margin at or before spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 3.0-4.0 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with short fine dense hair; gonosquama distally evenly rounded; genital claspers as in Fig. 777.

Colour generally dark reddish-brown with vertex, interocellar area, genae and orbits yellowish; flagellum infusate.

Remarks. This species is related to *E. krossus* and *E. hova*. All three have been placed as a separate species-group on account of the mandible shape but they probably have close affinities with the *E. betanimenus* species-group.

Distribution. This species is widely distributed throughout Africa, reaching Madagascar and Mauritius (Map 100).

Material examined. *Henicospilus natalensis* Cameron, lectotype ♀, SOUTH AFRICA: Newcastle, 1881 (*Hunt*) (SAM); paralectotype 1♀, same data as lectotype (BMNH). *Enicospilus Transvaalensis* Cameron, holotype ♀, SOUTH AFRICA: Pretoria, no further data (BMNH). *Enicospilus ambositrensis* Delobel, holotype ♀, MADAGASCAR: Ambositra, vii.72 (MNHN); paratypes 2♂, same data as holotype (MNHN).

Non-type material. CENTRAL AFRICAN REPUBLIC: 1♀, Bambari, i.64 (*Pierrard*) (MRAC). ETHIOPIA: 1♀, Alamata, v.57 (*Lane*) (USNM). KENYA: 1♀, Kitui, 1913 (*Scholefield*) (BMNH); 1♀, Nairobi, vi.37 (*van Someren*) (BMNH); 1♀, Nairobi, ii.63 (TC); 1♀, 1♂, Nairobi, viii.71 (*Cunningham & van Someren*) (TC). MADAGASCAR: 5♀, 7♂, Bekily, 1936 (*Seyrig*) (MNHN); 1♀, Diego-Suarez, 1893 (MNHN); 2♀, Fianarantsoa, vii-xi.36 (*Seyrig*) (MNHN); 1♀, Rogez, v.46 (*Lamberton*) (TC); 1♂, Tananarive, i.32 (*Seyrig*) (MNHN). MALAWI: 1♂, Valley S of Rukuru River, vi.10 (*Neave*) (BMNH). MAURITIUS: 1♂, Reduit, x.58 (*Rajabalee*) (BMNH). NIGERIA: 1♂, Ife-Ife, vii.73 (*Medler*) (TC). RHODESIA: 1♀, Salisbury, 1899 (*Marshall*) (BMNH). SIERRA LEONE: 1♀, Freetown, i.70 (*Owen*) (TC). SOUTH AFRICA: 1♀, Cape, Die Panne, N.R., i.72 (*Day*) (BMNH); 1♀, Cape, Katberg, ii.33 (*Turner*) (BMNH); 1♀, Cape, Mossel Bay, x.33 (*Turner*) (BMNH); 1♂, Gillitts near Durban, xii.70 (*H. & M. Townes*) (TC); 6♀, 1♂, Grahamstown, 1971 (*Gess*) (TC); 14♀, 3♂, Jonkershoek near Stellenbosch, i.71 (*Whitehead*) (TC); 1♀, Karkloof near Howick, x.70 (*H. & M. Townes*) (TC); 13♀, Kirstenbosch near Cape Town, xii.70 (*H. & M. Townes*) (TC); 1♀, Natal, Eshowe, vii.26 (*Turner*) (BMNH); 1♂, Natal Nat. Pk., iv.54 (*Brown*) (BMNH); 1♀, Natal, Ngome Forest, xii.70 (*H. & M. Townes*) (TC); 1♀, Newlands, ii.66 (TC); 1♀, Nottingham Rd., viii.56 (*Clark*) (BMNH); 1♀, Pietermaritzburg, xi.63 (*Haeselbarth*) (TC); 1♀, Pretoria, xii.13 (BMNH); 1♀, Royal Natal Nat. Pk., i.71 (*H. & M. Townes*) (TC); 2♂, Transvaal, Nelshoog, i.74 (*Gurney*) (USNM); 1♀, Transvaal, Piet Reteif, 1904 (*Crawshay*) (BMNH); 1♀, Transvaal, Tzaneen, Magoebaskloof, i.71 (*H. & M. Townes*) (TC); 10♀, 1♂, Transvaal, Tzaneen, i.71 (*H. & M. Townes*) (TC). TANZANIA: 11♀, 4♂, Mt Meru, vi-vii.62 (*Heinrich*) (TC); 1♂, W Usambara Mt, vi-vii.62 (*Heinrich*) (TC). UGANDA: 1♀, Ankole, Kichwamba, iv.68 (*Spangler*) (USNM); 1♀, Kampala, xi.17 (*Gowdey*) (BMNH); 1♀, Kampala, v-xii.65

(*Unamba*) (TC). ZAIRE: 1♀, Ibangi, La Moleye, i.30 (MRAC); 1♂, Kalanga, Bianco, viii.31 (*Ogilvie*) (BMNH); 1♀, Kivu, Ibanda, 1935 (*Vandelannoite*) (MRAC); 1♀, Kivu, Kavivira, v.55 (*Marlier*) (MRAC); 2♂, Lubumbashi, vii.51 (*Seydel*) (MRAC). ZAMBIA: 1♀, Abercorn, xii.64 (TC).

ENICOSPILUS BETANIMENUS (Saussure)

(Figs 289, 294, 461, 709, 710, 778, 807)

Ophion betanimenus Saussure, 1892 : 15. Holotype ? sex (lacks gaster) MADAGASCAR (MNHN) [examined].
Henicospilus madagascariensis Szépligeti, 1906 : 136. Holotype ♂, MADAGASCAR (TMB) [examined]. [Synonymized by Townes & Townes, 1973 : 173.]
Henicospilus trinotatus Szépligeti, 1908 : 46. Holotype ♀, TANZANIA (NR) [examined]. Syn. n.
 [*Henicospilus bipartitus* (Tosquinet) Morley, 1912a : 39. Misidentification.]
 [*Henicospilus pallidus* (Taschenberg); Morley, 1912a : 41. Misidentification.]
 [*Henicospilus sericatus* Szépligeti; Morley, 1912a : 41, in part. Misidentification.]
Henicospilus madagascariensis (Szépligeti) Enderlein, 1921 : 29.
Enicospilus madagascariensis (Szépligeti) Benoit, 1957 : 388.
Enicospilus betanimenus (Saussure) Townes & Townes, 1973 : 173.
Enicospilus trinotatus (Szépligeti) Townes & Townes, 1973 : 184.

Description. Mandibles evenly narrowed, twisted 30-40°, upper tooth 1.2-1.3 times as long as the lower, flattened; outer mandibular surface flat with sparse pubescence. Labrum 0.1-0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile flat or weakly convex, margin very slightly in-turned; clypeus in anterior aspect 1.4-1.6 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, obsoletely punctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina usually complete. Antennae long and slender with 62-68 flagellar segments; 1st flagellar segment 1.7-2.0 times as long as 2nd 20th segment 2.1-2.5 times as long as broad.

Pronotum mediodorsally extremely short, so that transverse furrow is almost at anterior margin of notum; transverse furrow very strongly impressed. Mesoscutum in profile evenly rounded, apically weakly to strongly out-turned; notauli vestigial. Mesopleuron sub-polished, finely striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile moderately convex, laterally carinate for 0.5-0.9 of its length. Scutellum dorsally 1.5-1.7 times as long as broad anteriorly, alutaceous with obsolescent punctures. Metapleuron finely striate or alutaceous; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally deplanate; anterior transcarina complete; anterior area wrinkled or striate, spiracular area smooth or punctate, posterior area finely wrinkled, the wrinkles tending to be concentric. Posterior transverse carina of mesosternum complete.

Forewing length 14-22mm; discosubmarginal cell as in Fig. 461; AI = 0.60-1.40; CI = 0.35-0.50; ICI = 0.45-0.75; SDI = 1.20-1.45; *cu-a* from subopposite *Rs&M* to proximal to it by 0.2 times its own length. Hindwing with 7-8 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia subcylindrical with isolated spines; hind coxa in profile 1.7-2.0 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 709, 710.

Gaster long and slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense long pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 778.

Colour generally rather pale yellowish, in some specimens with flagellum and terminal segments of gaster infuscate.

Variation. A few specimens (previously those having gone under the name *trinotatus*) have black markings on the mesoscutum, mesopleuron, mesosternum and propodeum. Intermediates between these and the uniformly pale specimens exist so all are here included as a single species.

Immature stages. Cephalic capsule of final instar larva as in Fig. 807. Hypostoma strongly sclerotized, stout, abruptly curved about 60°; hypostomal spur short and stout; pleurostoma and epistoma short and stout; mandible small, abruptly narrowed, not curved; sclerotized oral bar absent; labial sclerite normal; posterior hypostomal process absent; stipital sclerite short and stout.

This is one of the largest species without a posterior hypostomal process. It resembles *E. capensis* except in the form of the pleurostoma which in *E. betanimenus* is narrowed.

Cocoon 17-19mm long, 8-9mm in diameter; outer surface fibrous with a slightly paler central band.

Host records. This species has been reared from *Parallelia triplocyca* Hampson, *P. pudica* Möschler, *Parallelia* sp. (Lep., Noctuidae), *Heliophisma klugii* Boisduval (Lep., Noctuidae), *Tatorinia rufipennis* Hampson (Lep., Noctuidae), *Achaea faber* Holland (Lep., Noctuidae), *Achaea* sp., *Othreis* sp. and an unidentified lepidopterous larva feeding on cotton (*Glossypium* sp.).

Distribution. Previously this species has only been recorded from Madagascar, the Mascarene Archipelago and Tanzania. It is however widely spread throughout Africa and quite common (Map 101).

Material examined. *Ophion betanimenus* Saussure, holotype ? sex MADAGASCAR: no further data (MNHN). *Henicospilus madagascariensis* Szépligeti, holotype ♂, MADAGASCAR: Nossi-bé, no further data (TMB). *Henicospilus trinotatus* Szépligeti, holotype ♀, TANZANIA: Usambara Mts, Mombo (*Sjöstedt*) (NR).

Non-type material. ANGOLA: 1♀, Giraul R., ii.72 (*Day*) (BMNH); 1♀, 30km N of Quiçulungo, ix-x.57 (TC); 2♀, Salazar, iii.72 (*Day*) (BMNH); BOTSWANA: 2♀, Ghanzi Mongalatsila, 1920 (*Maurice*) (BMNH). CENTRAL AFRICAN REPUBLIC: 1♂, Fort Crampel, no further data (MNHN); 1♀, Maboke, viii.70 (*Matile*) (MNHN). FERNANDO POO: 1♀, no further locality, 1901 (*Conradt*) (MNHN); 1♀, no further locality, 1925 (*Cooper*) (BMNH). GABON: 1♀, Komo, Crystal Mt, ix.69 (*Villiers*) (MNHN). GAMBIA: 3♀, 1♂, no further locality (*Tosquinet*) (IRSNB). GHANA: 1♀, Aburi, ii.37, ex *Achaea* sp. (*Cotterell*) (BMNH); 6♀, Asuansi, 1940-41, ex *Parallelia* sp. (*Box*) (BMNH); 1♀, Asuansi, ix.40, ex *Tatorinia rufipennis* (*Box*) (BMNH); 1♀, Asuansi, x.40 (*Box*) (BMNH); 1♀, Asuansi, xii.40, ex *Heliophisma klugii* (*Box*) (BMNH); 2♀, Asuansi, 1941, ex *P. pudica* (*Box*) (BMNH). GUINEA: 1♀, Kankan, vi.68 (*Pisica*) (TC). IVORY COAST: 3♀,

2♂, Bingerville, vi.62 (*Decelle*) (MRAC); 1♀, Zepreghé, Koffikro, vii.61 (*Decelle*) (MRAC). KENYA: 1♀, Mombasa, vi.54, ex *P. triplocyca* (*Sevastobulo*) (BMNH); 1♀, Mtito Andei, iii.11 (*Neave*) (BMNH). LIBERIA: 1♂, Sua Ko Ko, ii.52 (*Blickenstaff*) (USNM). MADAGASCAR: 1♀, Ambodivoangy, i.62 (*Vadon*) (MRAC); 1♀, Antankara, ii.34 (*Seyrig*) (MNHN); 2♀, Baie d'Antongil, 1898 (*Moequersys*) (MNHN); 1♂, Befasy, i.56 (*Inst. Res. Mad.*) (MRAC); 1♂, Behara, iv.37 (*Seyrig*) (MRAC); 29♀, 18♂, Bekily, 1930-33 (*Seyrig*) (MNHN); 2♀, 1♂, Bekily, ii-iii.33 (*Seyrig*) (BMNH); 1♀, Bekily, iv.42 (*Seyrig*) (MRAC); 2♀, Fampanambo, ii.61 (*Vadon*) (MRAC); 2♀, Fianarantsoa, x.36 (*Seyrig*) (MNHN); 1♀, 2♂, Manambato, Anové (*Inst. Res. Mad.*) (MRAC); 1♀, Marojely, xii.60 (*Soga*) (MNHN); 5♀, Perinet (*Inst. Res. Mad.*) (MRAC); 2♀, Rogez, xii.30 (*Seyrig*) (MNHN); 4♀, Sandrangato (*Inst. Res. Mad.*) (MRAC); 1♂, Tananarive, i.32 (*Seyrig*) (MNHN). MALAWI: 1♀, Bua, v.15, ex *Lep. larva* on Cotton (BMNH). MOÇAMBIQUE: 1♀, Guengère, Pungové Valley, 1906 (*Vasse*) (MNHN). NIGERIA: 1♀, Ibadan, vi.51 (*Sutherland*) (BMNH); 1♀, Ife-Ife, x.73 (*Medler*) (TC). REUNION: 1♀, Tamaka, xii.73 (*Matile*) (MNHN). SENEGAL: 1♂, no further locality, 1867 (*Sichel*) (MNHN). SIERRA LEONE: 1♀, Freetown, i.11 (BMNH); 5♀, Freetown, 1967 (*Owen*) (TC); 2♀, Freetown, 1969 (*Owen*) (TC); 1♀, Njala, vi.35, ex *Othreis* sp. (*Hargreaves*) (BMNH); 1♀, Njala, vi.45, ex *Achaea faber* (*Hargreaves*) (BMNH). SOUTH AFRICA: 1♀, Soutpansberg, i.75 (*Stuckenberg*) (TC); 1♀, Storms River, iii.63 (*Heinrich*) (TC). SOUTH WEST AFRICA: 1♀, Okahandja, ii.72 (*Day*) (BMNH); 1♀, 1♂, Okjikoko, ii.72 (*Day*) (BMNH); 1♀, Otjitambi, ii.72 (*Day*) (BMNH); 1♀, 5km W of Sesriem, ii.72 (*Day*) (BMNH). TANZANIA: 1♀, Amani, iv.62 (*Heinrich*) (TC); 4♀, Morogoro, i.63 (*Heinrich*) (TC); 2♀, Puga Hills, 80km S of Dar es Salaam, no further data (TC); 5♀, 1♂, Uluguru Mts, i.62 (*Heinrich*) (TC); 1♀, 1♂, W Usambara Mts, Magamba, ii.62 (*Heinrich*) (TC). UGANDA: 1♂, Entebbe, vi.12 (*Gowdey*) (BMNH); 38♀, 5♂, Entebbe, iv-v.64 (*Lancaster*) (TC); 1♀, Kampala, viii.64 (*Owen*) (TC); 3♀, Kampala, i.66 (*Owen*) (TC); 6♀, 7♂, Mengo, Zika Forest, viii-xi.63 (*Lancaster*) (TC). ZAIRE: 1♀, Bassin Lukuga, vii.34 (*De Saeger*) (MRAC); 1♀, Bokapu, viii.22 (*Collert*) (MRAC); 1♀, Bokumu, Equateur, xii.51 (*Lootens*) (MRAC); 1♀, Eala, xii.35 (*Ghesquière*) (MRAC); 1♀, Eala, vii.36 (*Ghesquière*) (MRAC); 2♀, Kalembe, xii.18 (*Mayné*) (MRAC); 3♀, Kivu, Kavivira, iii.55 (*Marlier*) (MRAC); 1♂, Kivu, Mulungu, 1938 (*Hendrickx*) (MRAC); 1♀, Kivu, Rwanki, iv.48 (*Leroy*) (MRAC); 1♀, Lubumbashi, vii.51 (*Seydel*) (MRAC); 1♂, Mayumbé, Banja, vi.24 (*Collert*) (MRAC); 1♀, Mayumbé, Vaku, v.56 (*Elsen*) (MRAC); 1♀, Rutshuru, v.37 (*Ghesquière*) (MRAC); 1♂, Tshuapa, 1944 (*Hulstaert*) (MRAC). COUNTRY UNKNOWN: 'Tamara' 1♀, 1913 (*Serand*) (MNHN).

ENICOSPILUS FINALIS sp. n.

(Figs 293, 460, 711, 712, 780, 800)

Description. Mandibles evenly narrowed, twisted about 30-40°, upper tooth flattened, 1.3-1.5 times as long as the lower; outer mandibular surface flat with fine scattered hair. Labrum 0.1-0.2 times as long as broad; malar space 0.2 times as long as basal mandibular width. Clypeus in profile weakly convex, margin acute, impressed; clypeus in anterior aspect 1.5-1.7 times as broad as long, terminally truncate. Lower face elongate, 0.65-0.75 times as broad as long, virtually impunctate. Genae constricted behind the eyes; posterior ocellus very close to eye; FI = 65-70%; occipital carina complete. Antennae long and slender with 62-67 flagellar segments; 1st flagellar segment 1.6-2.0 times as long as 2nd, 20th segment 2.2-2.6 times as long as broad.

Pronotum mediodorsally very short, the transverse furrow strongly impressed. Mesoscutum in profile abruptly rounded, apically not out-turned; notauli vestigial. Mesopleuron polished, puncto-striate; epicnemial carina curved to anterior margin of pleuron above lower corner of pronotum. Scutellum in profile weakly convex, laterally carinate for 0.9 of its length; scutellum dorsally 1.5-1.8 times as long as broad anteriorly, punctate. Metapleuron puncto-striate; submetapleural carina narrow, parallel sided. Propodeum in profile evenly rounded, dorsally weakly convex; anterior transcarina complete; anterior area striate, spiracular area smooth, posterior area reticulate or irregularly wrinkled. Posterior transverse carina of mesosternum complete.

Forewing length 12-15mm; discosubmarginal cell as in Fig. 460; AI = 0.60-1.00; CI = 0.25-0.45; ICI = 0.35-0.45; SDI = 1.20-1.40; *cu-a* subopposite *Rs&M*. Hindwing with 6-8 hamuli on *R*₁; *1A* proximally straight.

Foreleg with tibia subcylindrical with scattered spines on outer surface; hind coxa in profile 1.7-1.9 times as long as deep; hind trochantellus mediodorsally 0.1-0.2 times as long as broad; hind tarsal claws symmetrical, pectinate as in Figs 711, 712.

Gaster slender; sternite 2 with posterior margin behind spiracle of tergite 2; thyridia ellipsoidal, separated from anterior margin of tergite by 2.5-3.5 times its own length.

Ovipositor apically elongately acute. Sternites 6-8 of ♂ with dense long pubescence; gonosquama distally evenly rounded; genital claspers as in Fig. 780.

Colour generally orange-brown; lower face uniformly reddish-brown.

Remarks. This species is very similar to *E. betanimenus* from which it differs by the characters given in the key and in Table 4 (p. 157).

Immature stages. Cephalic capsule of final instar larva as in Fig. 800. Hypostoma sclerotized, stout, curved through 90°; hypostomal spur long and stout; pleurostoma and epistoma fairly long, quite stout; mandibles small, weakly curved; sclerotized oral bar vestigial; labial sclerite normal; posterior hypostomal process moderately large; stipital sclerite short and stout.

This species has a slightly narrower labial sclerite than most others. Apart from this it is rather difficult to characterize.

Cocoon 14-15mm long, 5mm wide; outer surface finely fibrous with a slightly paler equatorial band.

Host records. This species has been reared from *Parallelia palpalis* Walker (Lep., Noctuidae).

Distribution. This species is widely distributed throughout Africa and less commonly in Madagascar (Map 92).

Material examined. Holotype ♀, SOUTH AFRICA: Pietermaritzburg, x.70 (*H. & M. Townes*) (TC). Paratypes. ANGOLA: 1♀, 30km N of Quiçulungo, ix-x.57 (*Heinrich*) (TC); 1♀, Quitondo, ii.57 (*Heinrich*) (TC). BURUNDI: 1♂, Bururi, ix.48 (*Francois*) (MRAC). CAMEROON: 1♀, Kribi, 1925 (*Gromier*) (MNHN). DAHOMEY: 1♀, Porto Novo, 1912 (*Waterlot*) (MNHN). GHANA: 4♀, 2♂, Asuansi, 1940-41, ex *Parallelia palpalis* (*Box*) (BMNH). KENYA: 1♀, Nairobi, viii.71 (*Cunningham & van Someren*) (TC). MADAGASCAR: 12♀, 11♂, Bekily, 1933-36 (*Seyrig*) (MNHN); 2♂, Manambato, Anové (*Inst. Res. Mad.*) (MRAC); 1♀, Rogez, xi.30 (*Seyrig*) (MNHN); 1♂, Rogez, v.36 (*Seyrig*) (MNHN). MALAWI: 1♀, Nukwazi Forest, ii.76 (*Bampton*) (TC). NIGERIA: 1♀, 1♂, Ife-Ife, viii-xi.74 (*Medler*) (TC). SIERRA LEONE: 9♀, 4♂, Freetown, 1967 (*Owen*) (TC); 4♀, Freetown, 1969 (*Owen*) (TC); 6♀, Freetown, 1970 (*Owen*) (TC). SOUTH AFRICA: 1♀, East London, vii.61 (TC); 7♀, Grahamstown, xii.71-i.72 (*Gess*) (TC); 2♂, Kenton on Sea, ii-iii.71 (*Jubb*) (TC); 1♀, Magoebaskloof, i.71 (*H. & M. Townes*) (TC); 2♀, Pietermaritzburg, ii.63 (TC); 6♀, Pietermaritzburg, x-xii.70 (*H. & M. Townes*) (TC); 1♀, Umhlanga Rocks, xi.70

(H. & M. Townes) (TC). TANZANIA: 1♀, Amani, iv.62 (Heinrich) (TC); 1♀, W of Lake Manyara, viii.62 (Heinrich) (TC); 2♀, Mt Meru, vi.62 (Heinrich) (TC); 1♀, Uluguru Mts, vii.62 (Heinrich) (TC). UGANDA: 1♀, Entebbe, 1914 (Gowdey) (BMNH); 6♀, 3♂, Kampala, 1917-18 (Gowdey) (BMNH); 2♀, Kampala, 1965 (Owen) (TC); 1♀, Mabira Forest, i.13 (Gowdey) (BMNH); 7♀, 2♂, Mengo, Zika Forest, 1963 (Lancaster) (TC); 1♂, Tero Forest, ix.11 (Neave) (BMNH).

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Fig. 1. Right wings of a generalized ophionine labelled to show veins and cells. Fig. 2. Distal part of discusubmarginal cell of *Enicospilus* species. Bl= bulla; CS= central sclerite; DS= distal sclerite; FM= fenestral margin; PS= proximal sclerite; Qa= quadra; Ram= ramellus; x= marginal angle. Vertical dotted line at 90° to anterior margin of wing and passing through base of *Rs+2r* is the sector. Fig. 3. Propodeum, dorsal, of *Enicospilus* species. AA= anterior area; At= anterior transcarina; Lc= lateral carina of scutellum; PA= posterior area; Ppd= propodeum; SA= spiracular area; Sc= scutellum. Fig. 4. Genital capsule of a generalized male ophionine. Ae= aedeagus; AeA= aedeagal apodeme; Bv= basivolsella; BvS= basivolsellar strut; Dv= distivolsella; Gl= gonolacinia; Gs= gonosquama.

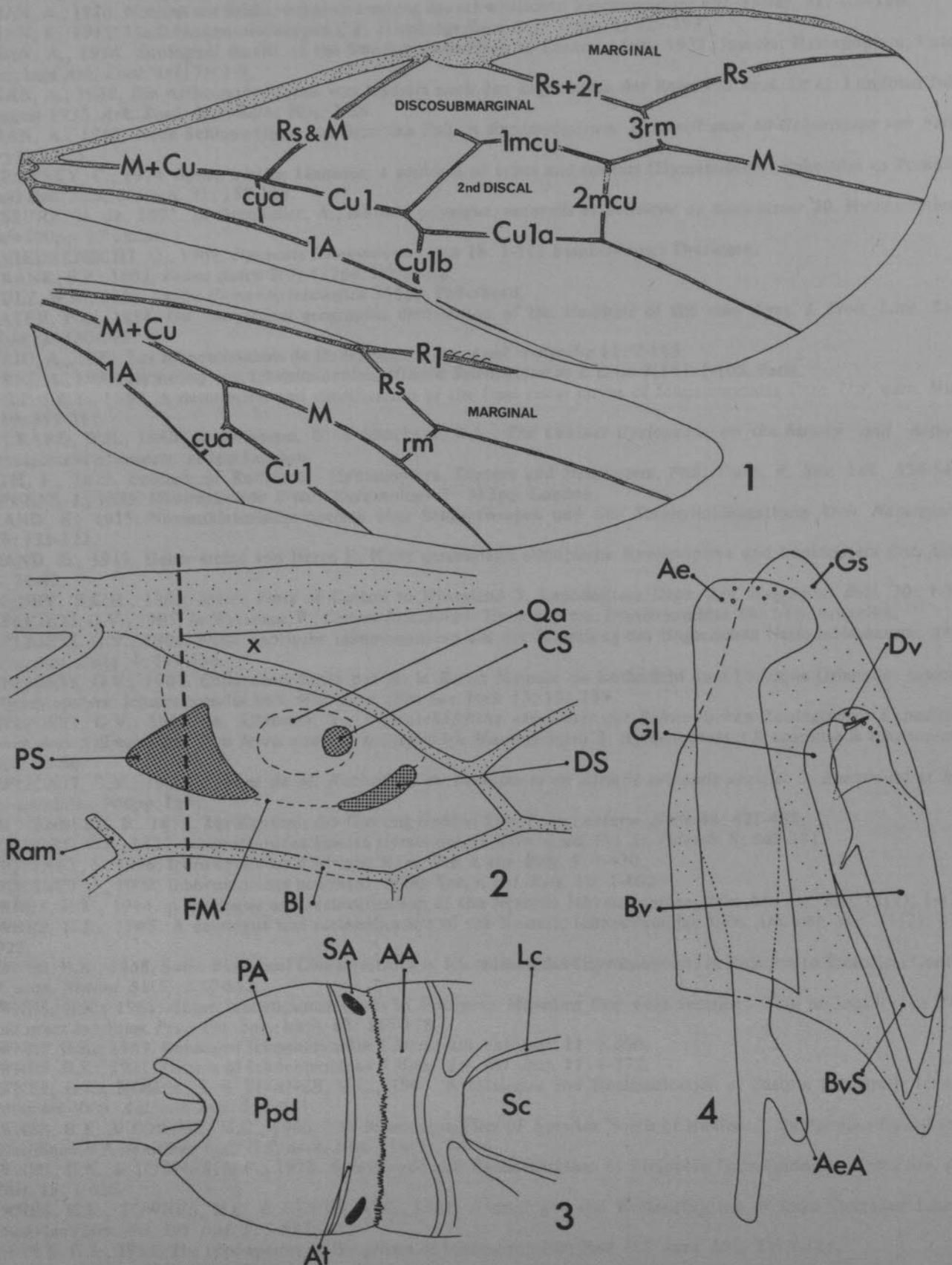


Fig. 5. Alitrunk and basal segments of gaster, lateral, semidiagrammatic. At= anterior transcarina; Cx₁₋₃= coxae 1-3; Ec= epicnemial carina; Mpl= mesopleuron; Msc= mesoscutum; Mtp= metapleuron; No= notaulus; Pnt= pronotum; Ppd= propodeum; Ppl= propleuron; Pt= posterior transverse carina of mesosternum; S₂₋₃= sternites 2-3 of gaster; Sc= scutellum; SMC= submetapleural carina; T₁₋₃= tergites 1-3 of gaster; Tg= tegula; Thy= thyridium. Fig. 6. Head of ophionine final instar larva, semidiagrammatic. Ac= antennal crescent; Ant= antenna; APP= anterior pleurostomal process; Cd= cardo; Cly= clypeus; Fr= frons; FSc= frontal sclerite; Hy= hypostoma; HyS= hypostomal spur; Lab= labrum; Lp= labial palp; Ls= labral sensillum; LSc= labial sclerite; Man= mandible; Mp= maxillary palp; PHy= posterior hypostomal process; Pls= prelabial sclerite; PPP= posterior pleurostomal process; Ps= pleurostoma; SB= sclerotized oral bar; Ss= stipital sclerite.

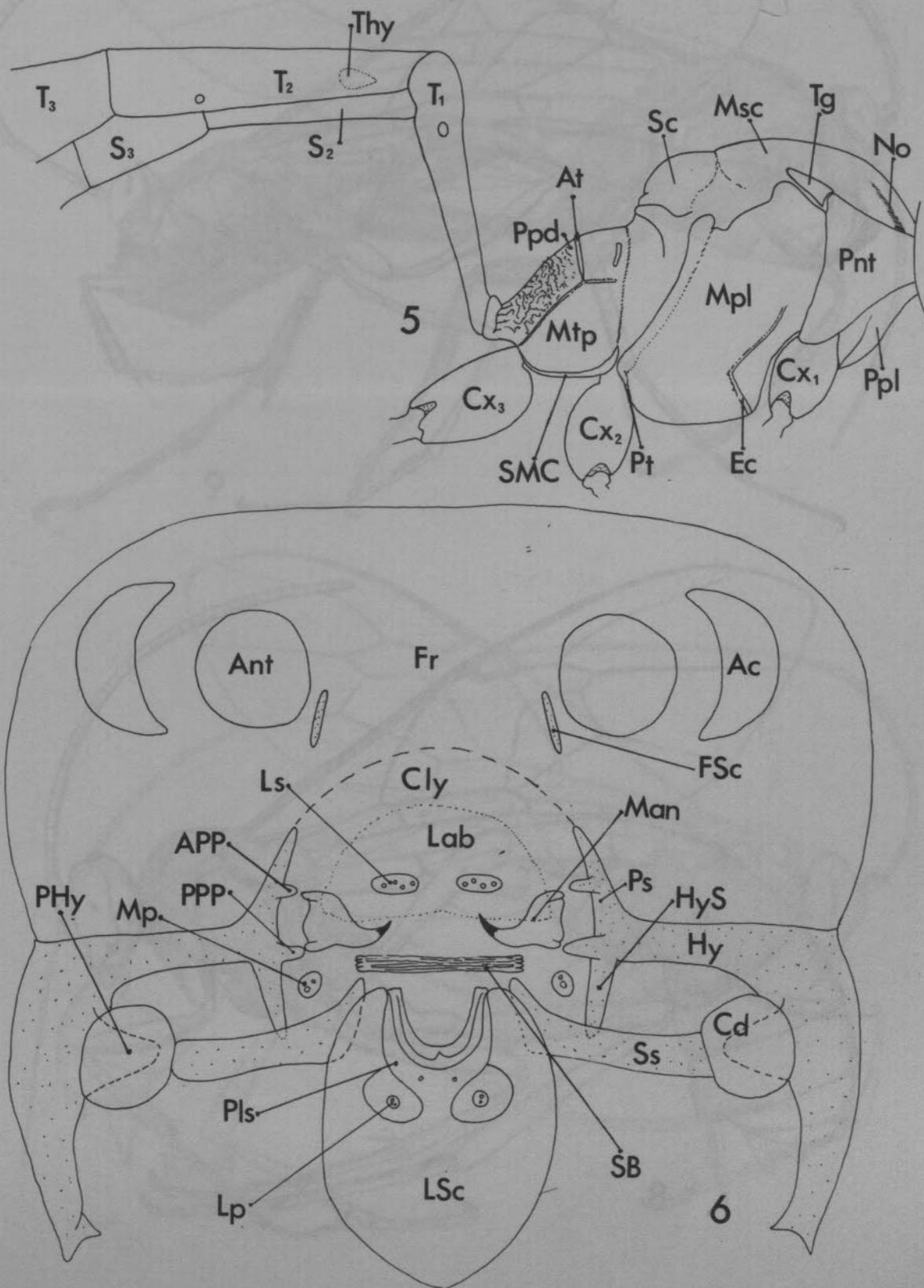


Fig. 7. *Laticoleus palpalis*, ♀. Fig. 8. *Euryophion pisinnus*, ♀.

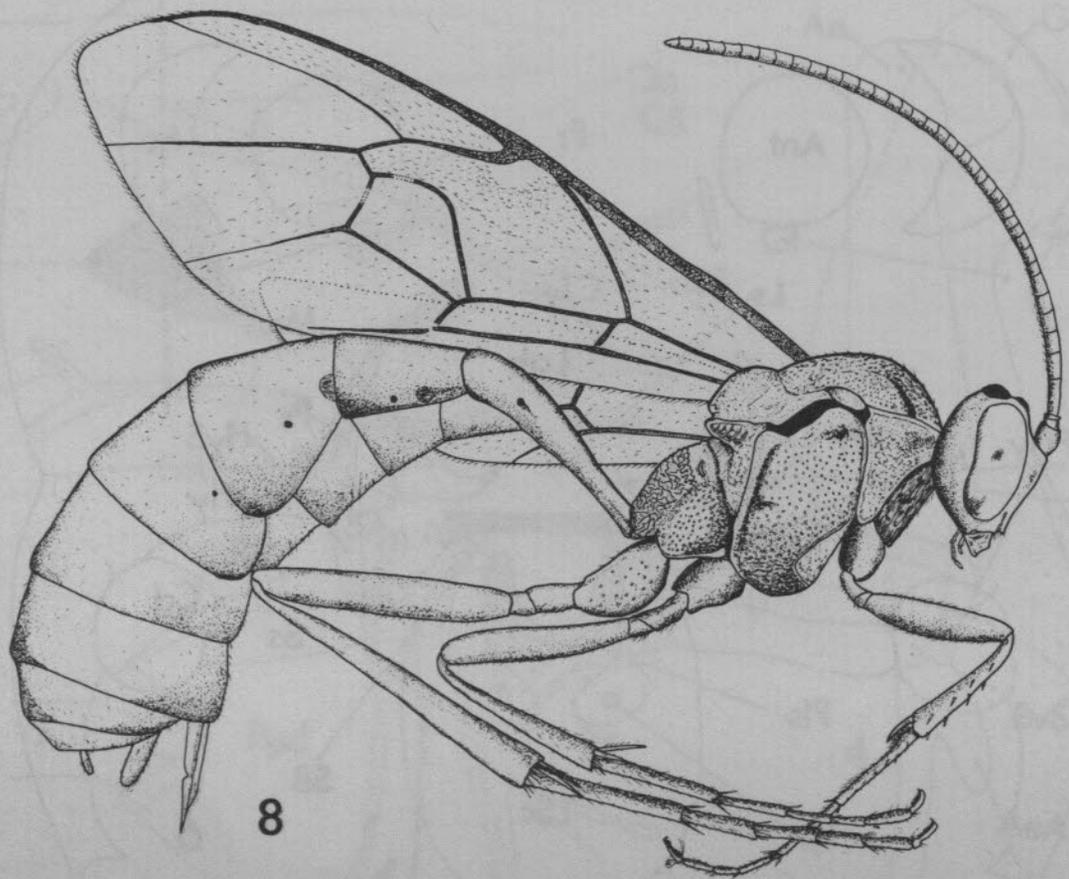
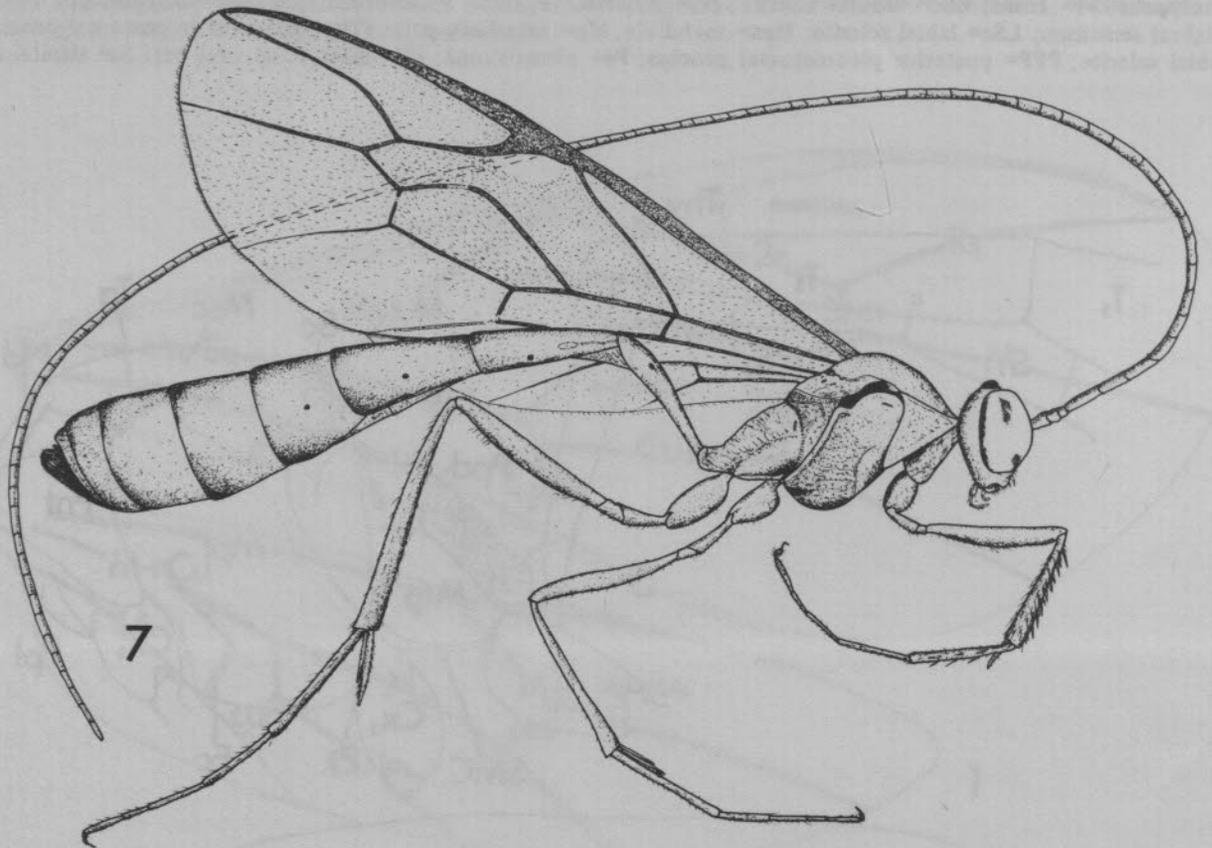
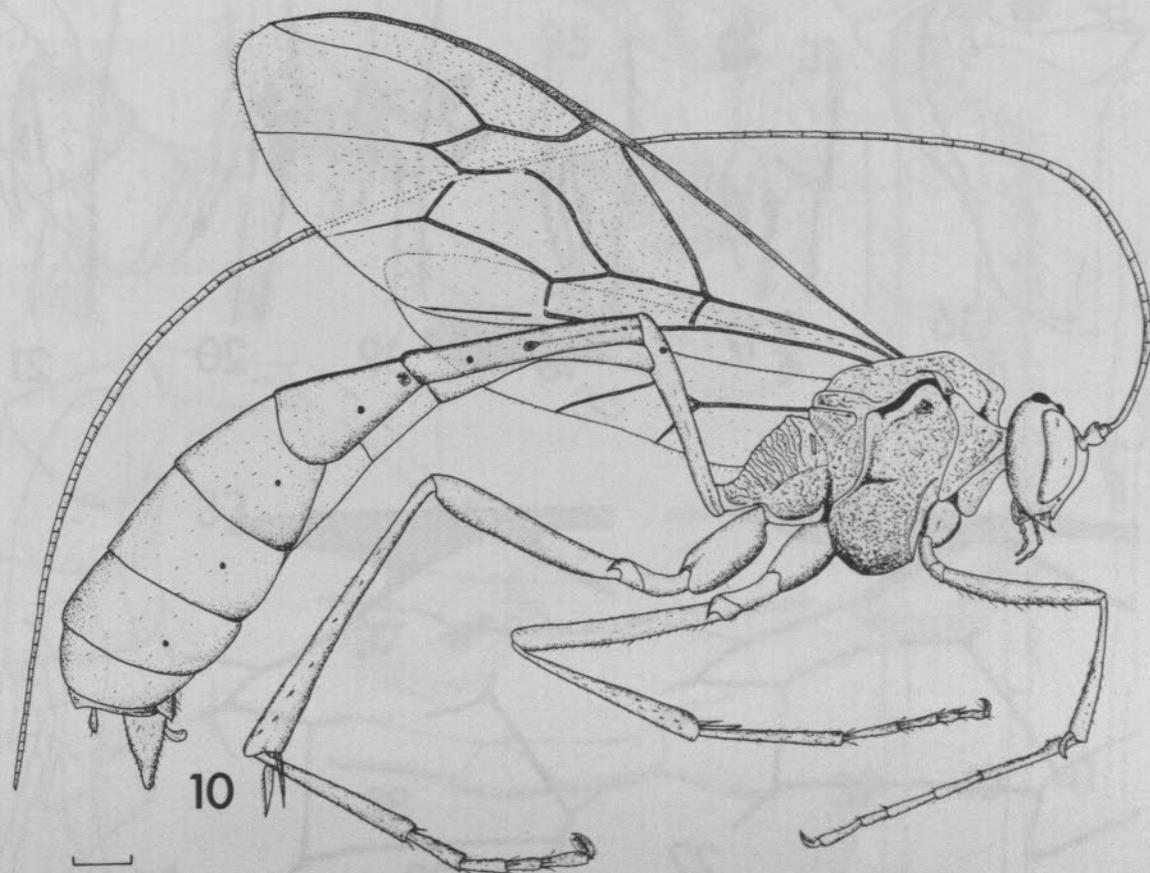
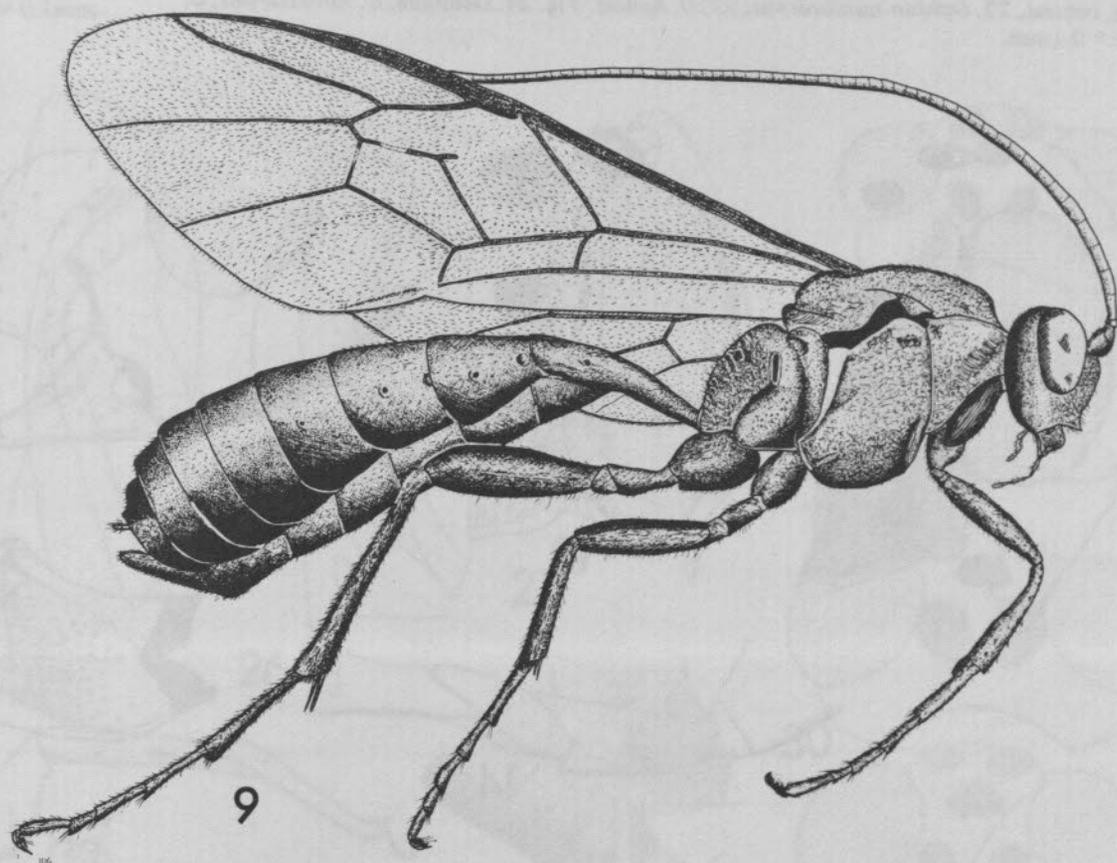
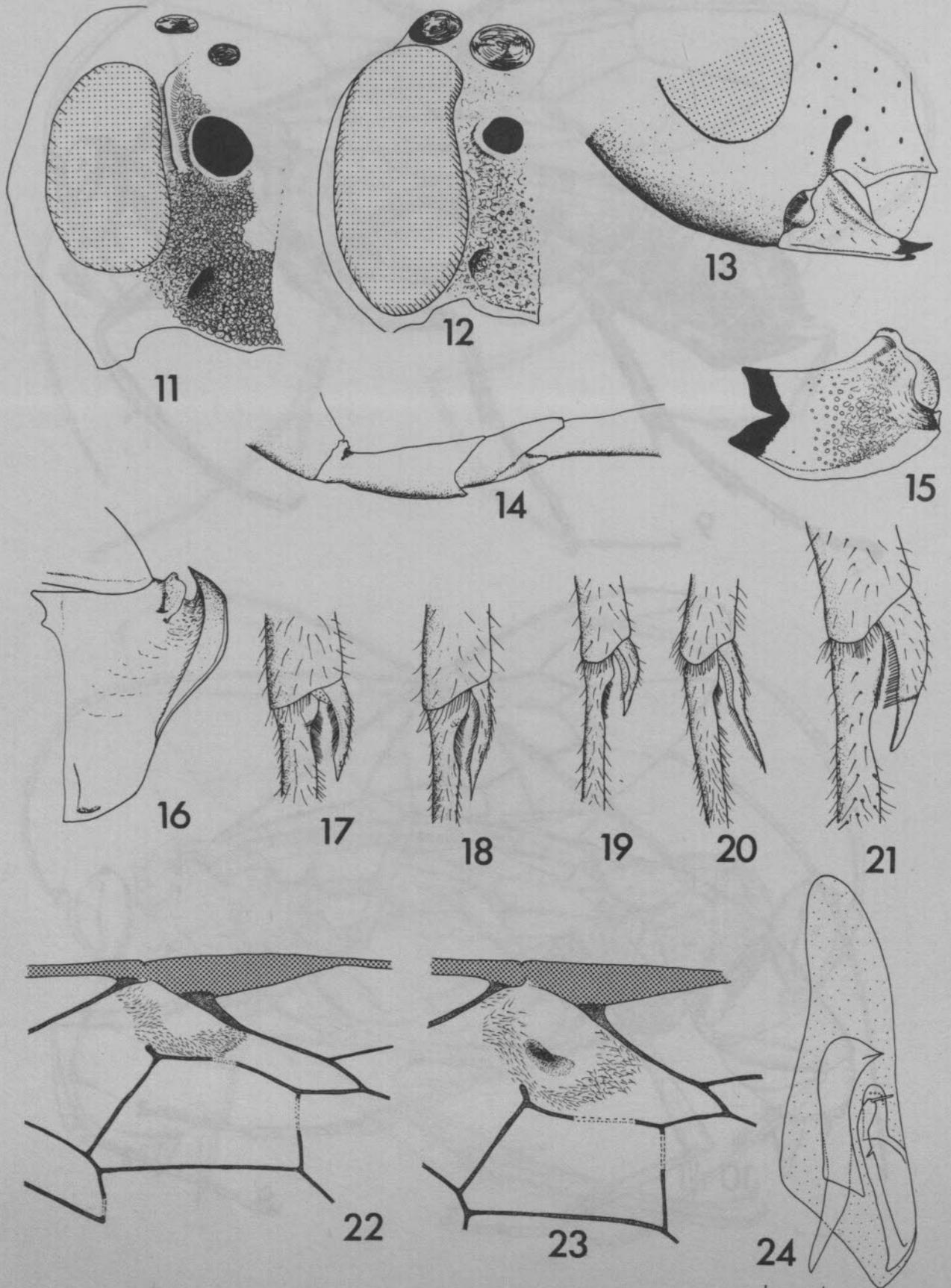


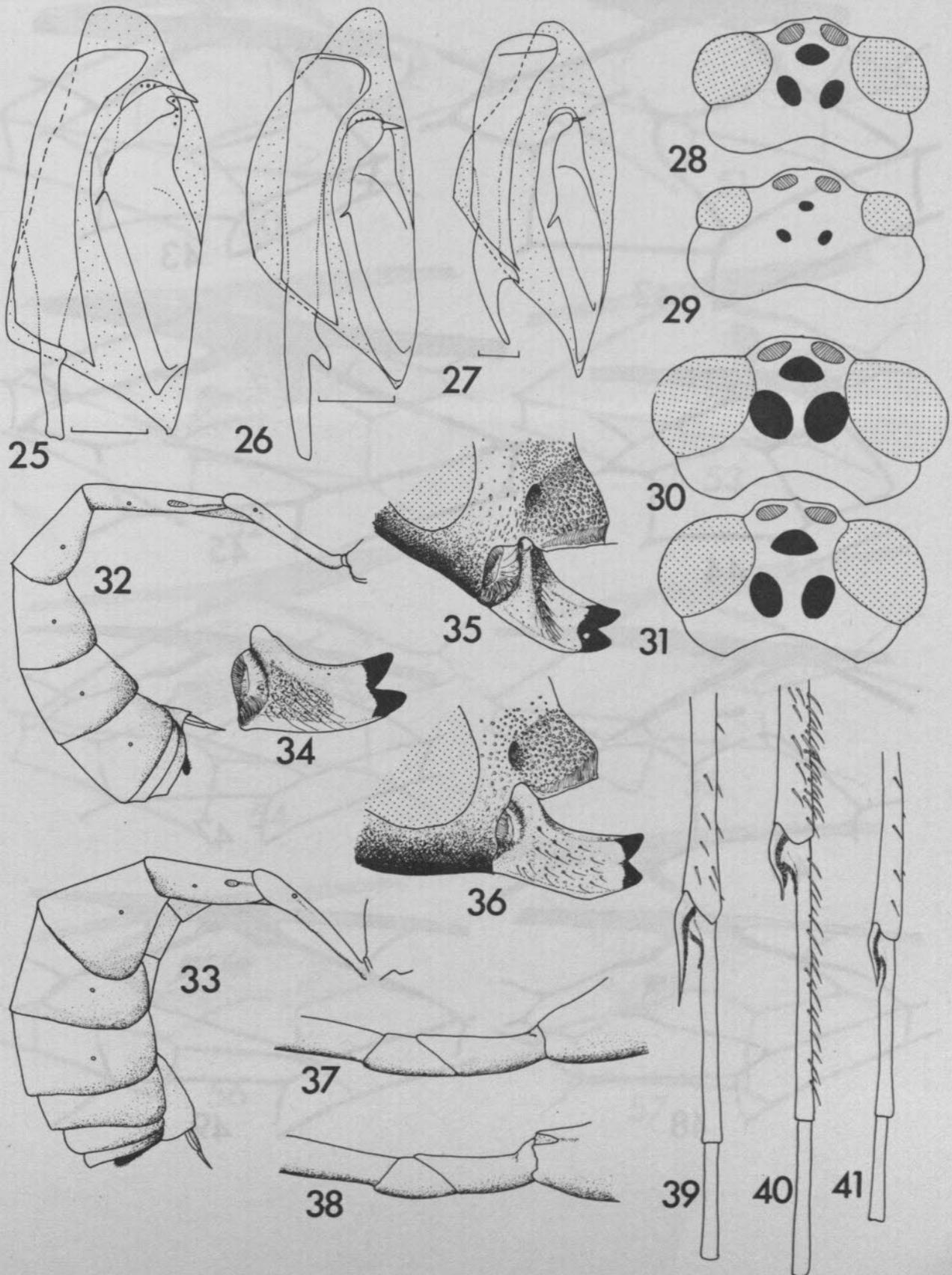
Fig. 9. *Ophionopsis setus*, ♀. Fig. 10. *Stauropogonius occipitalis* ♂.
Figs 7-10 to same scale, scale line = 1 mm.



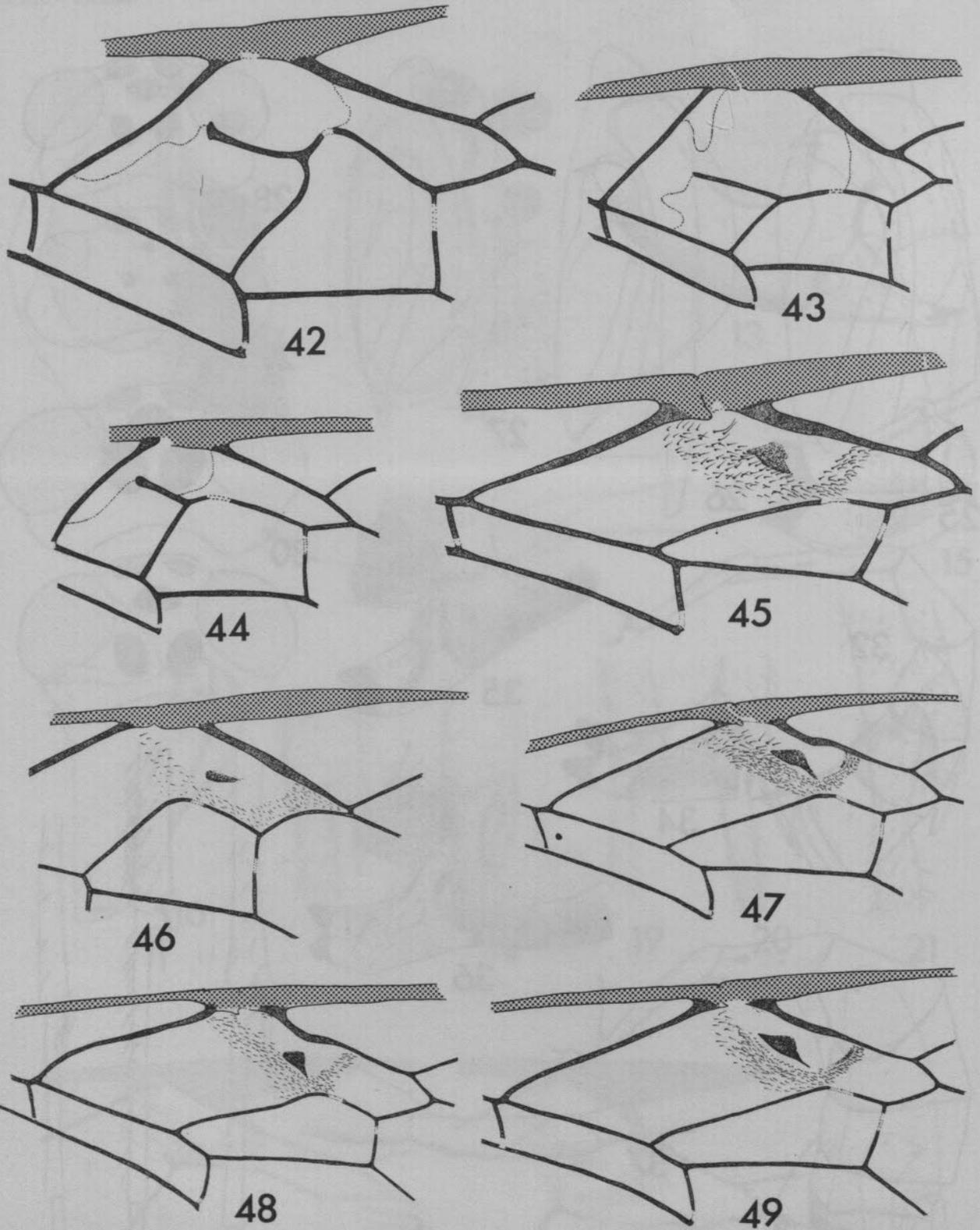
Figs 11-12. Face, latero-frontal. 11. *Ophionopsis nigrocyaneus*; 12. *Euryophion latipennis*. Fig. 13. Lower face, lateral, *Orientospilus capitatus*. Fig. 14. Hind trochanteral segments, *Lepiscelus distans*. Fig. 15. Mandible, *Euryophion adustus*. Fig. 16. Pronotum, lateral, *Orientospilus melasma*. Figs 17-21. Fore tibial spurs, posterior aspect. 17. *Dicamptus bantu*; 18. *Enicospilus pacificus*, 19. *Ophion nubilicarpus*; 20. *Rhopalophion discinervus*; 21. *Euryophion nigripennis*. Figs 22-23. Forewing, central. 22. *Ophion nubilicarpus*; 23. *O. hynnis*. Fig. 24. Genitalia, *O. nubilicarpus*, ♂. Scale line = 0.1mm.



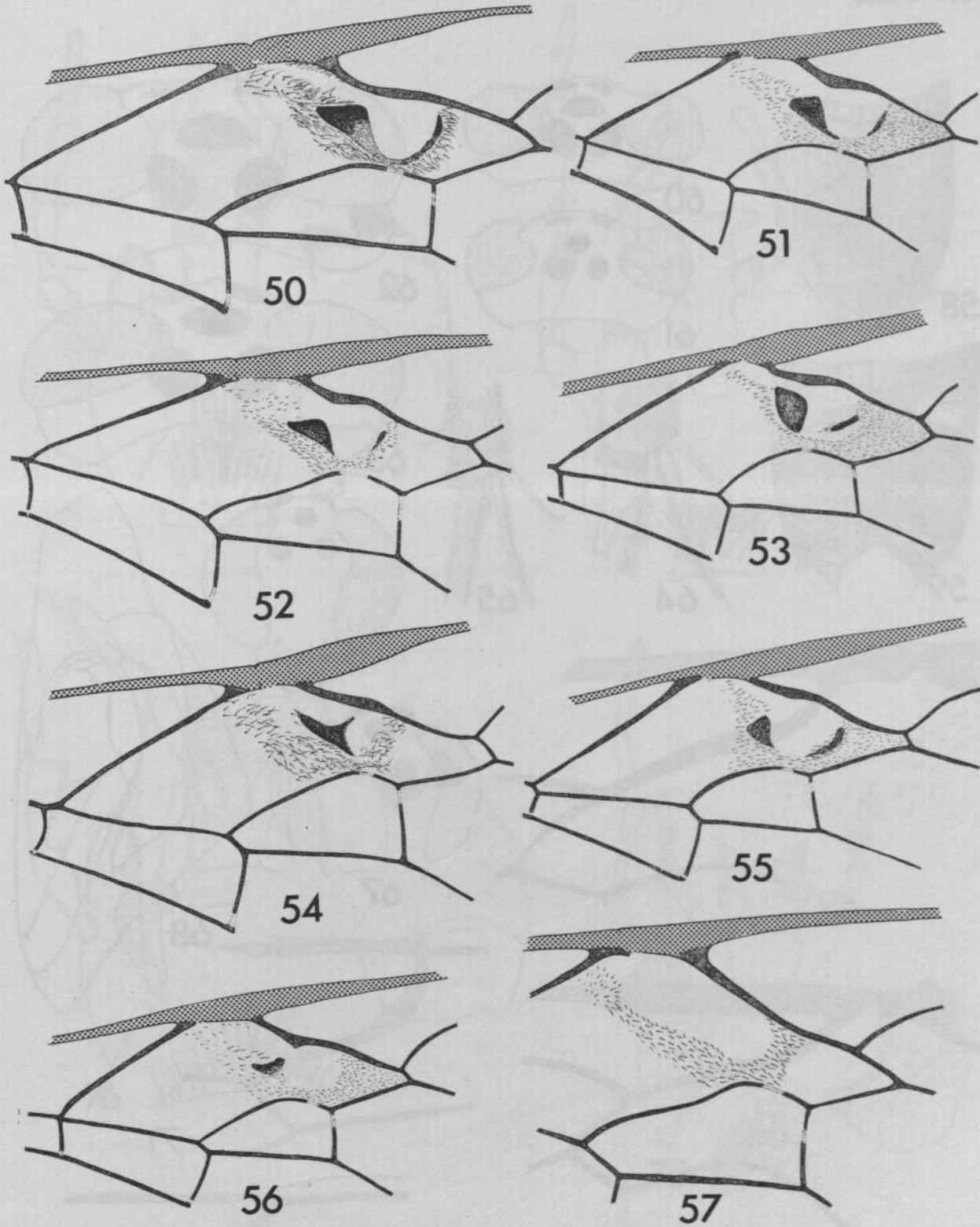
Figs 25-27. Genitalia. 25. *Rhopalophion discinervus*; 26. *Dicamptus pellucidus*; 27. *D. kelnerae*. Figs 28-31. Head, dorsal. 28. *Dicamptus bantu*; 29. *D. neavei*; 30. *D. seyrigi*; 31. *D. pulchellus*. Figs 32-33. Gaster, lateral. 32. *Dicamptus pellucidus*; 33. *D. neavei*. Fig. 34. Mandible, *Dicamptus kelnerae*. Figs 35-36. Lower face, lateral. 35. *Dicamptus braunsii*; 36. *D. bantu*. Figs 37-38. Hind trochanteral segments. 37. *Dicamptus seyrigi*; 38. *D. pulchellus*. Figs 39-41. Fore leg, central. 39. *Dicamptus pellucidus*, 40. *D. crassellus*; 41. *D. pulchellus*. Scale line = 0.1 mm.



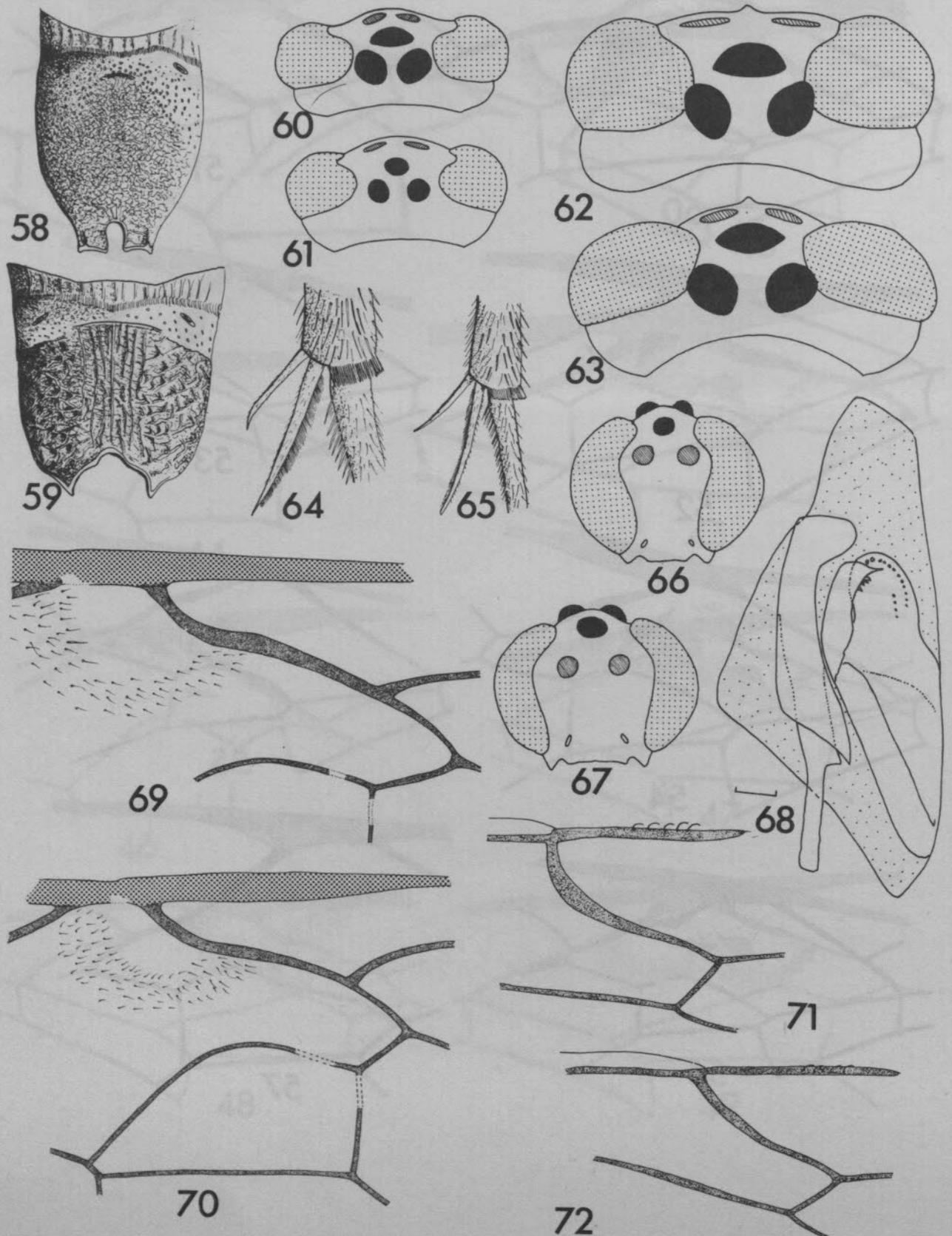
Figs 42-49. Forewing, central. 42. *Rhopalophion discinervus*; 43. *R. divergens*; 44. *R. parallelus*; 45. *Dicamptus neavei*; 46. *D. banqui*; 47. *D. bantu*; 48. *D. kelnerae*; 49. *D. braunsii*.



Figs 50-57. Forewing, central. 50. *Dicamptus pellucidus*; 51. *D. pulchellus*, 52. *D. crassellus*; 53. *D. betsileo*; 54. *D. xhosa*; 55. *D. seyrigi*; 56. *D. townesi*; 57. *Laticoleus longicornis*.



Figs 58-59. Propodeum, dorsal. 58. *Dicamptus bantu*; 59. *D. kelnerae*. Figs 60-63. Head, dorsal. 60. *Rhopalophion discinervus*; 61. *R. parallelus*; 62. *Euryophion nigripennis*; 63. *E. meridionalis*. Figs 64-65. Hind tibial spurs. 64. *Euryophion meridionalis*; 65. *E. variegatus*. Figs 66-67. Face, frontal. 66. *Dicamptus pellucidus*; 67. *D. crassellus*. Fig. 68. Genitalia, *Euryophion latipennis*, ♂. Figs 69-70. Forewing, central. 69. *Euryophion adustus*; 70. *E. variegatus*. Figs 71-72. Hindwing, hamular region. 71. *Euryophion adustus*; 72. *E. variegatus*.
Scale line = 0.1mm.



Figs 73-76. Mouthparts, dissected for display [In each case the maxilla is on the left, mandible on right, labium is above and labrum below] 73. *Euryophion latipennis*; 74. *E. meridionalis*; 75. *E. variegatus*; 76. *Rictophion ikuthana*.

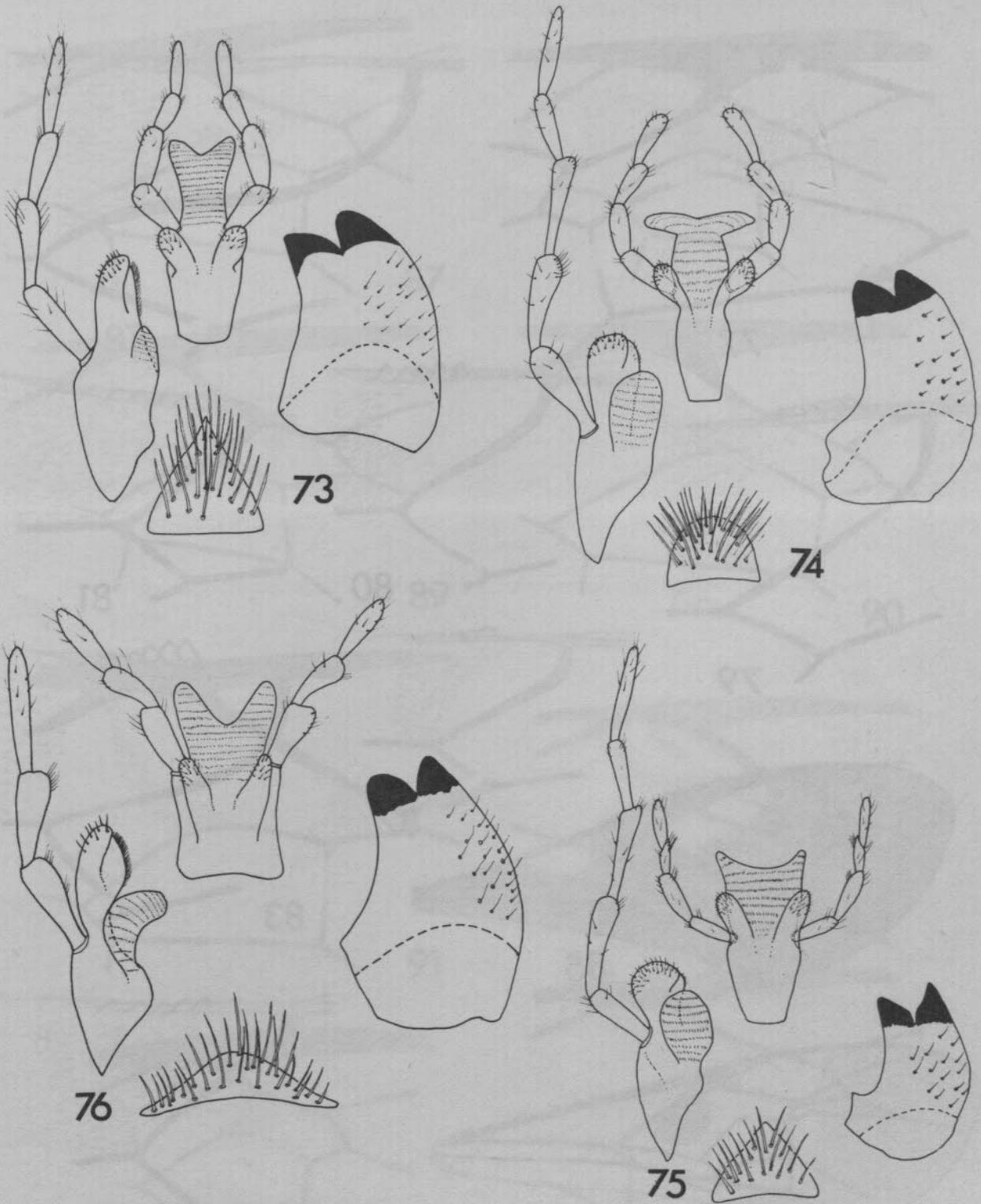
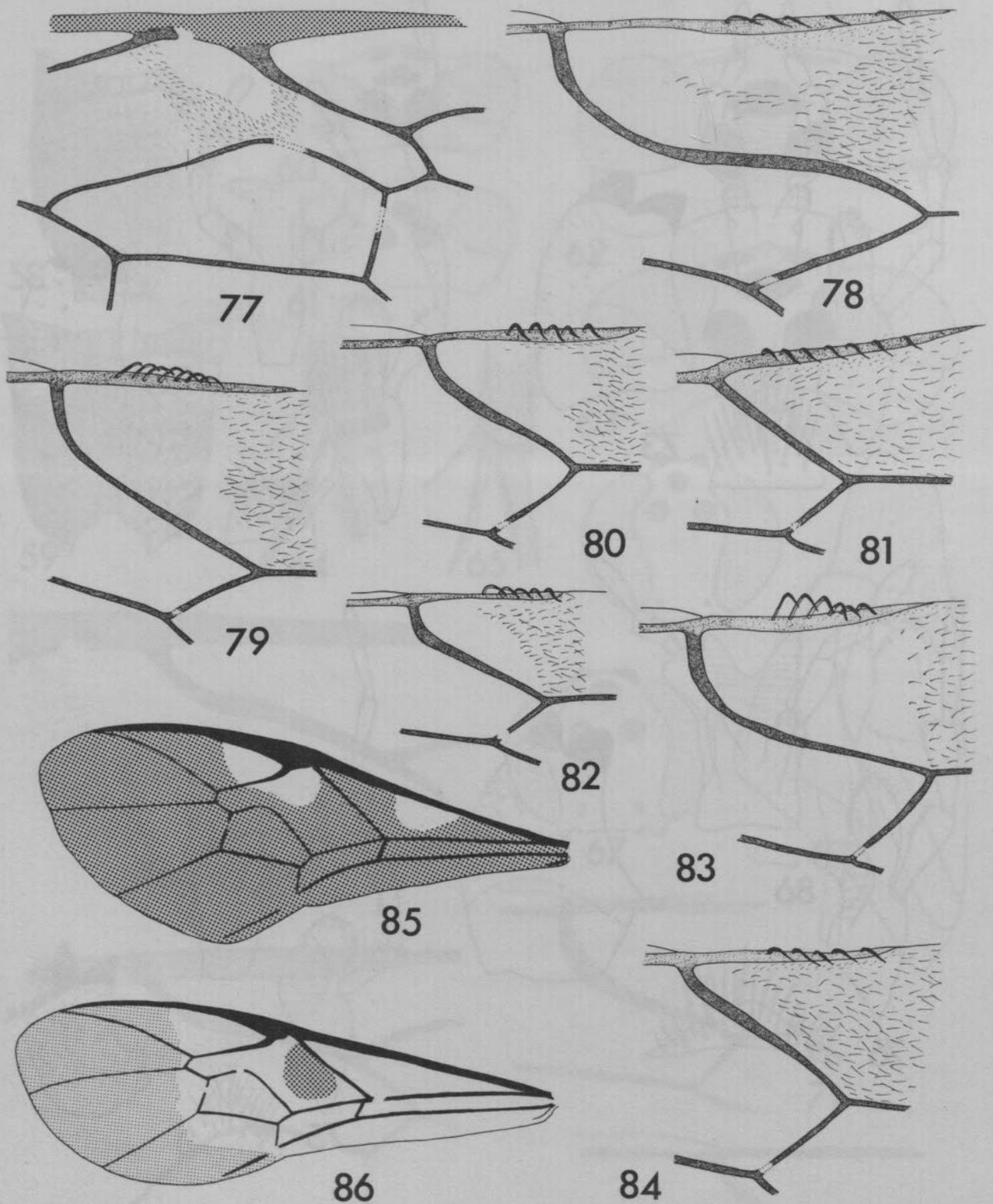
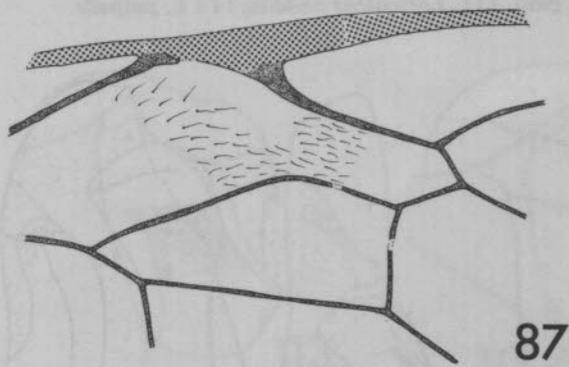


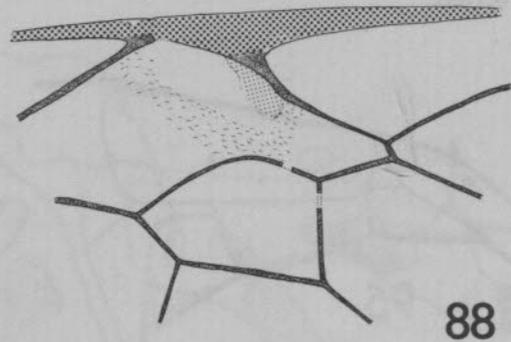
Fig. 77. Forewing, central, *Laticoleus unicolor*. Figs 78-84. Hindwing, hamular region. 78. *Laticoleus longicornis*; 79. *L. palpalis*; 80. *L. pedalis*; 81. *L. mobilis*; 82. *L. sokokei*; 83. *L. curvatus*; 84. *L. unicolor*. Figs 85-86. Forewing. 85. *Orientospilus capitatus*; 86. *O. melasma*.



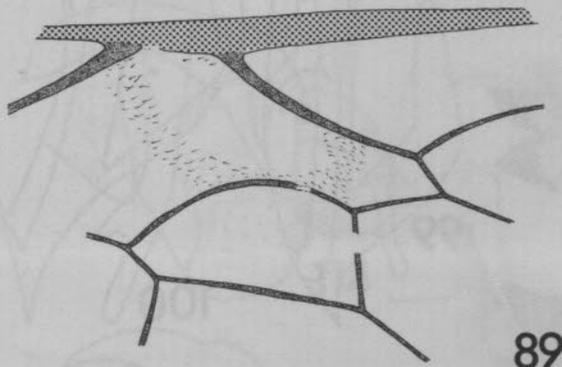
Figs 87-94. Forewing, central. 87. *Laticoleus pedalis*; 88. *L. infumatus*; 89. *L. mobilis*; 90. *L. curvatus*; 91. *L. alaris*; 92. *L. spilus*; 93. *L. sokokei*; 94. *L. pronotalis*.



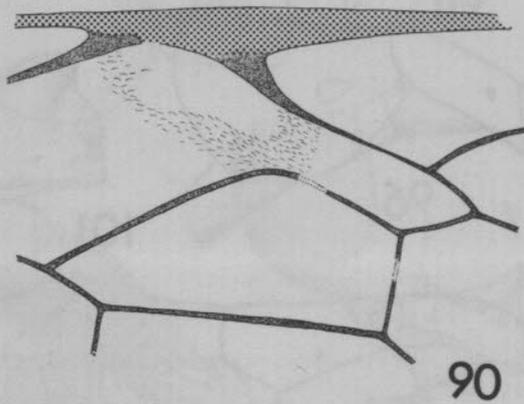
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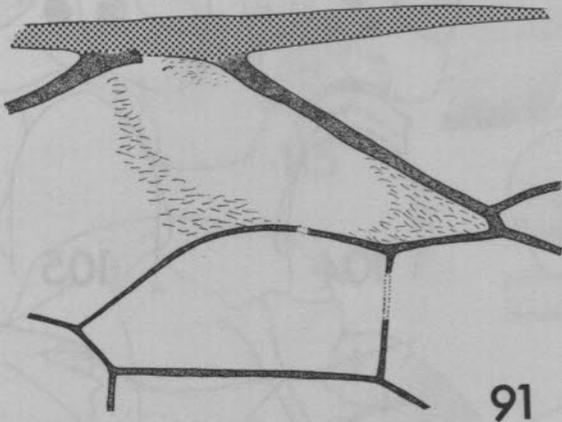
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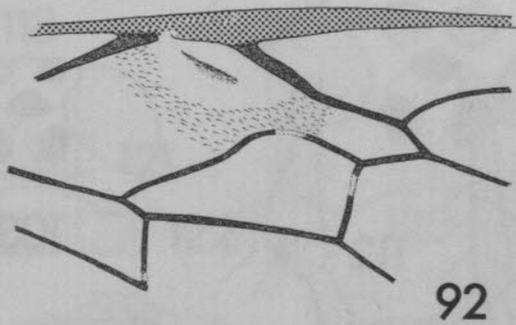
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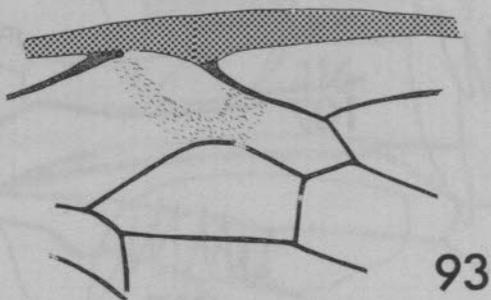
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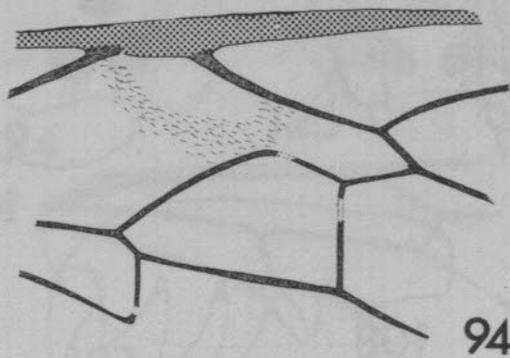
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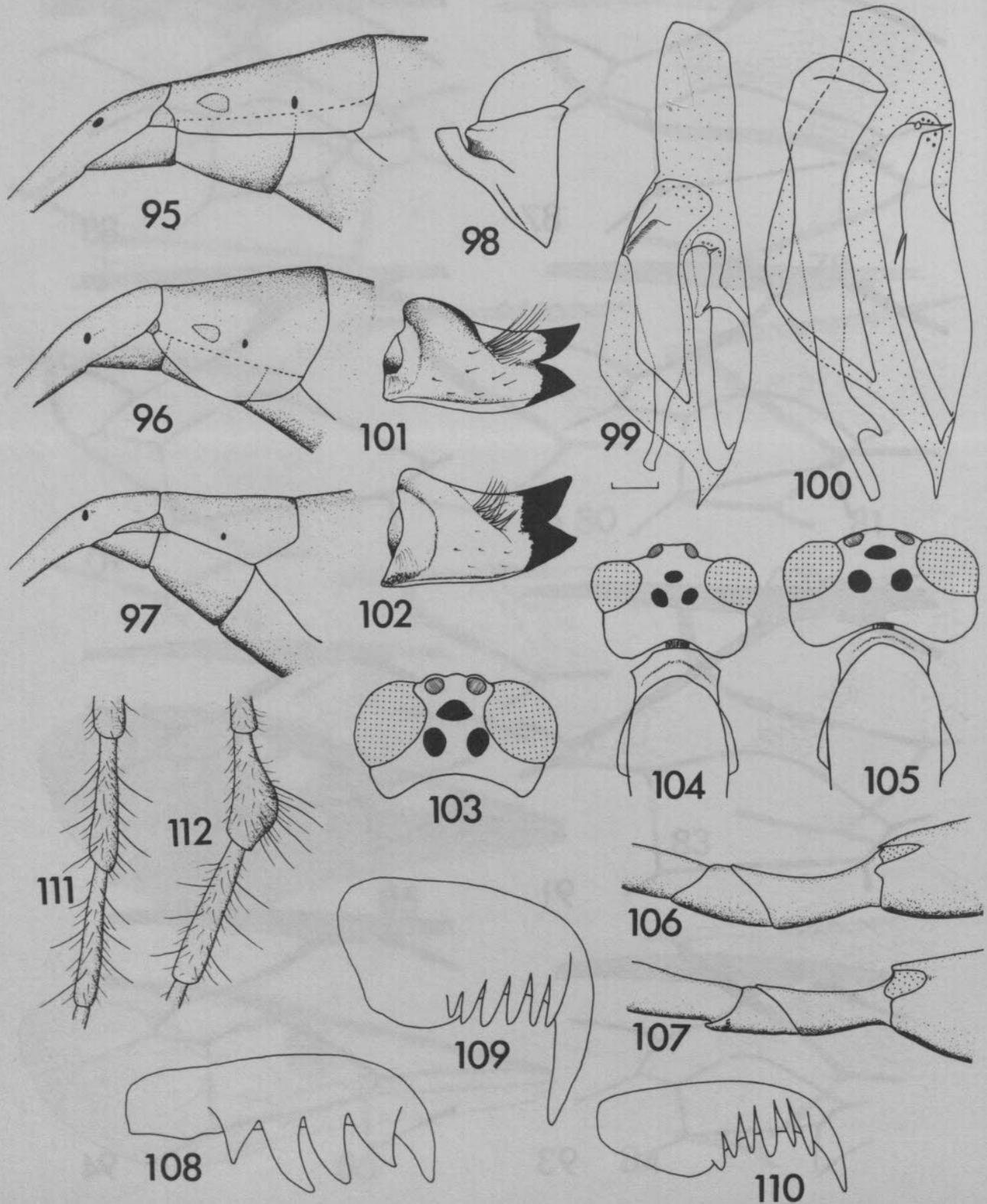


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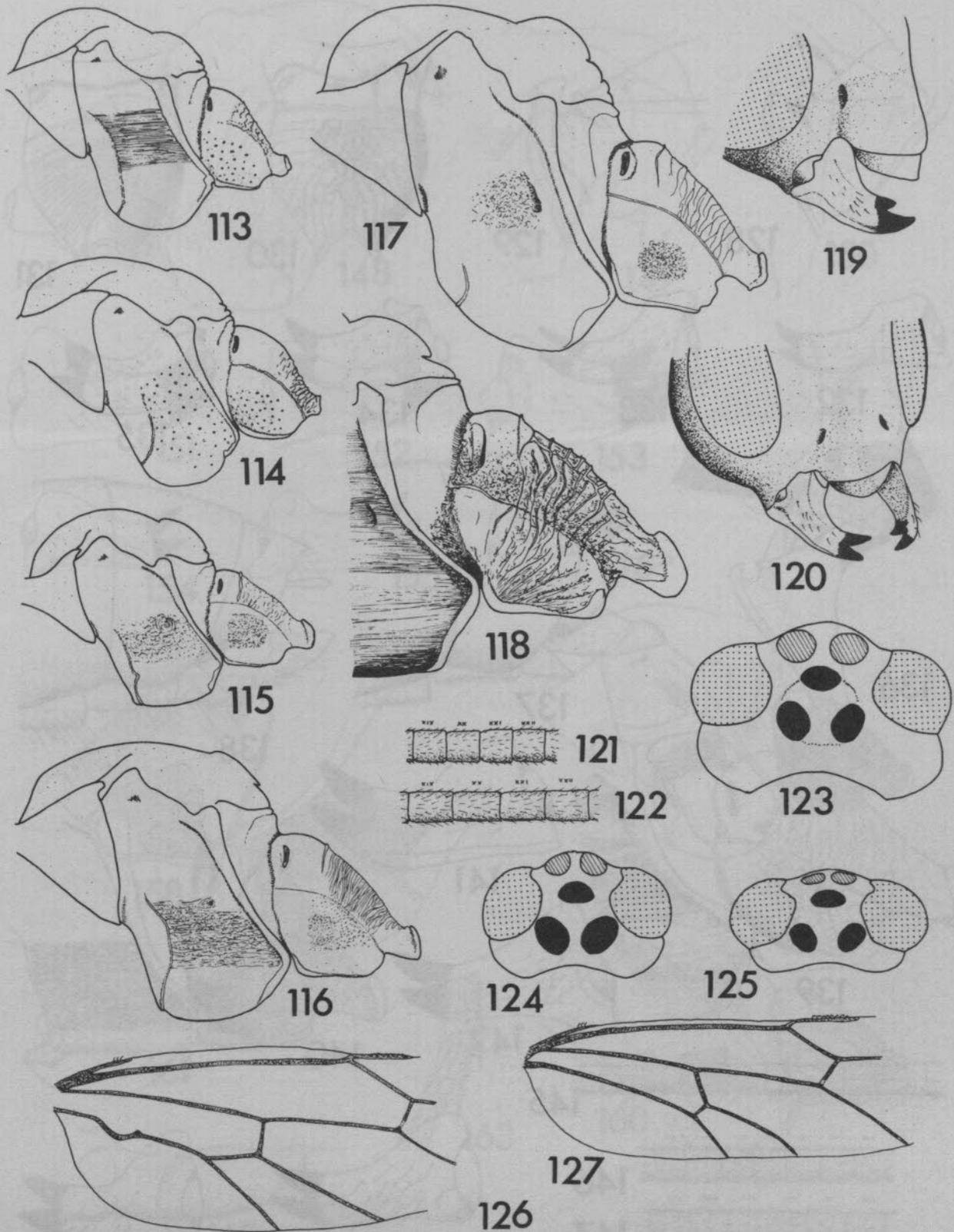


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Figs 95-97. Tergite 2 of gaster, lateral. 95. *Euryophion meridionalis*; 96. *E. latipennis*; 97. *Rictophion ikuthana*. Fig. 98. Pronotum, lateral, *Laticoleus pronotalis*. Figs 99-100 Genitalia, ♂. 99. *Lepiscelus distans*; 100. *Laticoleus unicolor*. Figs 101-102. Mandibles. 101. *Laticoleus longicornis*; 102. *L. curvatus*. Fig. 103. Head, dorsal, *Laticoleus curvatus*. Figs 104-105. Head and pronotum, dorsal. 104. *Laticoleus unicolor*; 105. *L. mobilis*. Figs 106-107. Hind trochanteral segments. 106. *Laticoleus unicolor*; 107. *L. spilus*. Figs 108-110. Outer hind tarsal claws. 108. *Laticoleus pedalis*, ♀; 109. *L. palpalis*, ♀, 110. *L. sokokei*, ♂. Figs 111-112. Segments 2-3 maxillary palp. 111. *Laticoleus pedalis*; 112. *L. palpalis*. Scale line = 0.1 mm.



Figs 113-117. Gaster, lateral. 113. *Enicospilus unidens*; 114. *E. gonidius*; 115. *E. evanescens*; 116. *E. proluxus*; 117. *E. hyailosus*. Fig. 118. Propodeum, lateral, *E. equatus*. Figs 119-120. Lower face, antero-lateral. 119. *E. amygdalis*; 120. *E. leucocotis*. Figs 121-122. Central flagellar segments. 121. *E. camboui*; 122. *E. leucocotis*. Figs 123-125. Head, dorsal. 123. *E. leucocotis*; 124. *E. marjoriae*; 125. *E. camerunensis*. Figs 126-127. Hindwing, proximal. 126. *E. streblus*; 127. *E. junctus*.



Figs 128-129. Pronotum, lateral. 128. *Enicospilus senescens*; 129. *E. junctus*. Figs 130-131. Propodeum, dorsal. 130. *E. senescens*; 131. *E. glyphanosus*. Figs 132-135. Mandibles. 132. *E. pseudonugalis*; 133. *E. nugalis*; 134. *E. senescens*; 135. *E. glyphanosus*. Fig. 136. Pronotum, lateral, *E. eirmosus*. Figs 137-138. Terminal segments of ♂ gaster. 137. *E. mamatus*; 138. *E. decaryi*. Figs 139-140. Propodeum, lateral. 139. *E. plagiatus*; 140. *E. talaorus*. Figs 141-144. Mandibles. 141. *E. decaryi*, 142. *E. mamatus*; 143. *E. talaorus*; 144. *E. seyrigi*. Figs 145-147. Central flagellar segments. 145. *E. umbratus*; 146. *E. seyrigi*; 147. *E. talaorus*.

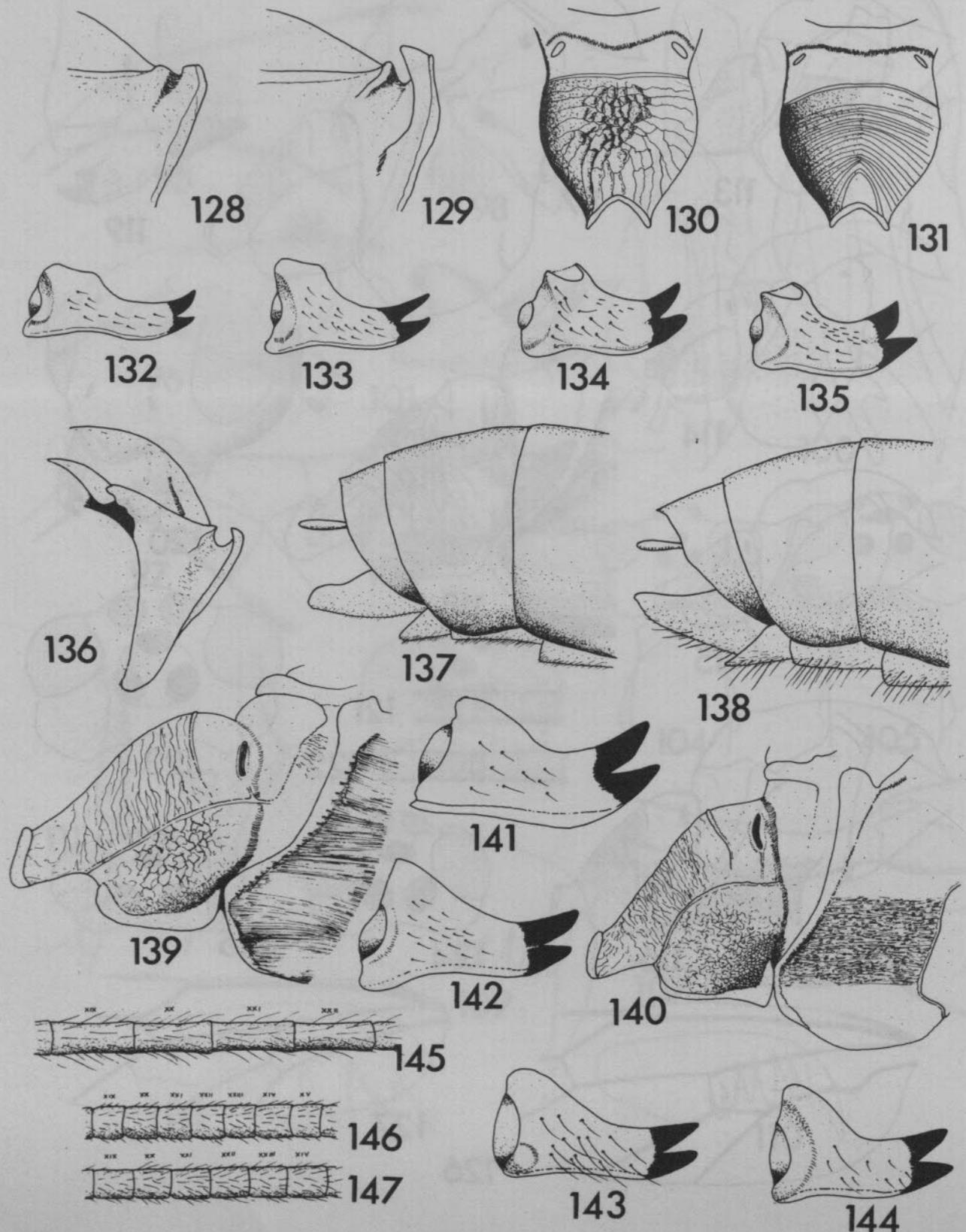
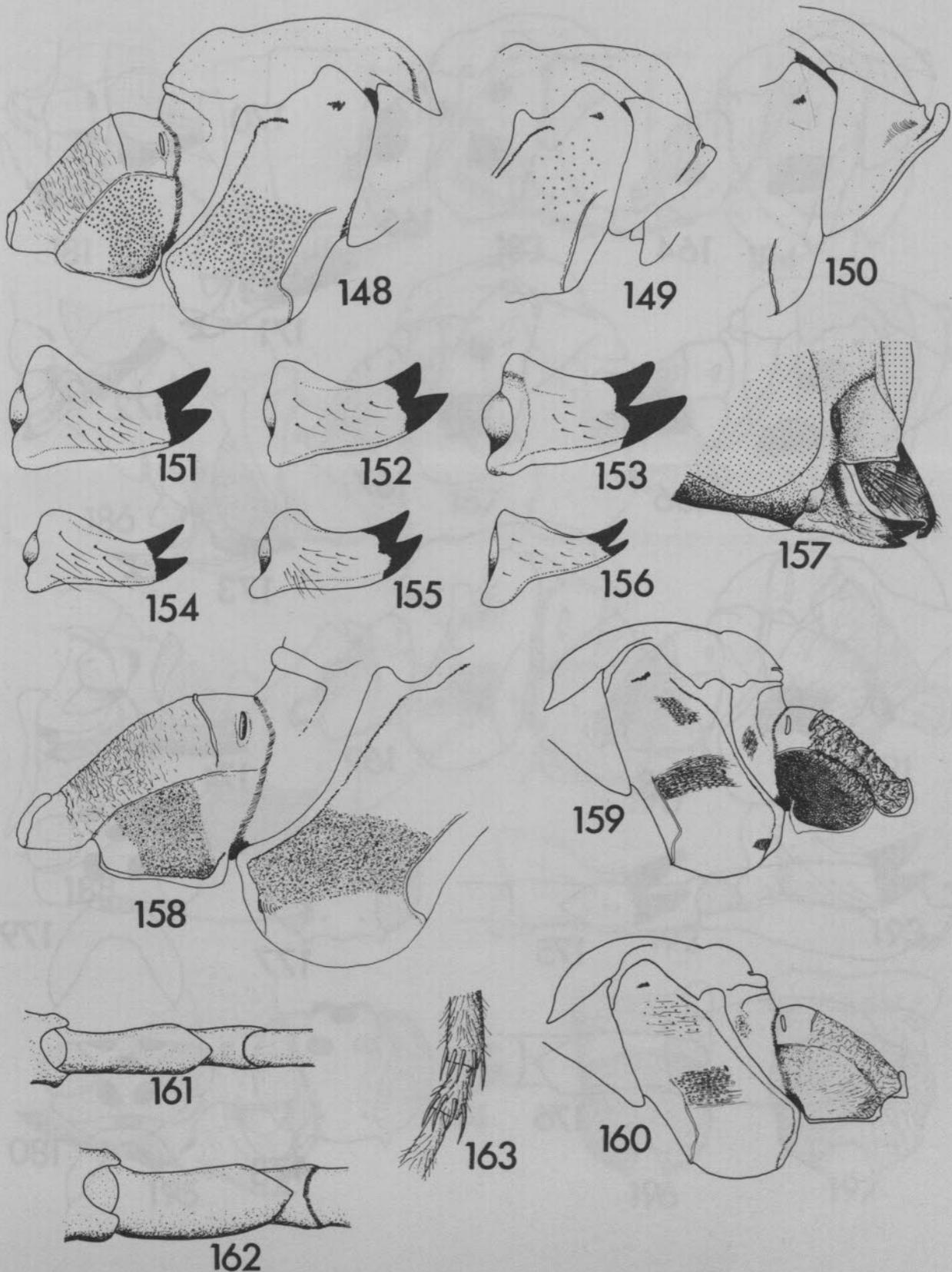


Fig. 148. Alitrunk, lateral, *Enicospilus seyrigi*. Figs 149-150. Anterior part of thorax, lateral. 149. *E. diro*; 150. *E. volitius*. Figs 151-156. Mandibles. 151. *E. janakus*; 152. *E. damius*; 153. *E. diro*; 154. *E. cariosus*; 155. *E. antimena*; 156. *E. indovus*. Fig. 157. Lower face, antero-lateral, *E. volitius*. Figs 158-160. Alitrunk, lateral. 158. *E. microspilus*; 159. *E. lancasteri*; 160. *E. abessyniensis*. Figs 161-162. Hind trochanteral segments. 161. *E. abessyniensis*; 162. *E. lancasteri*. Fig. 163. Hind tarsus IV, *E. nefarius*.



Figs 164-169. Alitrunk, lateral. 164. *Enicospilus luebberti*; 165. *E. agrophus*; 166. *E. justus*; 167. *E. apicalis*; 168. *E. drakensbergi*; 169. *E. diabolicus*. Figs 170-174. Lower face, lateral. 170. *E. justus*; 171. *E. agrophus*; 172. *E. apicalis*; 173. *E. drakensbergi*; 174. *E. luebberti*. Figs 175-176. Hind trochanteral segments. 175. *E. diabolicus*; 176. *E. dolosus*. Figs 177-178. Face, anterior. 177. *E. apicalis*; 178. *E. justus*. Figs 179-180. Head and pronotum, dorsal. 179. *E. luebberti*; 180. *E. apicalis*.

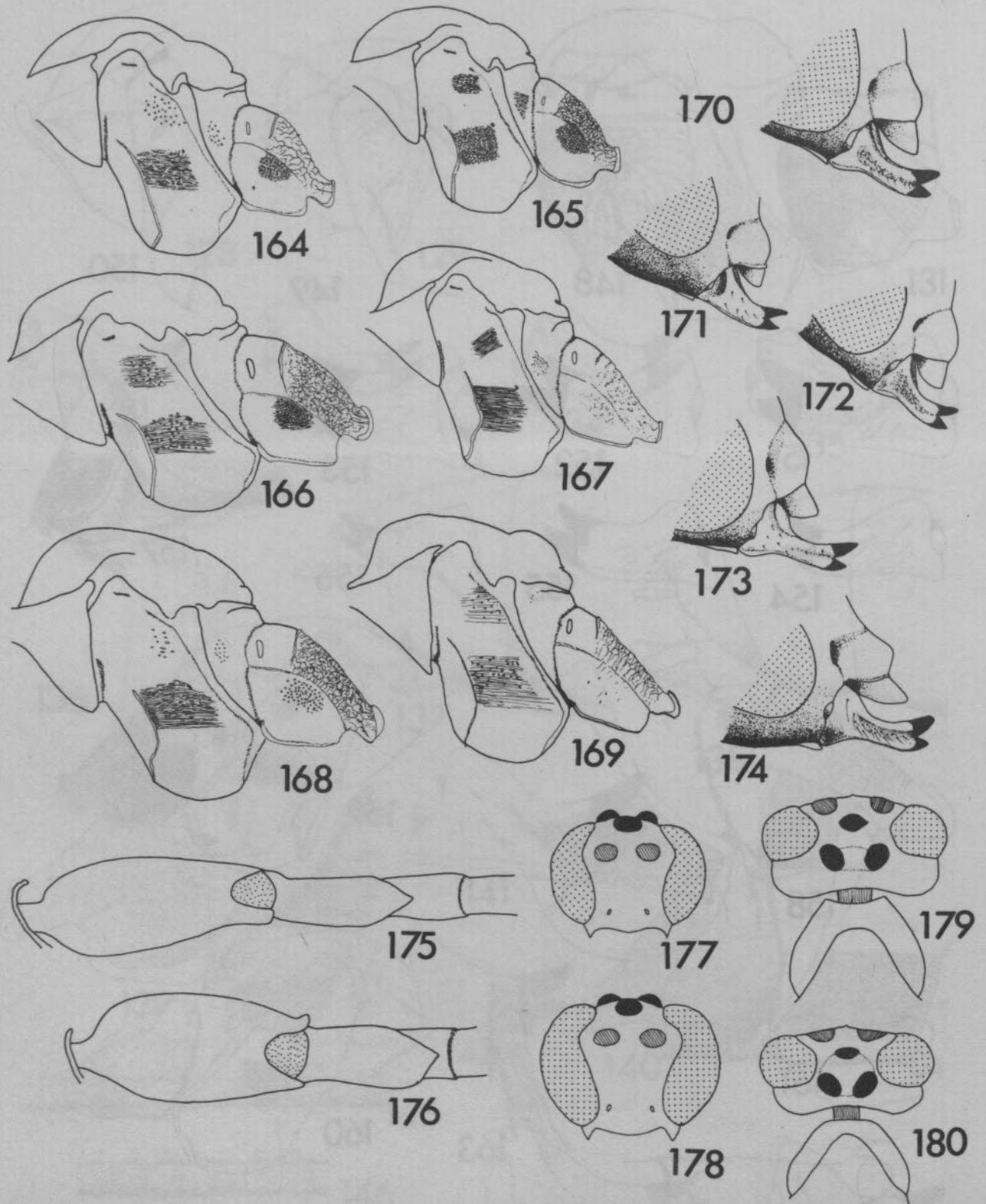
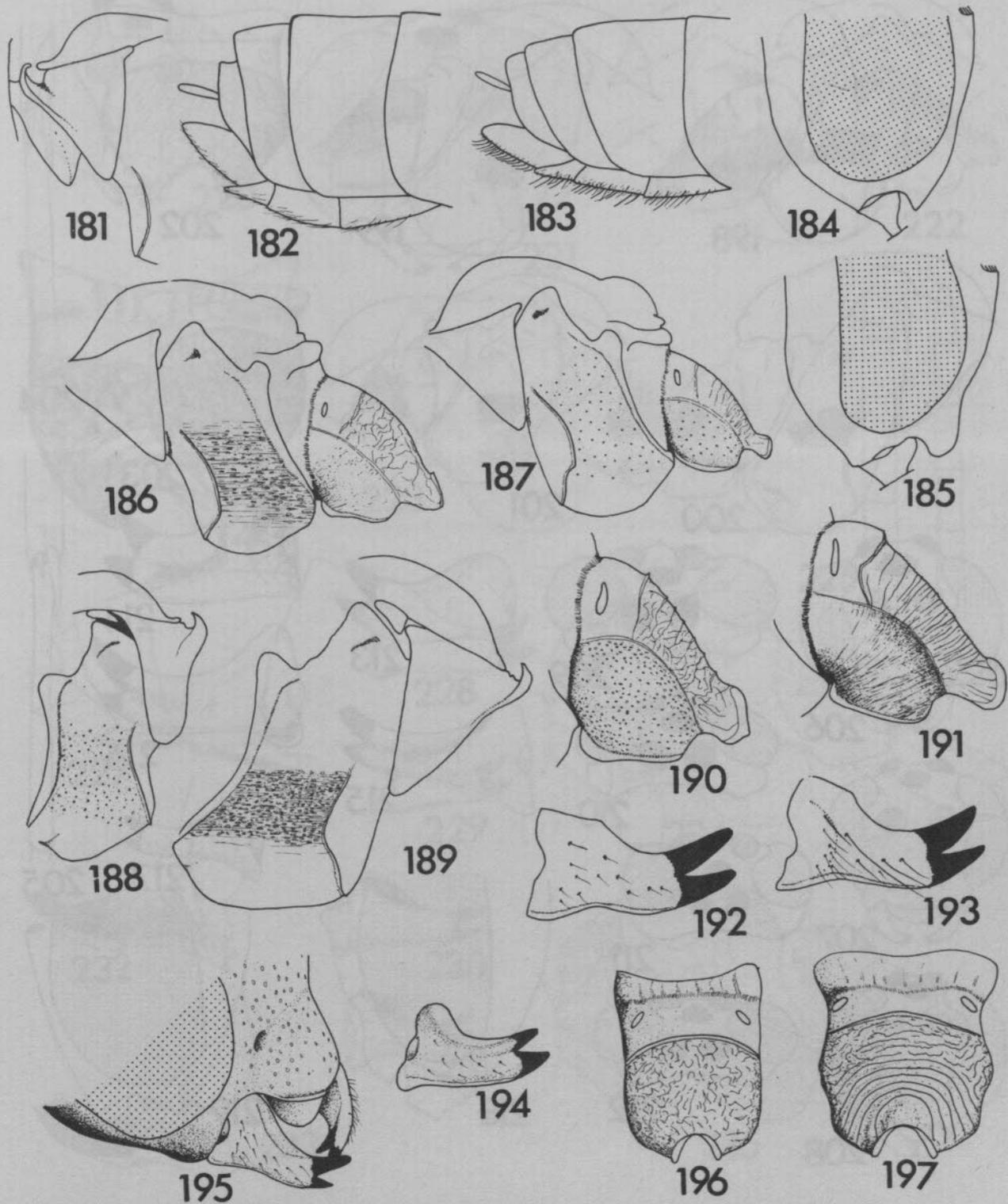
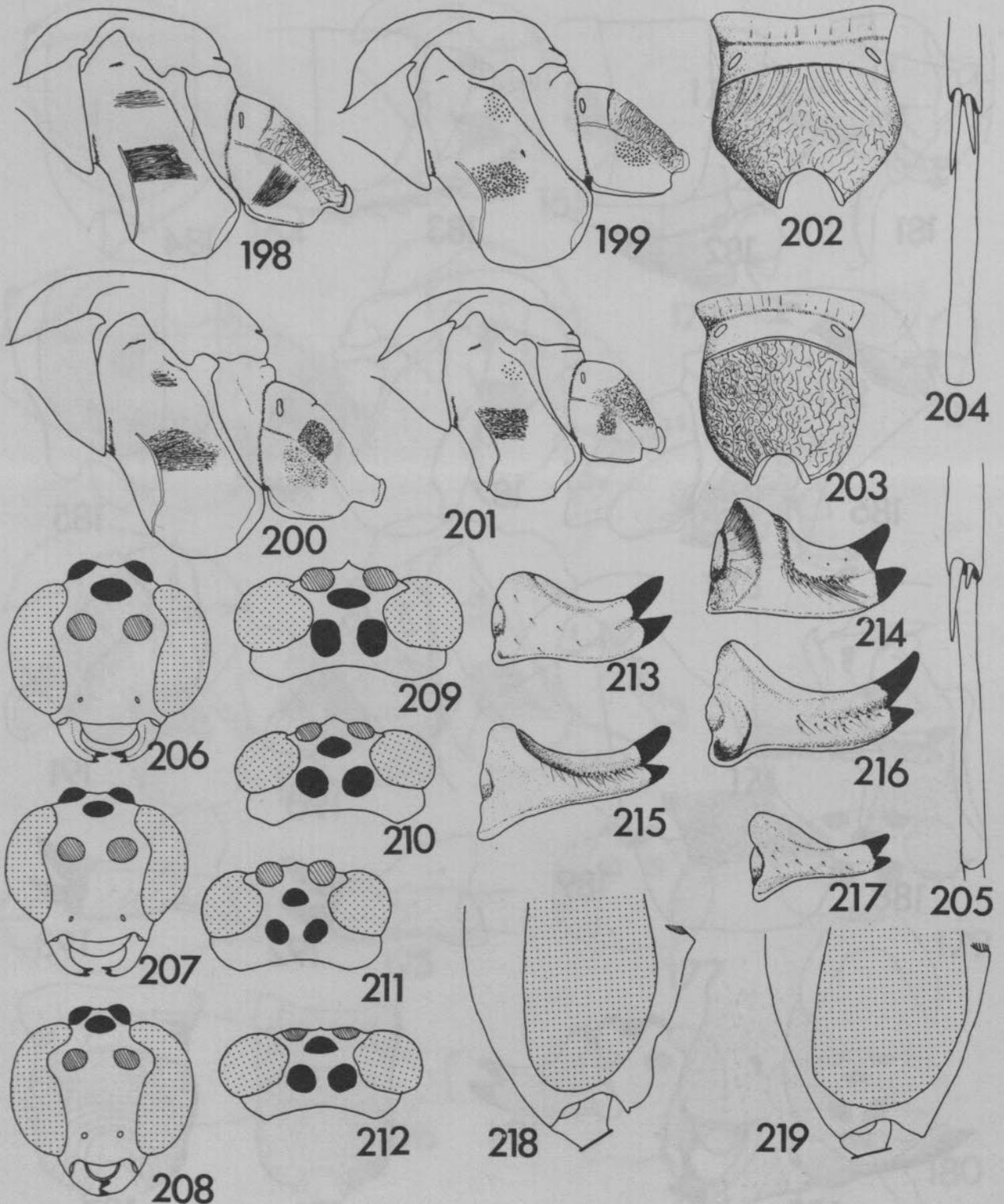


Fig. 181. Pronotum, lateral, *Enicospilus mahaloni*. Figs 182-183. Terminal segments of gaster, ♂, 182. *E. sliochus*; 183. *E. dolosus*. Figs 184-185. Lower head, lateral. 184. *E. dolosus*; 185. *E. pescator*. Figs 186-187. Alitrunk, lateral. 186. *E. dolosus*; 187. *E. pescator*. Figs 188-189. Pronotum and mesopleuron. 188. *E. retsifoius*; 189. *E. lanafius*. Figs 190-191. Propodeum, lateral. 190. *E. oswaldi*; 191. *E. famantrus*. Figs 192-194. Mandible. 192. *E. famantrus*; 193. *E. vorikus*; 194. *E. bantu*. Fig. 195. Lower face, anterolateral, *E. nuberculatus*. Figs 196-197. Propodeum, dorsal. 196. *E. dubius*; 197. *E. sphenus*.



Figs 198-201. Alitrunk, lateral. 198. *Enicospilus dubius*; 199. *E. herero*; 200. *E. helvolus*; 201. *Enicospilus* species 6. Figs 202-203. Propodeum, dorsal. 202. *E. brevicornis*; 203. *E. henryi*. Figs 204-205. Mid tibial spurs. 204. *E. herero*; 205. *Enicospilus* species 6. Figs 206-208. Faces, anterior. 206. *E. herero*; 207. *E. henryi*; 208. *E. brevicornis*. Figs 209-212. Head, dorsal. 209. *E. helvolus*; 210. *E. herero*; 211. *E. henryi*; 212. *E. dubius*. Figs 213-217. Mandible. 213. *E. brevicornis*; 214. *E. helvolus*; 215. *E. herero*; 216. *E. leionotus*; 217. *E. dubius*. Figs 218-219. Lower head, lateral. 218. *Enicospilus* species 6; 219. *E. albiger*.



Figs 220-221. Face, anterior. 220. *Enicospilus albiger*; 221. *E. grandiflavus*. Figs 222-223. Alitrunk, lateral. 222. *E. prospiracularis*; 223. *E. quietus*. Fig. 224. Propodeum, dorsal, *E. grandiflavus*. Figs 225-226. Distal antennal segments. 225. *E. quietus*; 226. *E. rufus*. Fig. 227. Terminal segments of gaster, *E. rufus*. Figs 228-231. Mandible. 228. *E. babaulti*; 229. *E. polyspilus*; 230. *E. drymosus*; 231. *E. meledonosus*. Figs 232-233. Lower face, lateral. 232. *E. vatus*; 233. *E. meledonosus*. Figs 234-235. Alitrunk, lateral, *E. nefarius*, showing extent of variation in the distribution of dark pigmentation (stippled).

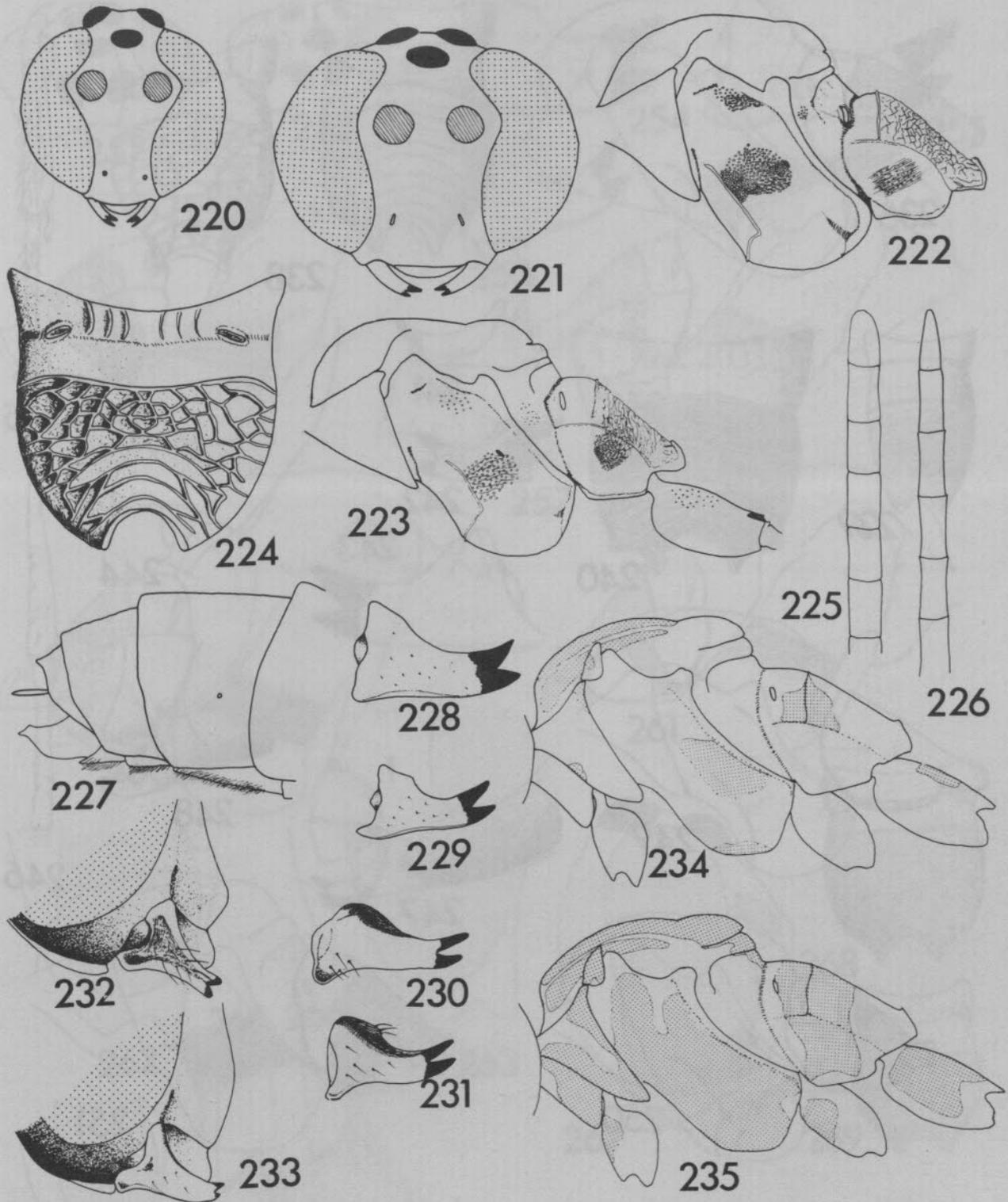
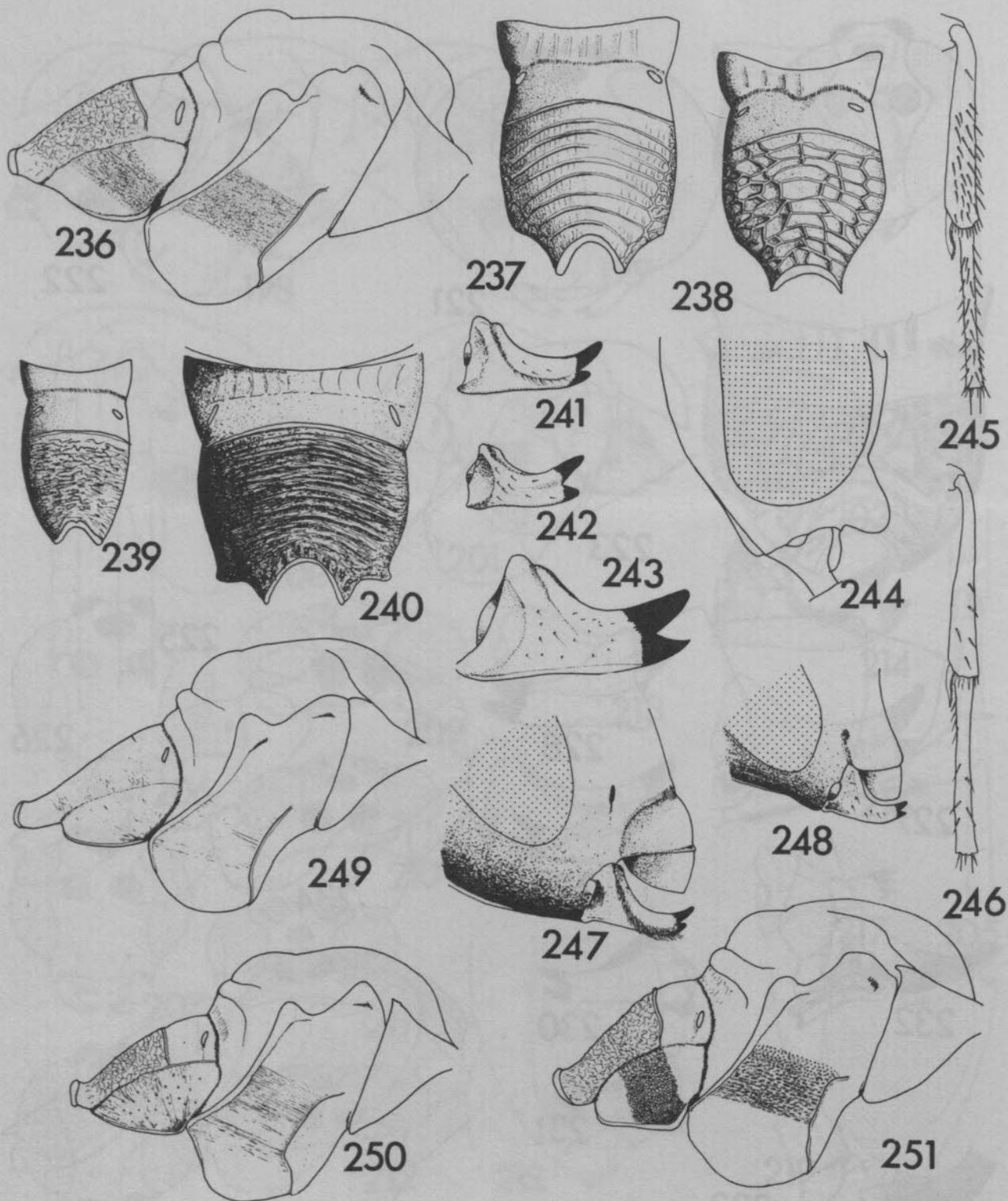
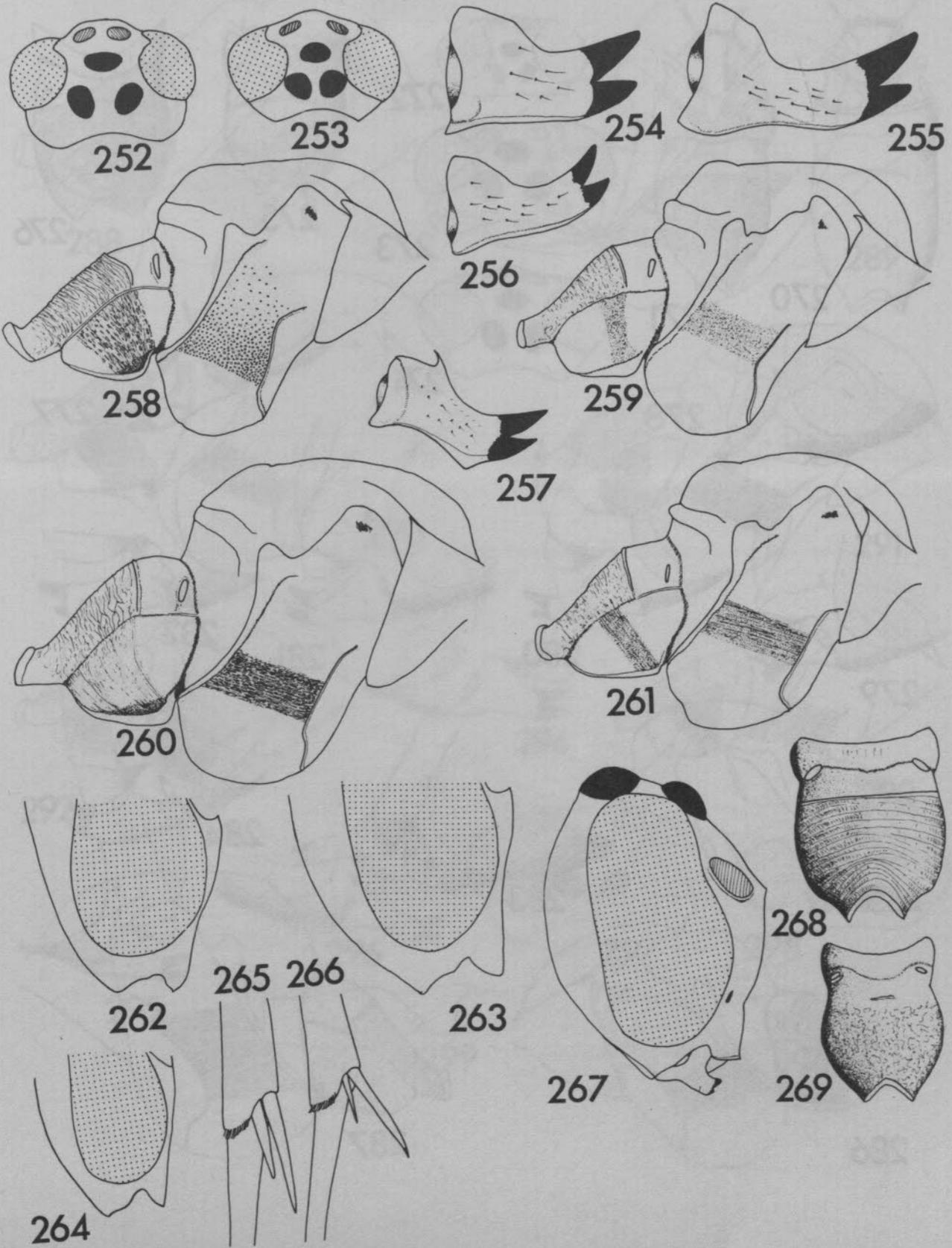


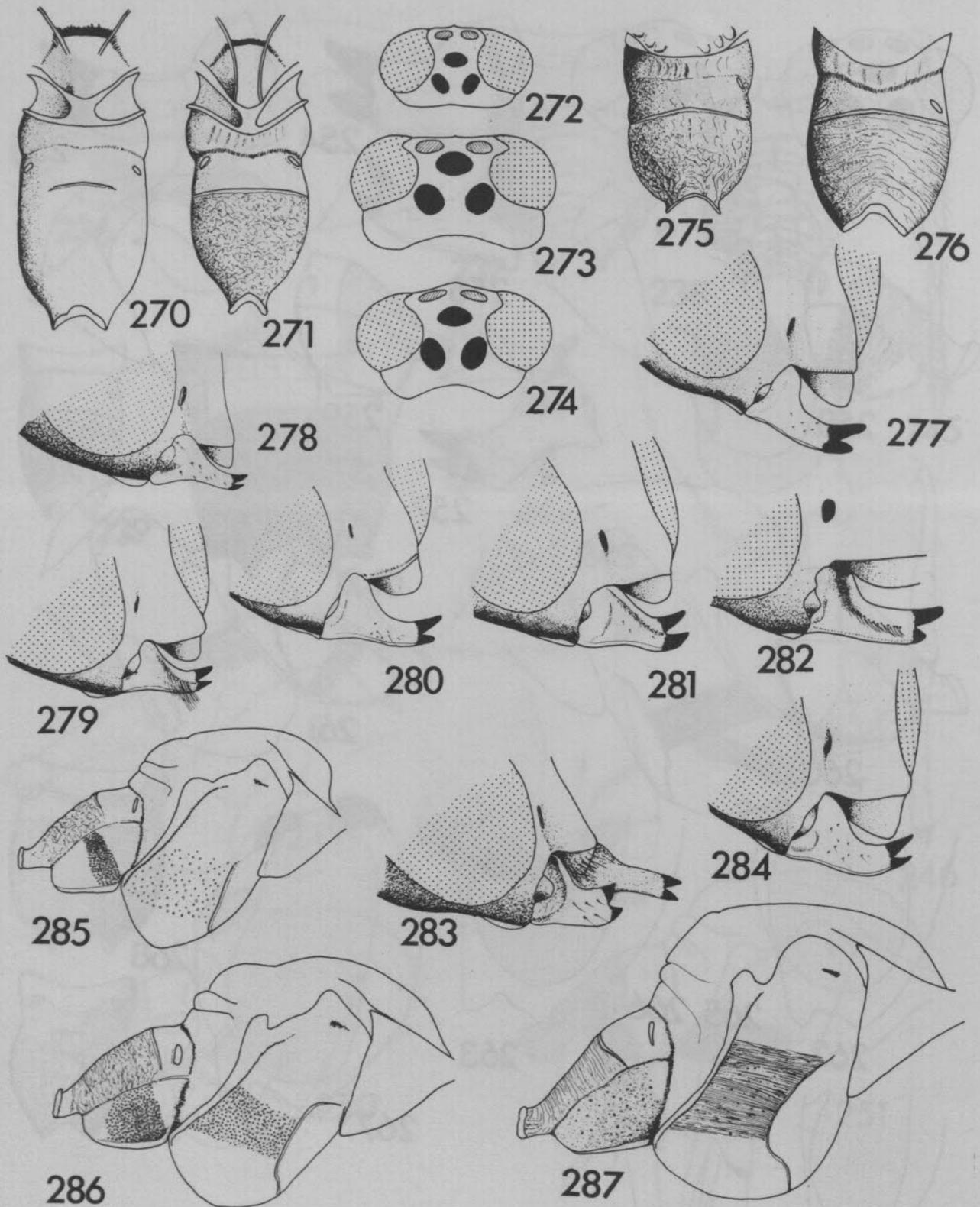
Fig. 236. Alitrunk, lateral, *Enicospilus ruwenzorius*. Figs 237-240. Propodeum, dorsal. 237. *E. rubens*; 238. *E. corrugans*; 239. *E. hecastus*; 240. *E. simandrius*. Figs 241-243. Mandible. 241. *E. batus*; 242. *E. luebberti*; 243. *E. reti*. Fig. 244. Lower head, lateral, *E. vontalis*. Figs 245-246. Fore tibia. 245. *E. batus*; 246. *E. capensis*. Figs 247-248. Lower face, antero-lateral. 247. *Enicospilus* species 1; 248. *E. ovius*. Figs 249-251. Alitrunk, lateral. 249. *E. anaxeus*; 250 *Enicospilus* species 2; 251. *E. communis*.



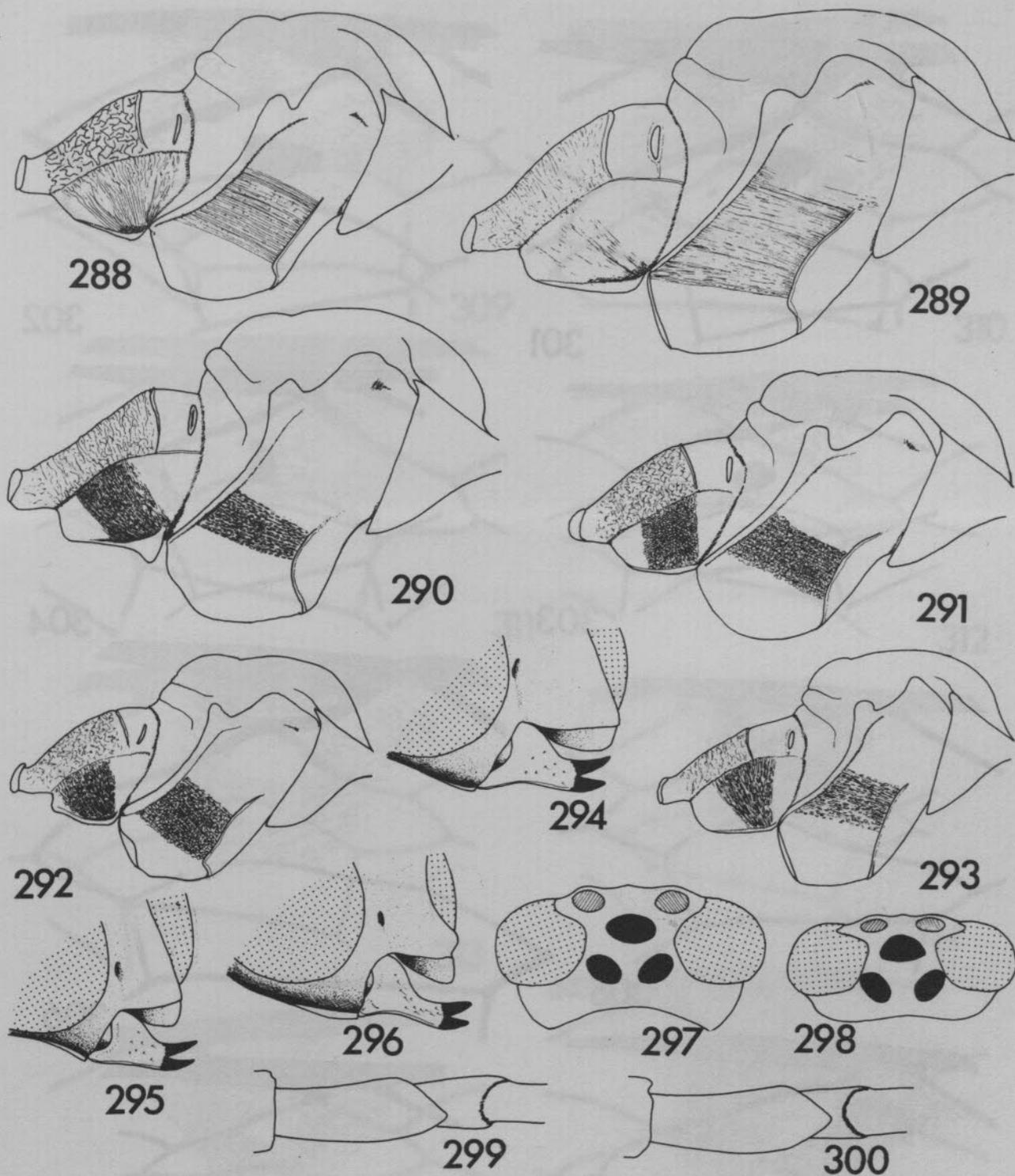
Figs 252-253. Head, dorsal. 252. *Enicospilus communis*; 253. *Enicospilus* species 2. Figs 254-257. Mandible. 254. *E. drasmosus*; 255. *E. communis*; 256. *Enicospilus* species 2; 257. *E. glarus*. Figs 258-261. Alitrunk, lateral. 258. *E. octus*; 259. *E. hoplus*, 260. *E. nesius*; 261. *E. expeditus*. Figs 262-264. Lower head, lateral. 262. *E. pacificus*; 263. *E. mnous*; 264. *E. lictus*. Figs 265-266. Mid tibial spurs. 265. *E. bicoloratus*; 266. *E. nervellator*. Fig. 267. Head, lateral, *E. sesamiae*. Figs 268-269. Propodeum, dorsal. 268. *E. nops*; 269. *E. emcedius*.



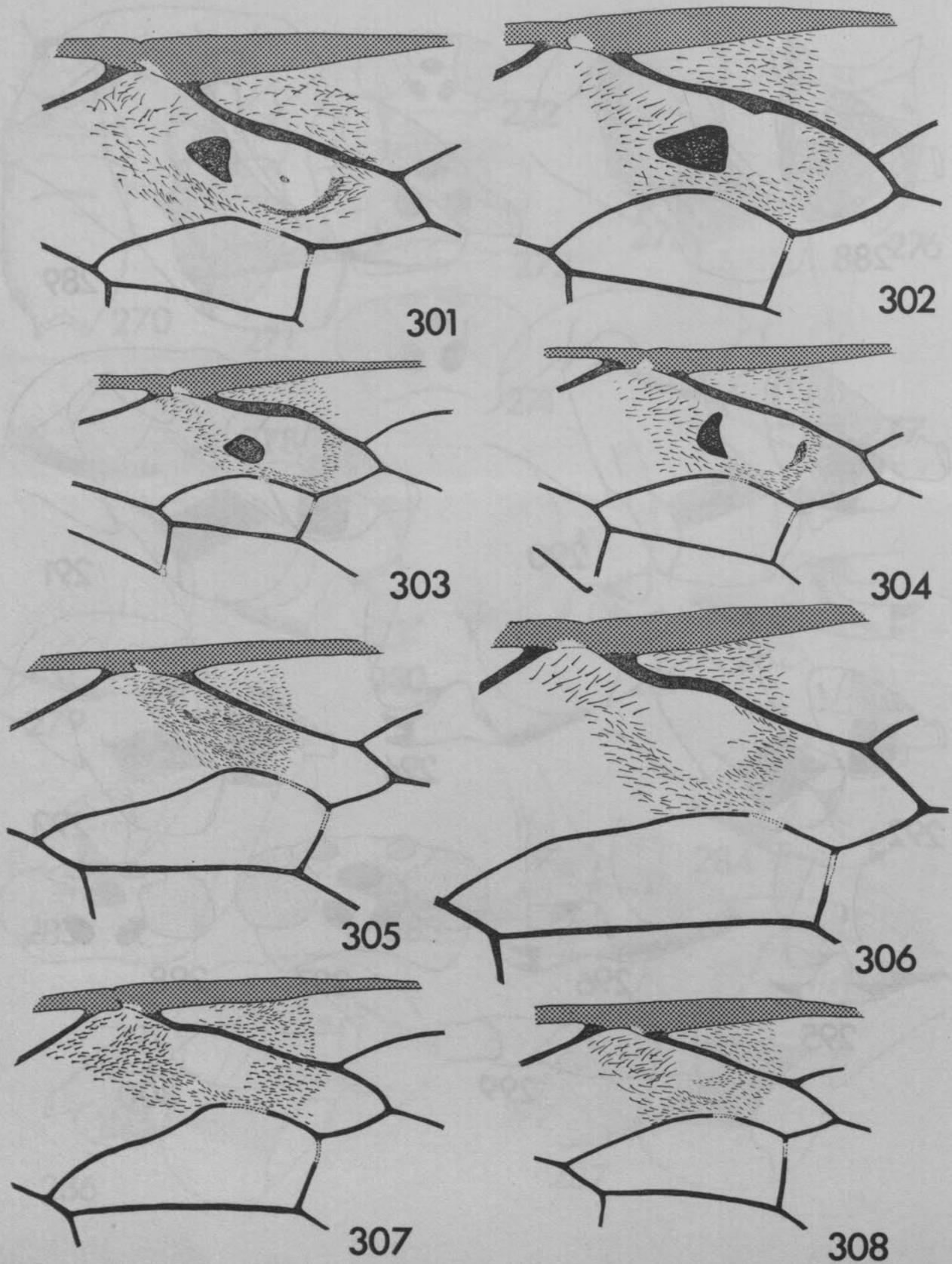
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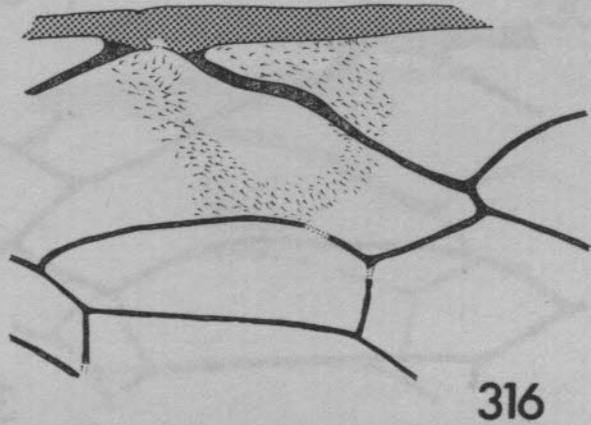
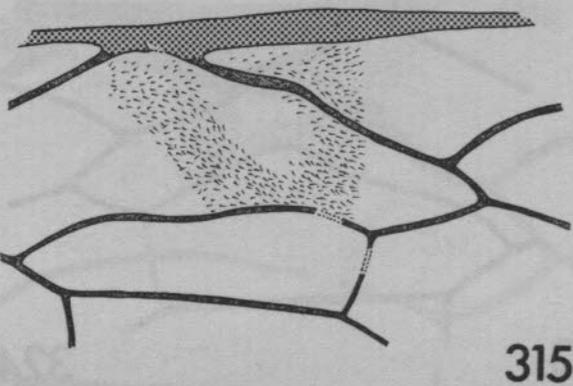
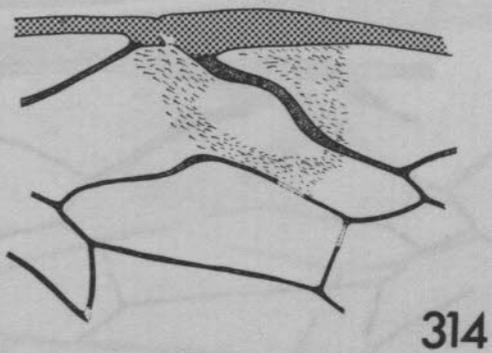
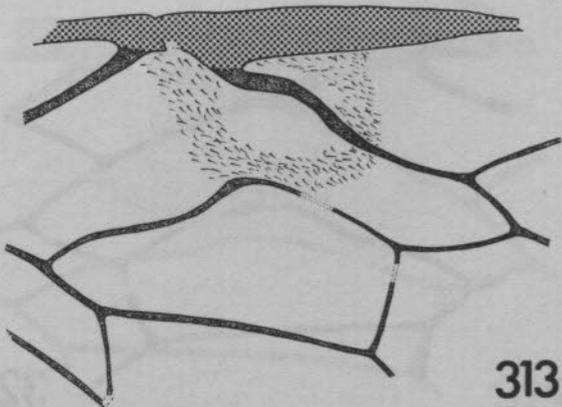
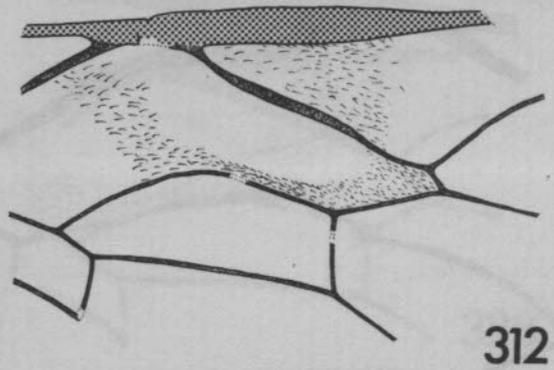
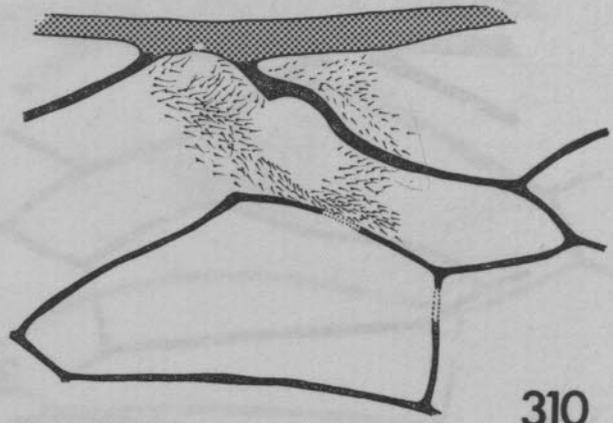
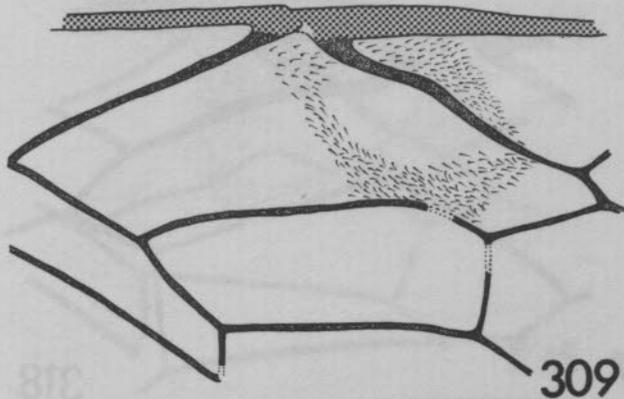
Figs 288-293. Alitrunk, lateral. 288. *Enicospilus vorax*; 289. *E. betanimenus*; 290. *E. krossus*; 291. *E. transvaalensis*; 292. *E. hova*; 293. *E. finalis*. Figs 294-296. Lower face, antero-lateral. 294. *E. betanimenus*; 295. *E. vorax*; 296. *E. transvaalensis*. Figs 297-298. Head, dorsal. 297. *E. addendus*; 298. *E. vorax*. Figs 299-300. Hind trochanteral segments, dorsal. 299. *E. bonaberiensis*; 300. *E. vorax*.



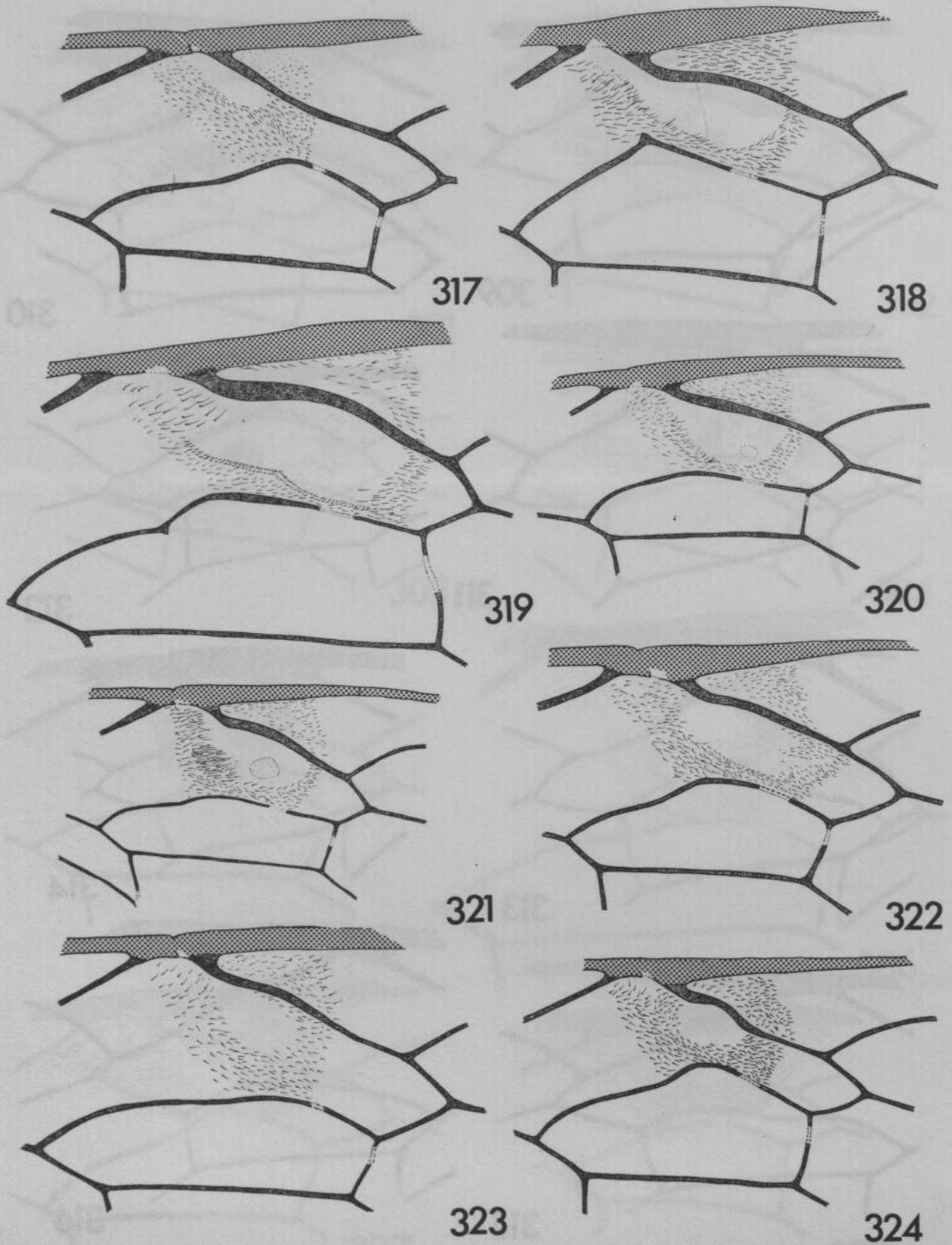
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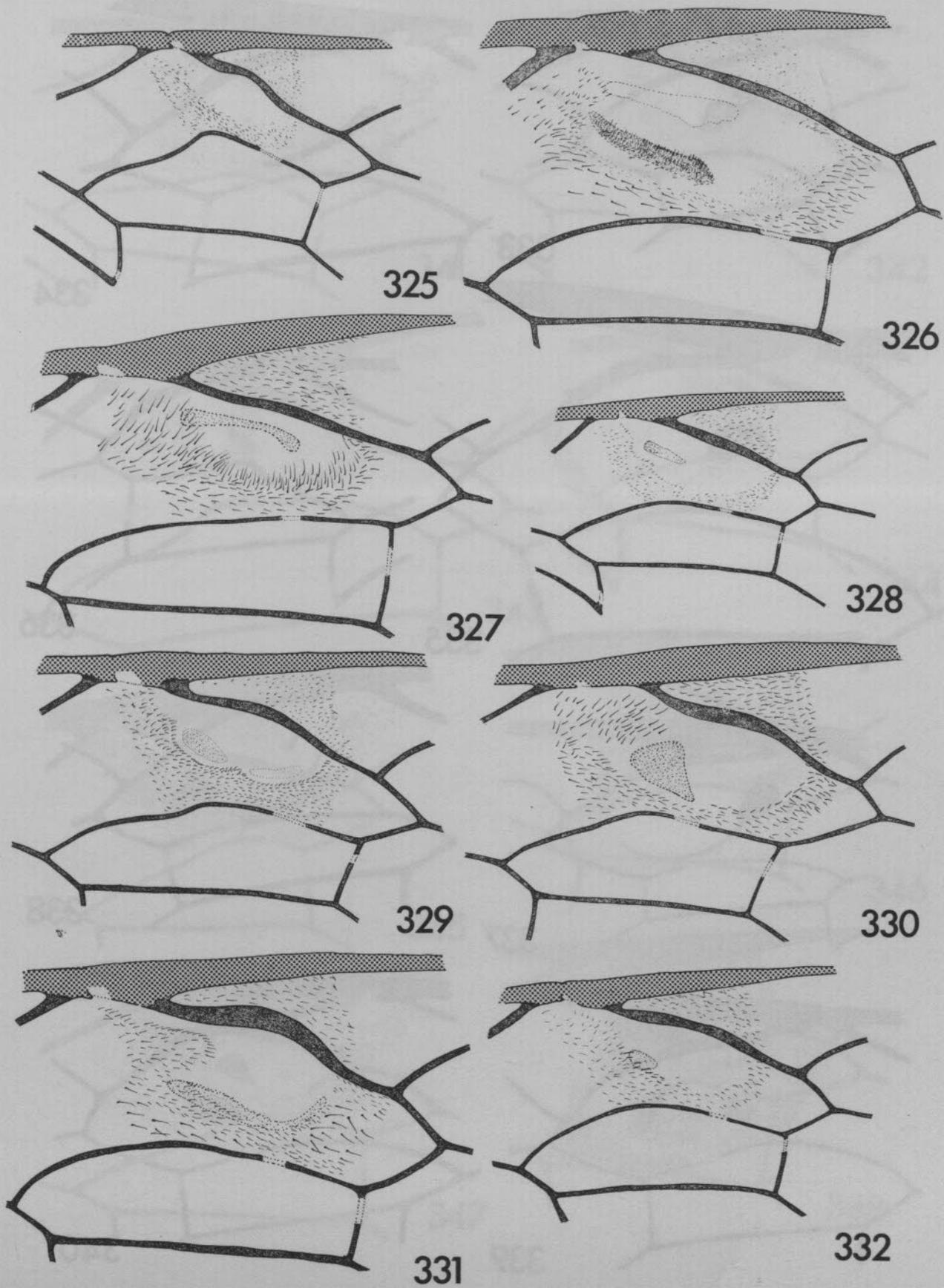
Figs 309-316. Forewing, central. 309. *Enicospilus prolixus*; 310. *E. cubitalis*; 311. *E. fatalis*; 312. *E. pressuratus*; 313. *E. marjorieae*; 314. *E. camerunensis*; 315. *E. nugalis*; 316. *E. pseudonugalis*.



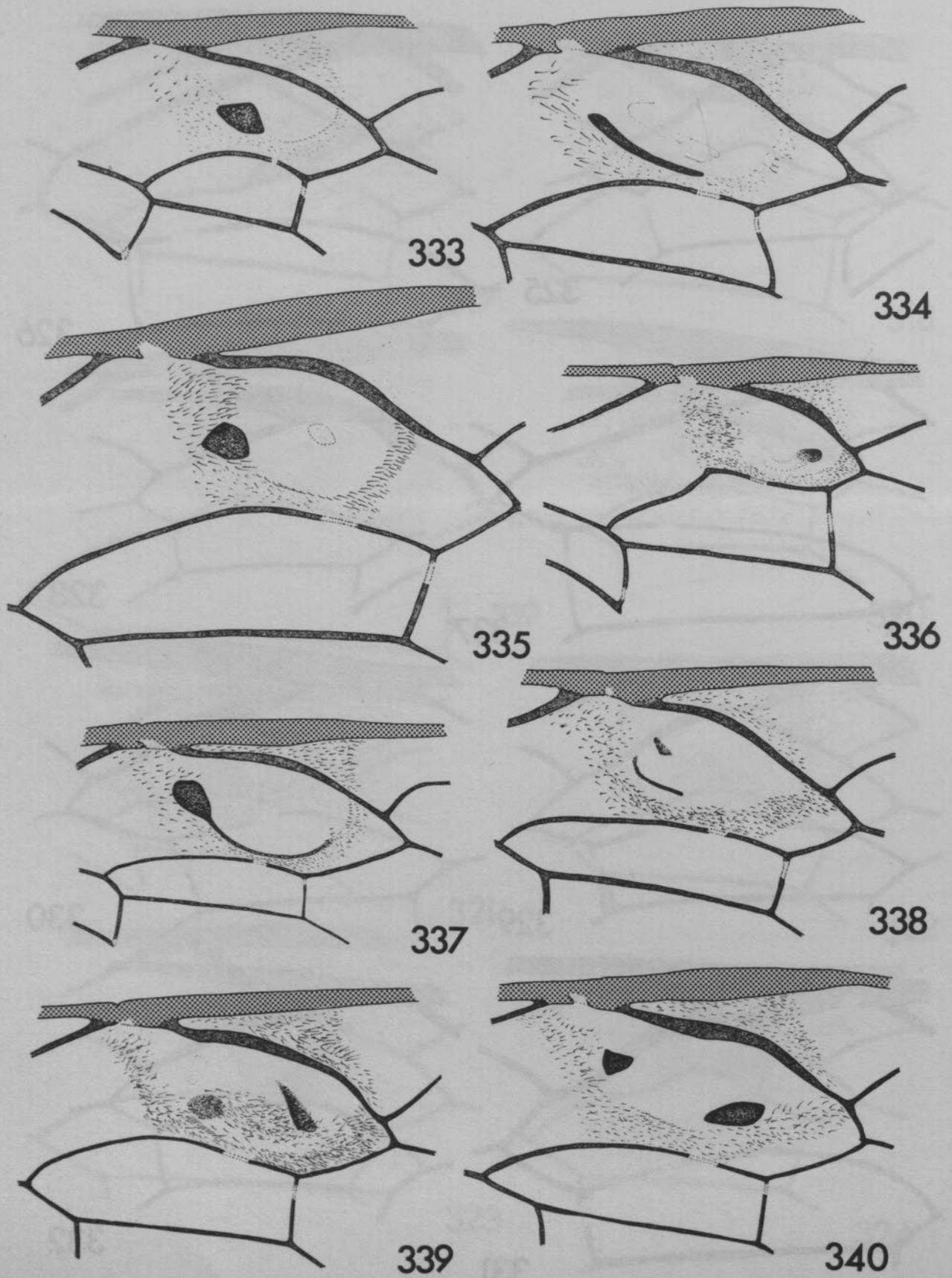
Figs 317-324. Forewing, central. 317. *Enicospilus equatus*; 318. *E. junctus*; 319. *E. angustatus*; 320. *E. cohacarus*; 321. *E. evanescens*; 322. *E. oweni*; 323. *E. hyailosus*; 324. *E. senescens*.



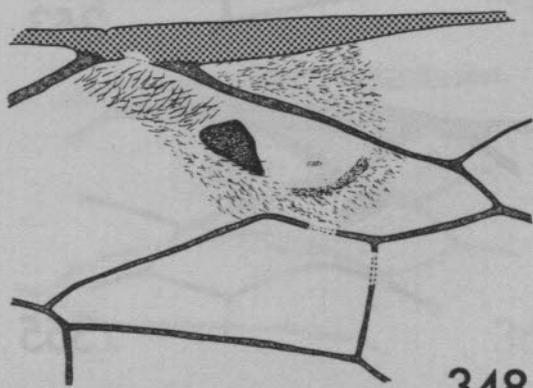
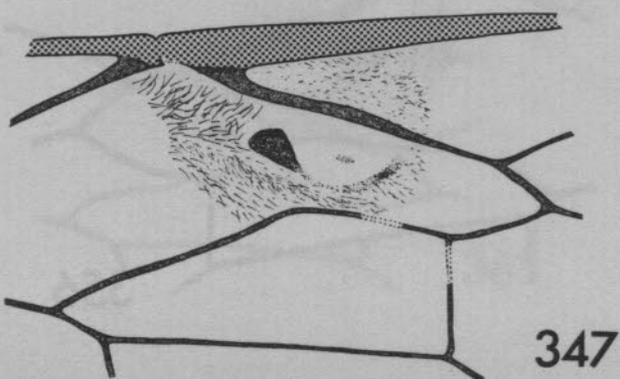
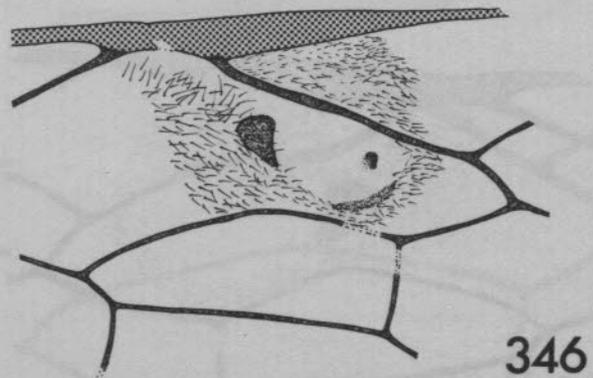
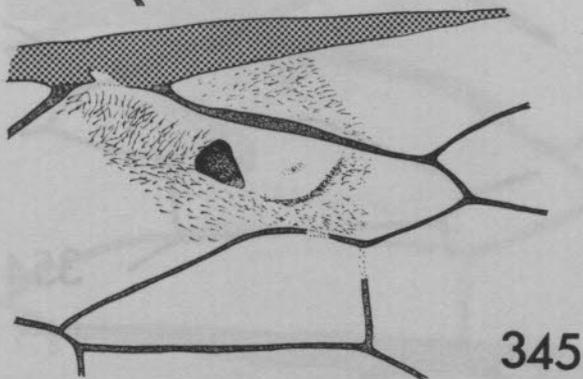
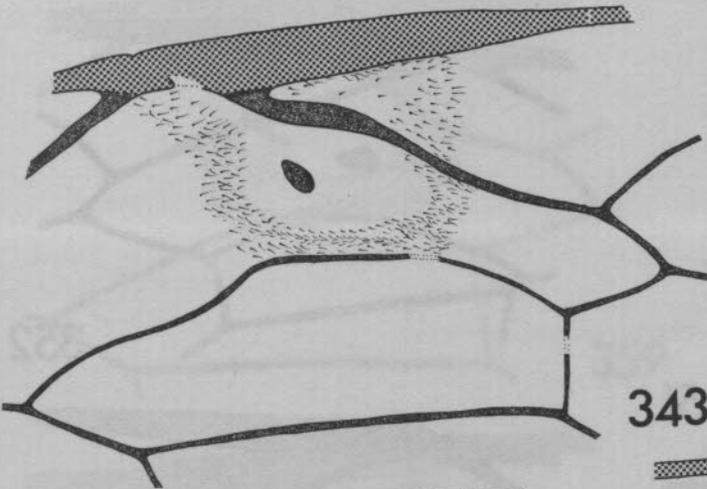
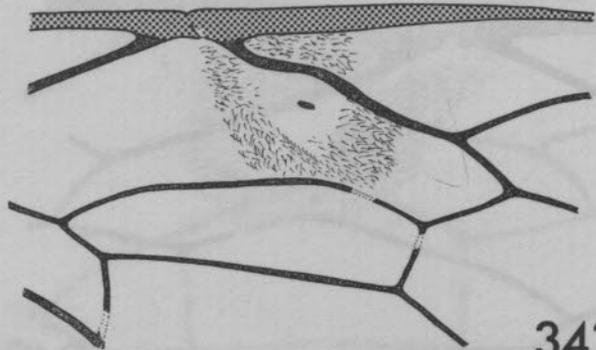
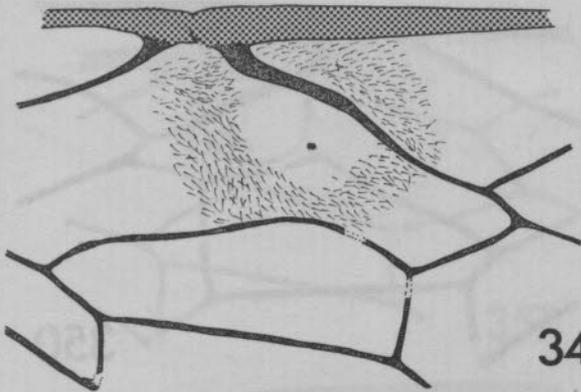
Figs 325-332. Forewing, central. 325. *Enicospilus glyphanosus*; 326. *E. eirnosus*; 327. *E. mamatus*; 328. *E. decaryi*; 329. *E. plagiatus*; 330. *E. umbratus*; 331. *E. talaorus*; 332. *E. seyrigi*.



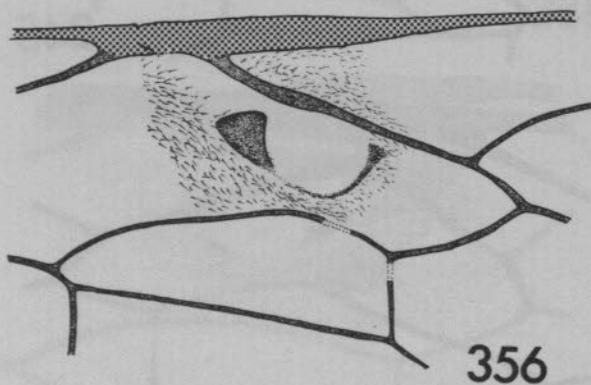
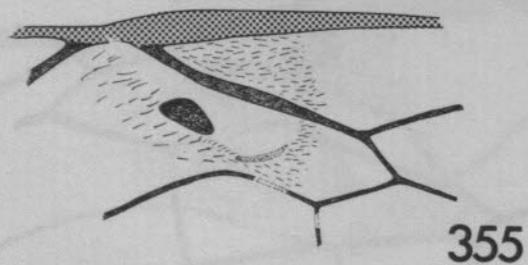
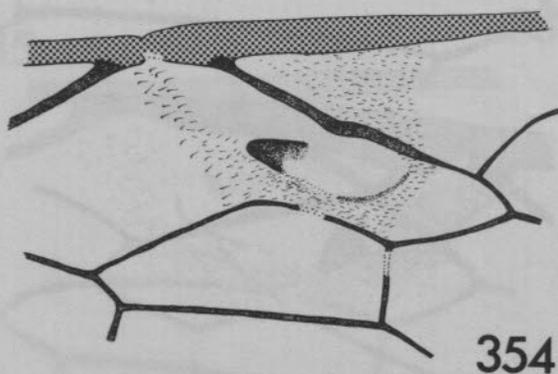
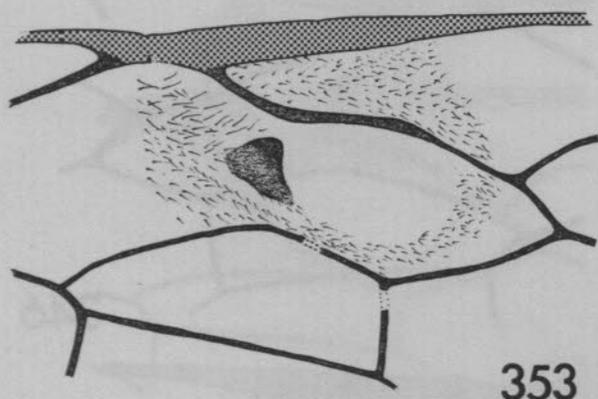
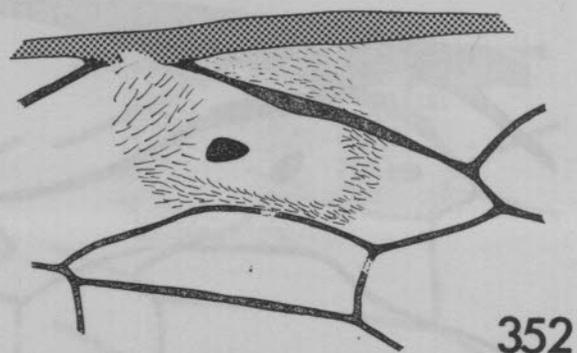
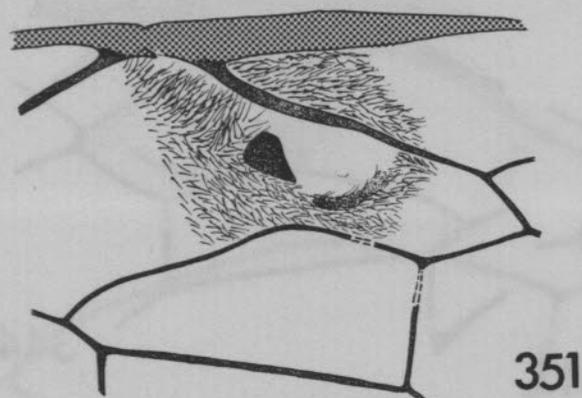
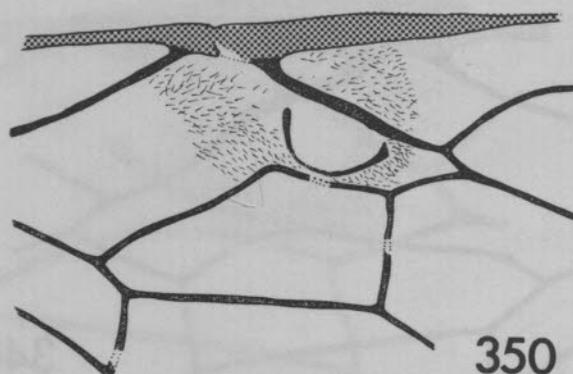
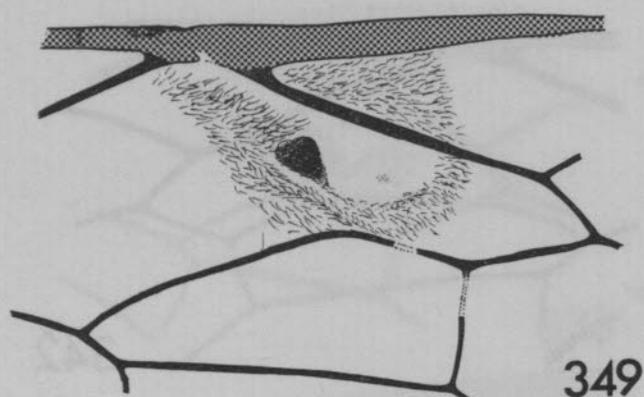
Figs 333-340. Forewing, central. 333. *Enicospilus diro*; 334. *E. rehanarius*; 335. *E. janakus*; 336. *E. volitius*; 337. *E. indovus*; 338. *E. antimena*, 339. *E. cariosus*; 340. *E. damius*.



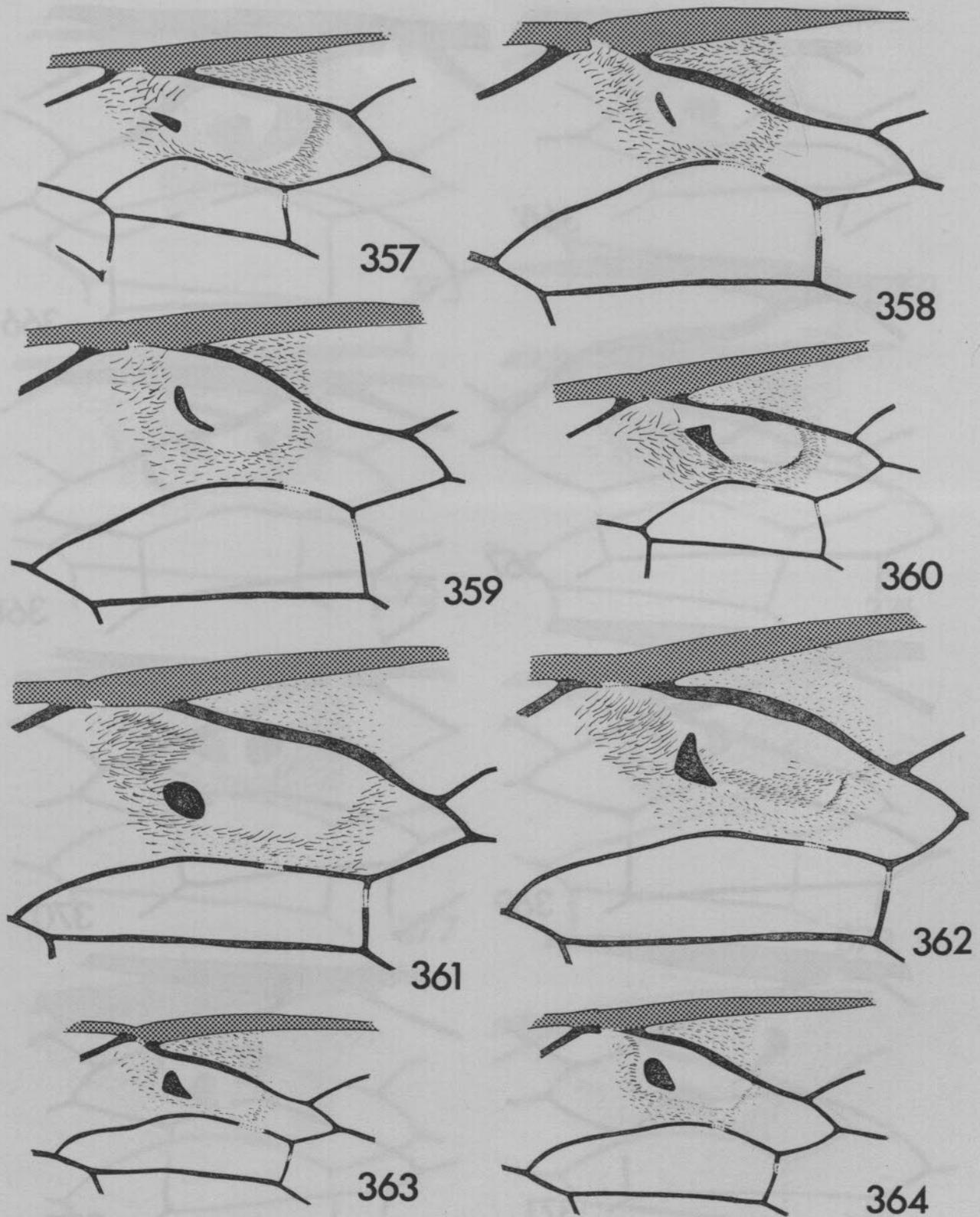
Figs 341-348. Forewing, central. 341. *Enicospilus abessyniensis*; 342. *E. lancasteri*; 343. *E. microspilus*; 344. *E. nefarius*; 345. *E. luebberti*; 346. *E. agrophus*; 347. *E. drakensbergi*. 348. *E. apicalis*.



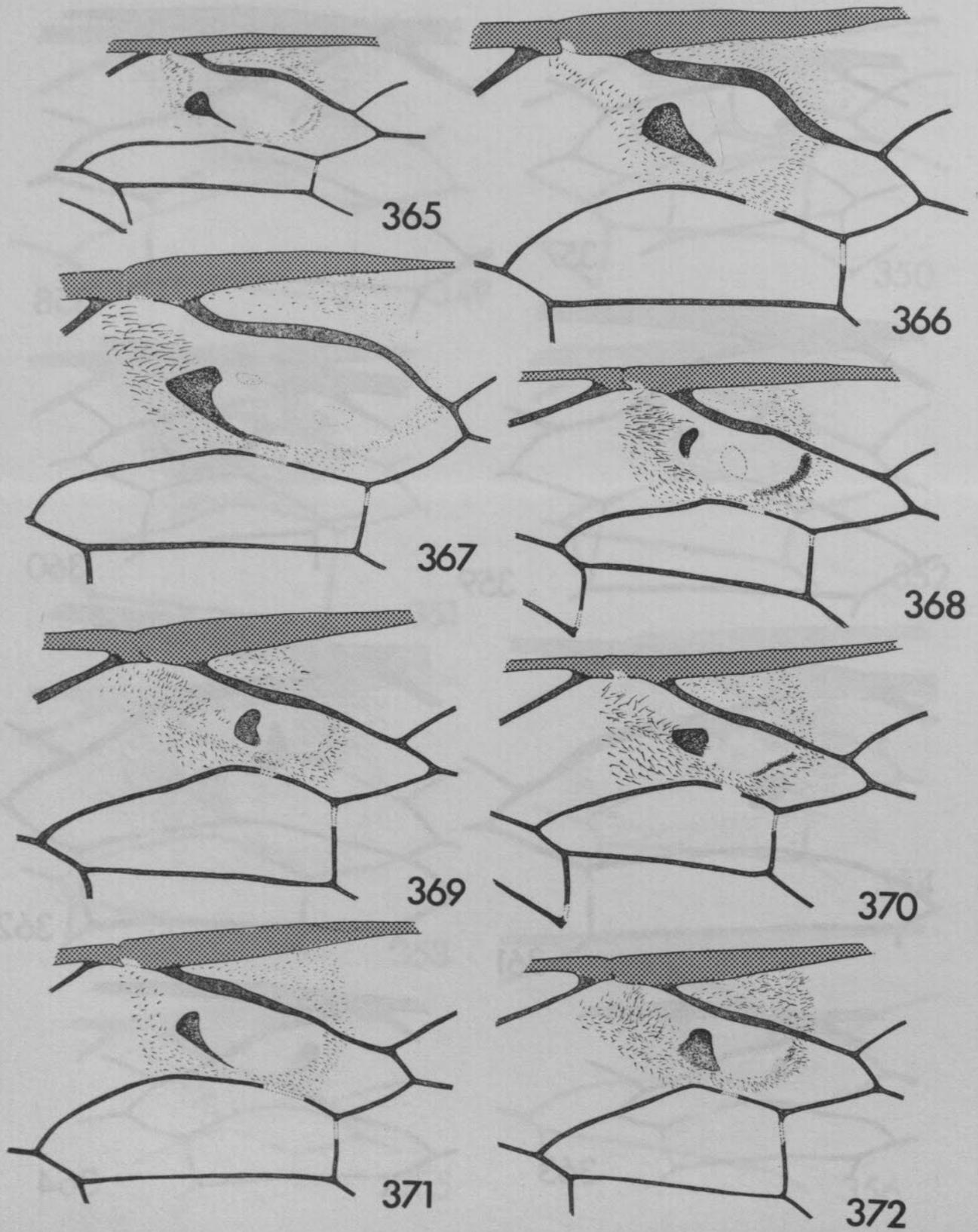
Figs 349-356. Forewing, central. 349. *Enicospilus justus*; 350. *E. taxus*; 351. *E. diabolicus*; 352. *E. mahalonius*; 353. *E. mauritii*; 354. *E. sliochus*; 355. *E. pescator*; 356. *E. dolosus*.



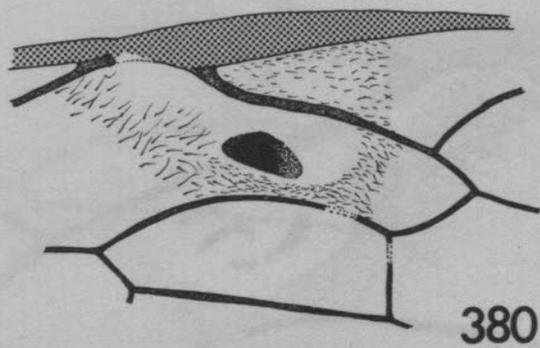
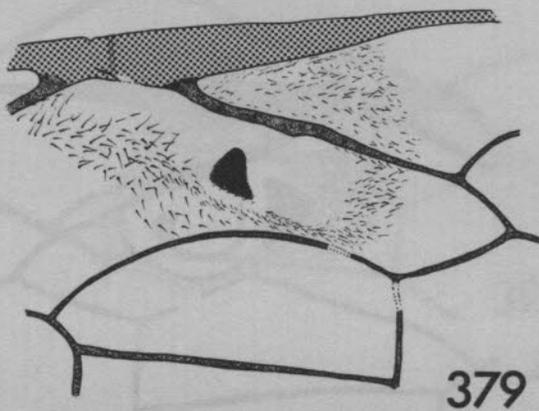
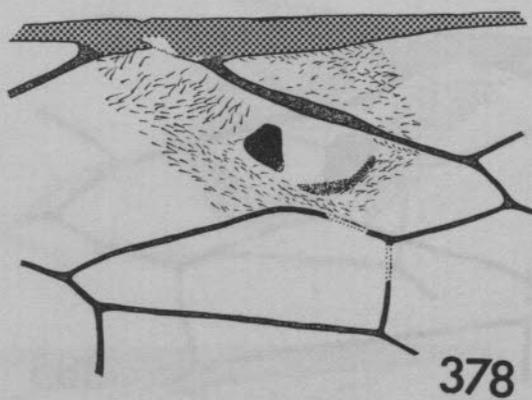
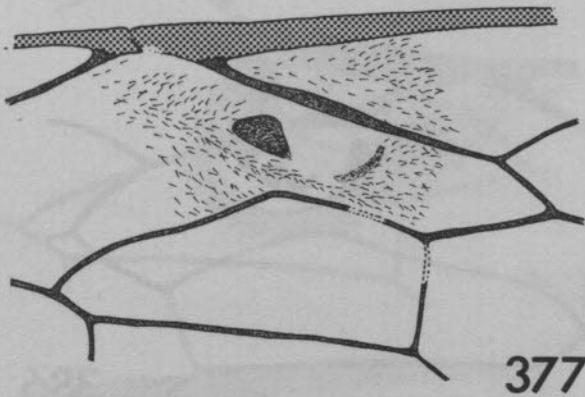
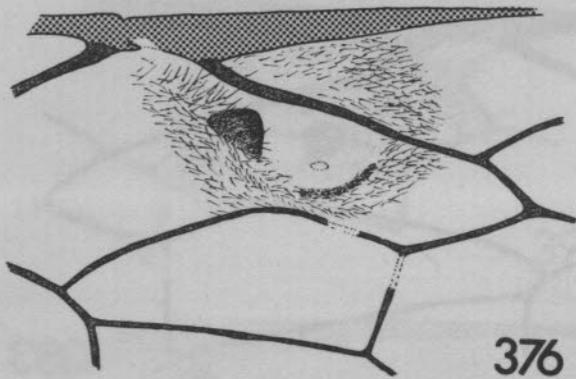
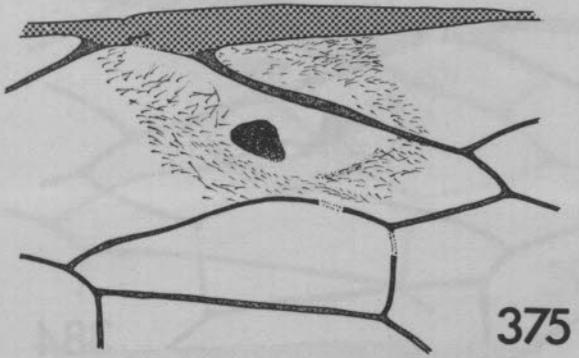
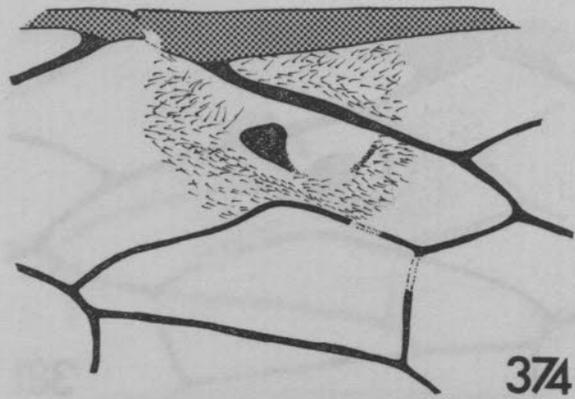
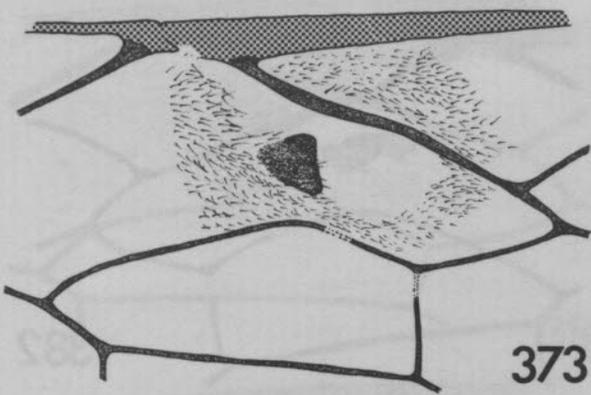
Figs 357-364. Forewing, central. 357. *Enicospilus belusus*; 358. *E. punctipinnis*; 359. *E. fananus*; 360. *E. retsifoius*; 361. *E. lanafius*; 362. *E. xandarus*; 363-364. *E. vorikus* showing variation.



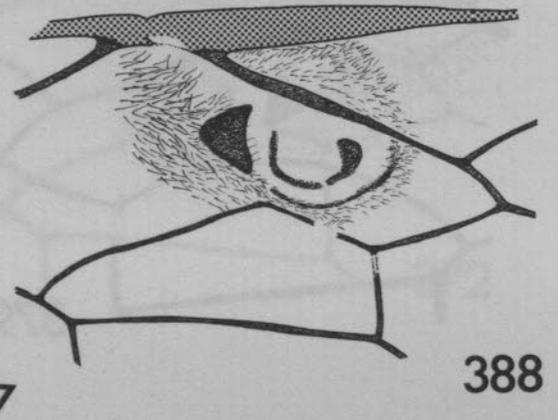
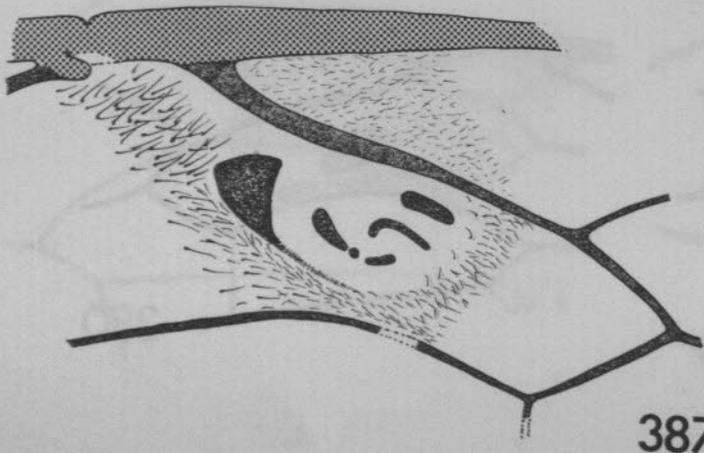
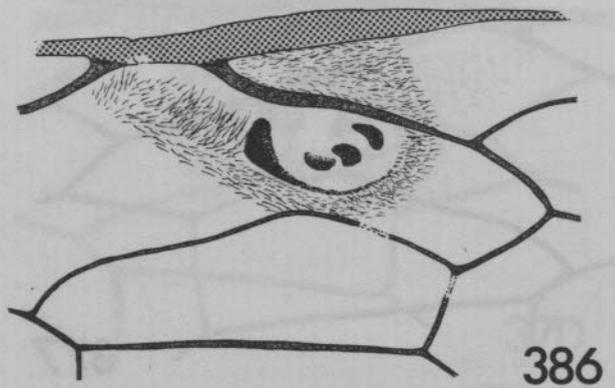
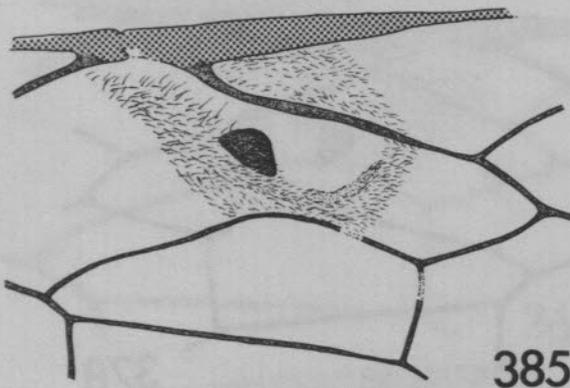
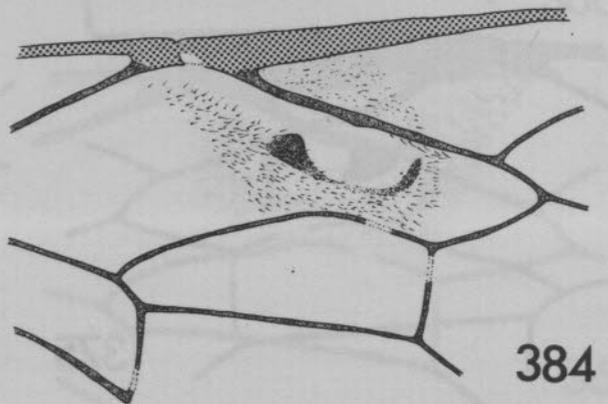
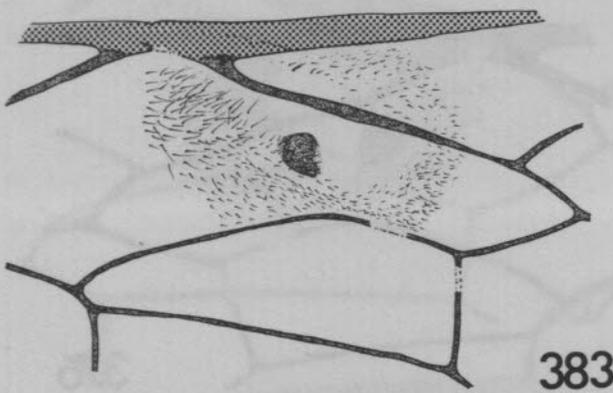
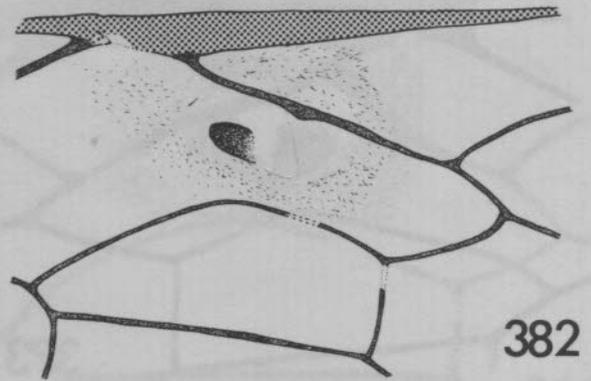
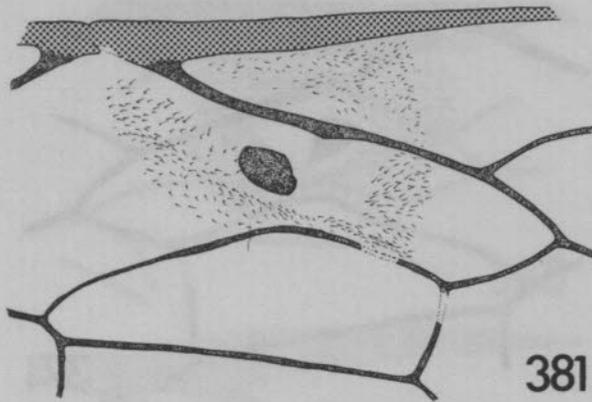
Figs 365-372. Forewing, central. 365. *Enicospilus famantrus*, 366. *E. oswaldi*; 367. *E. recavus*; 368. *E. nubeculatus*; 369. *E. icterus*; 370. *E. bantu*; 371. *E. sphenus*; 372. *E. helvolus*.



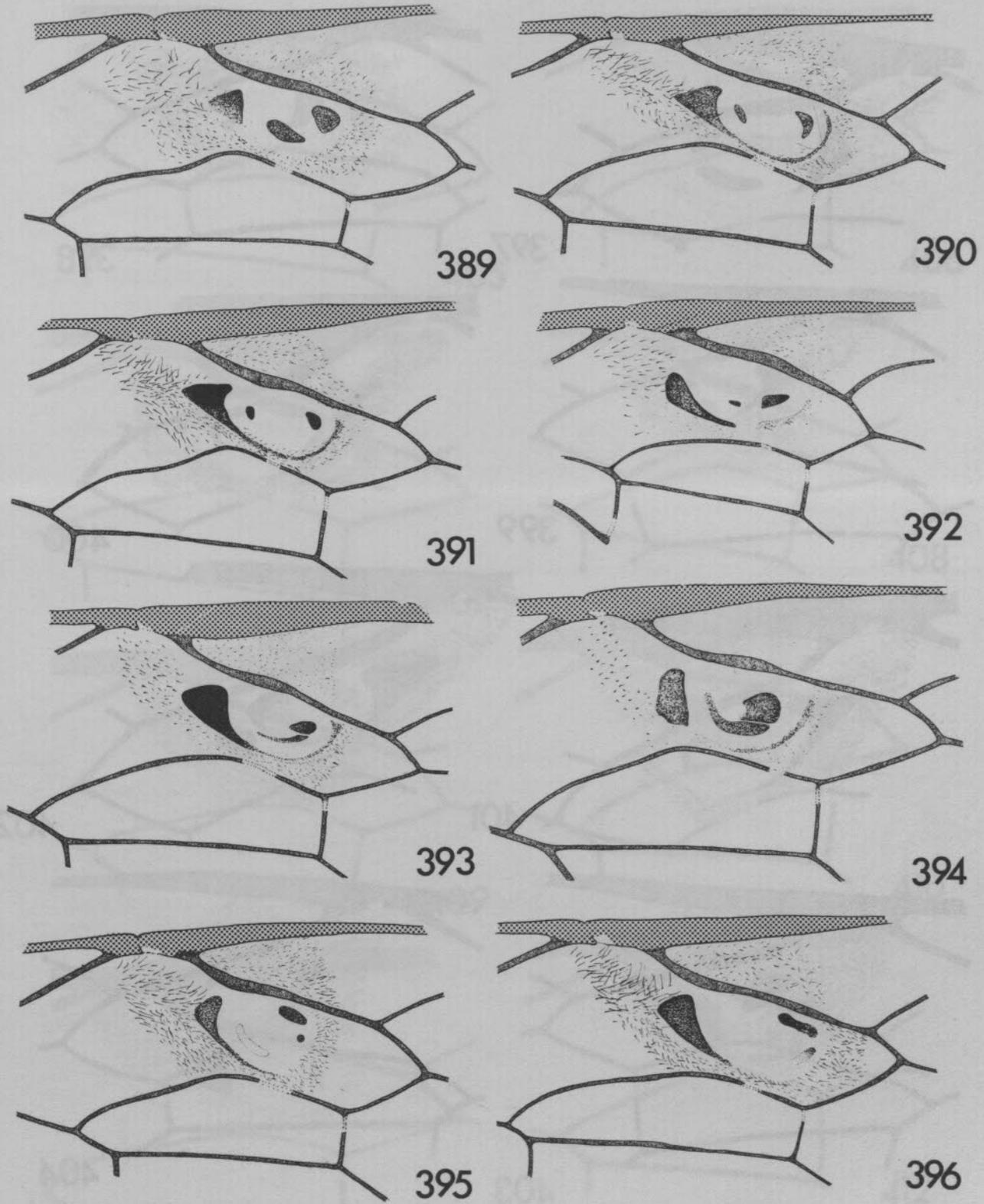
Figs 373-380. Forewing, central. 373. *Enicospilus dubius*; 374. *E. brevicornis*; 375. *E. henryi*; 376. *Enicospilus* species 6; 377. *E. herero*; 378. *E. leionotus*; 379-380. *Enicospilus* species 4 showing variation.



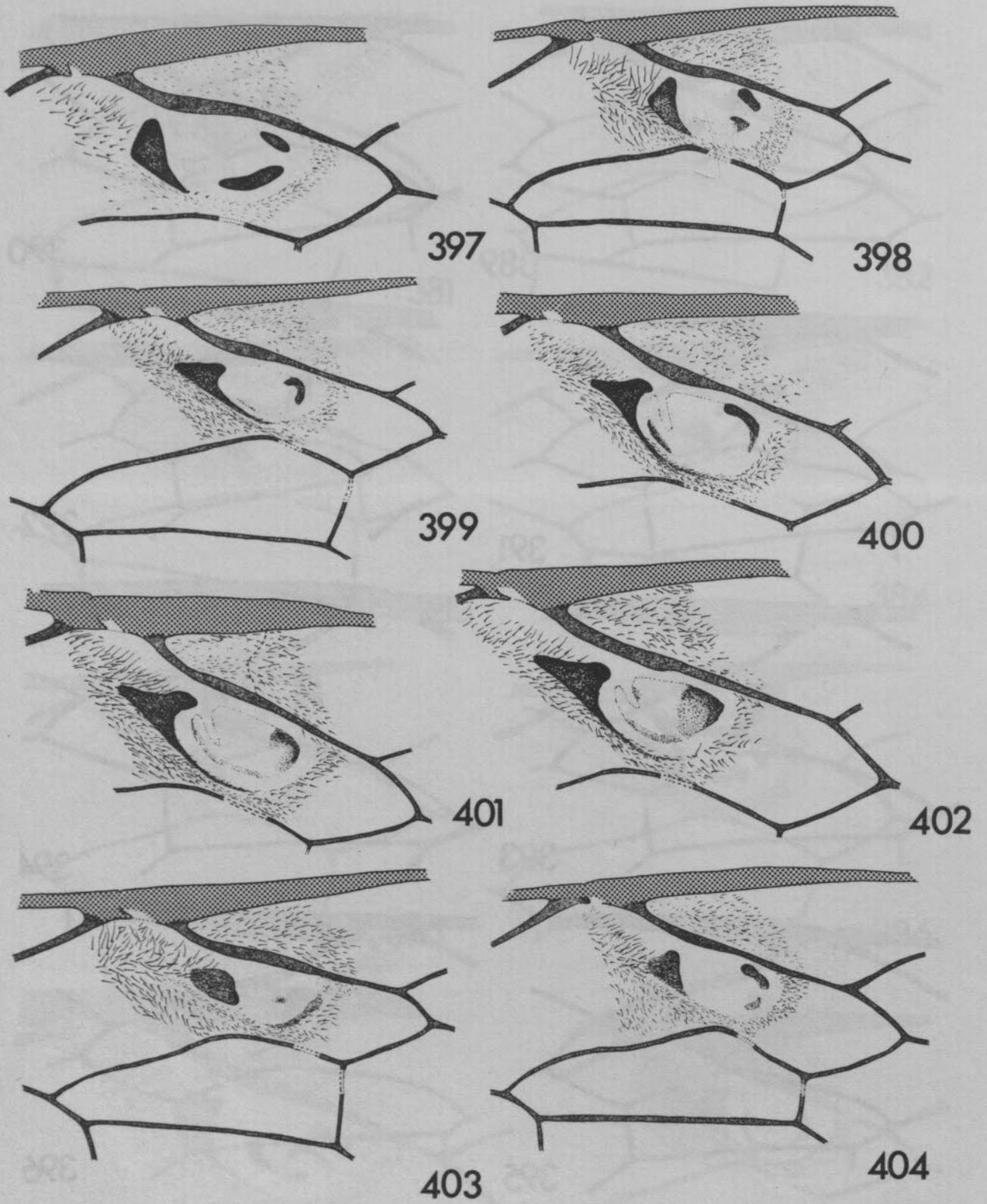
Figs 381-388. Forewing, central. 381. *Enicospilus grandiflavus*; 382. *E. albiger*; 383. *E. prospiracularis*; 384. *E. rufus*; 385. *E. quietus*; 386. *E. babaulti*; 387. *E. polyspilus*; 388. *E. divisus*.



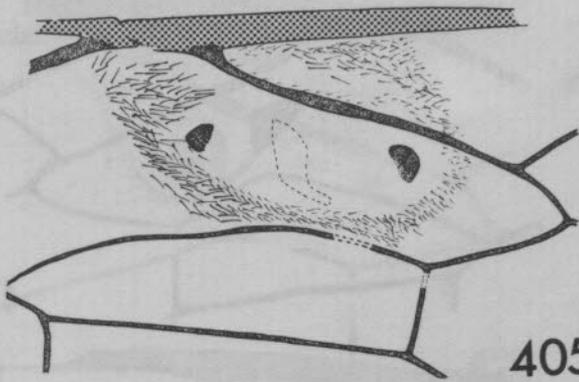
Figs 389-396. Forewing, central. 389. *Enicospilus drymosus*; 390. *E. meledonosus*; 391. *E. vatius*; 392. *E. kadiosus*; 393. *E. ruwenzorius*; 394. *E. cittus*; 395. *E. hecastus*; 396. *E. drasmosus*.



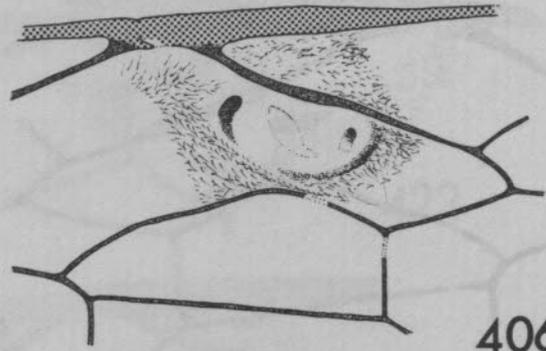
Figs 397-404. Forewing, central. 397-398. *Enicospilus simandrius* showing variation; 399-402. *E. biimpressus* showing variation, 403. *E. batus*; 404. *E. seminiger*.



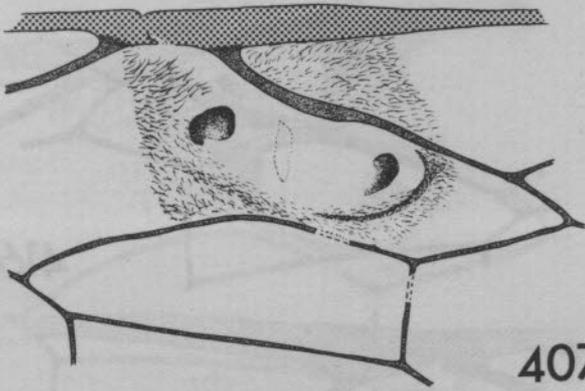
Figs 405-412. Forewing, central. 405. *Enicospilus amarus*; 406. *E. rubens*; 407. *E. corrugans*; 408. *E. ovius*; 409. *Enicospilus* species 1; 410. *E. reti*; 411. *E. vortalis*; 412. *E. anaxeus*.



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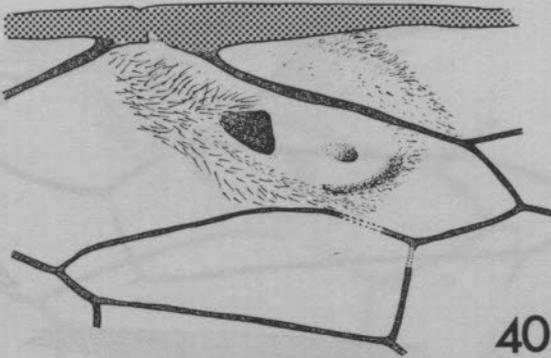
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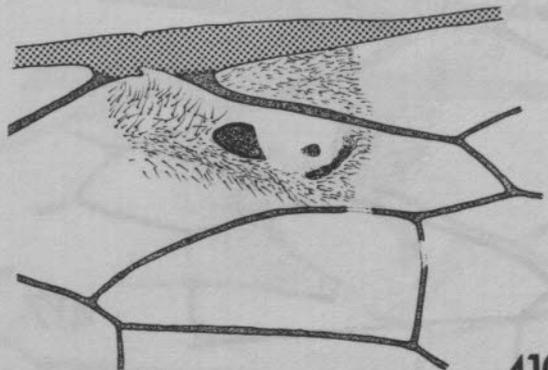
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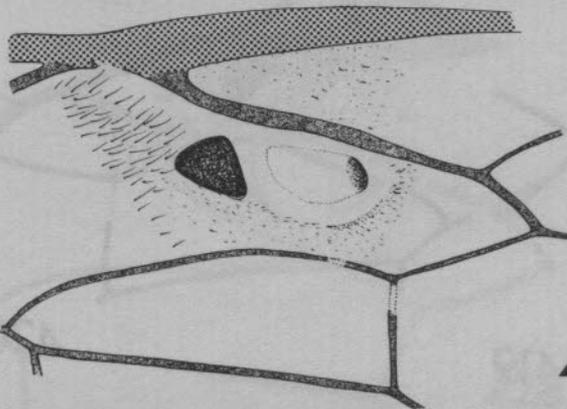
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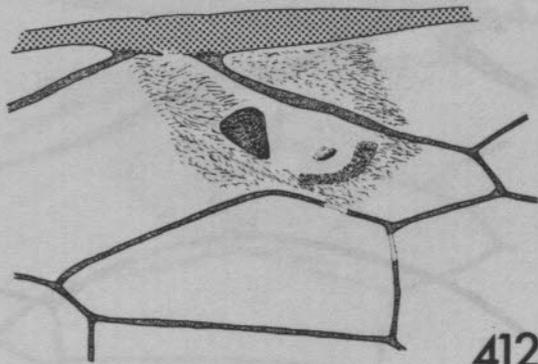
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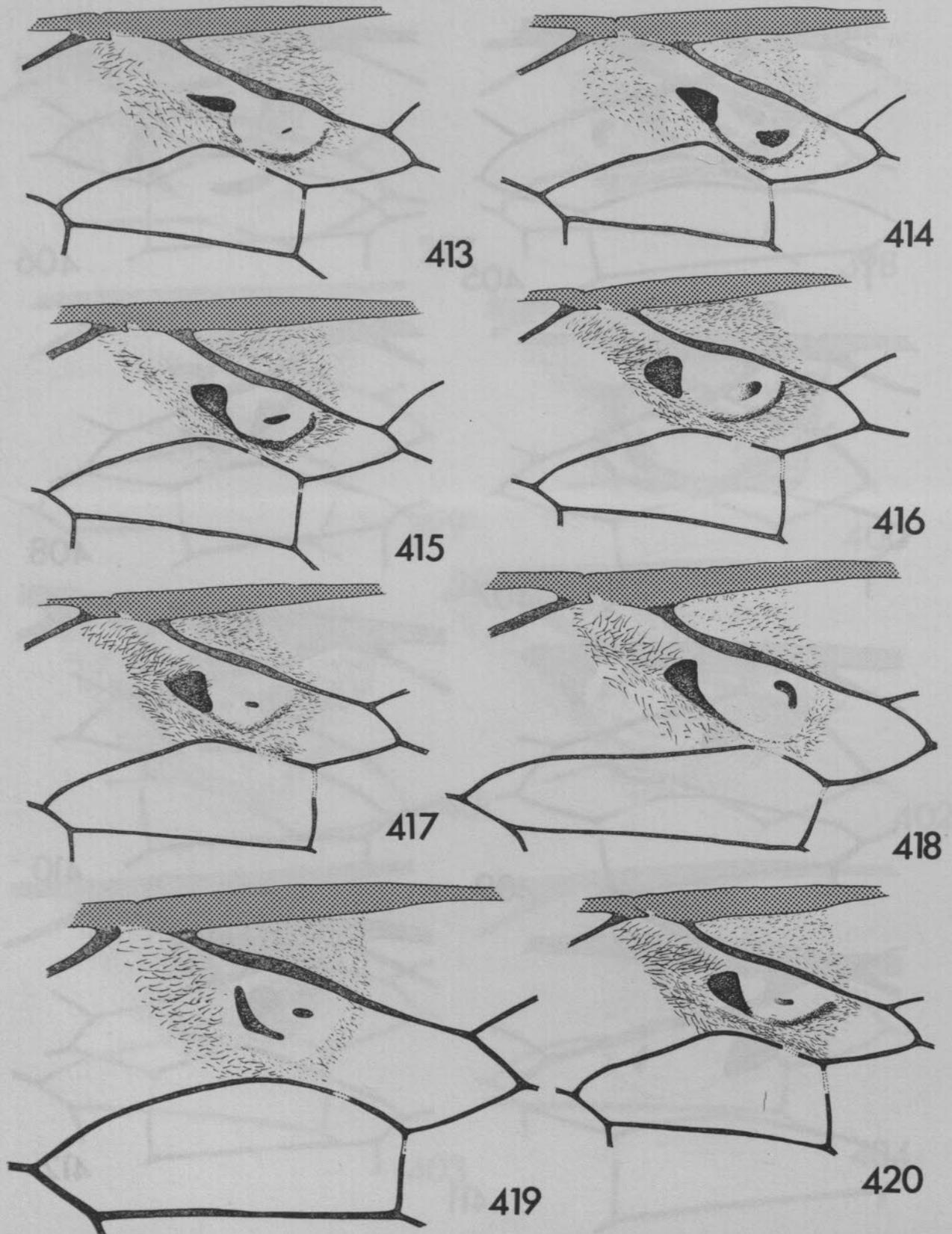


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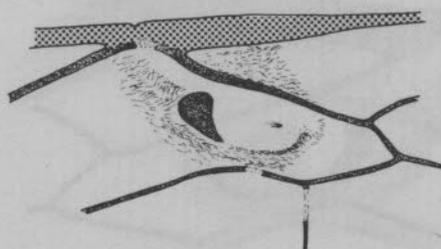
Figs 413-420. Forewing, central. 413. *Enicospilus cedrus*; 414. *E. bebelus*; 415. *E. daulus*; 416. *E. furius*; 417. *E. communis*; 418. *E. glarus*; 419. *E. fetus*; 420. *Enicospilus* species 2.



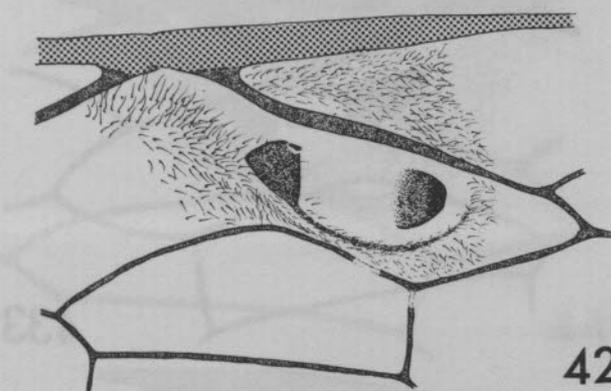
Figs 421-429. Forewing, central. 421-422. *Enicospilus hoplus* showing variation; 423-425. *E. expeditus* showing variation; 426. *E. mnous*, 427. *E. octus*; 428. *E. nesius*; 429. *E. lictus*.



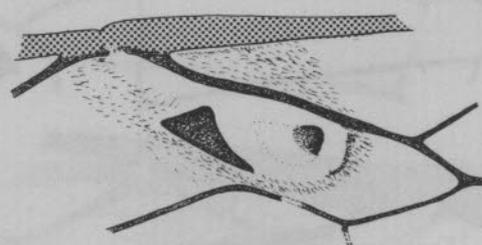
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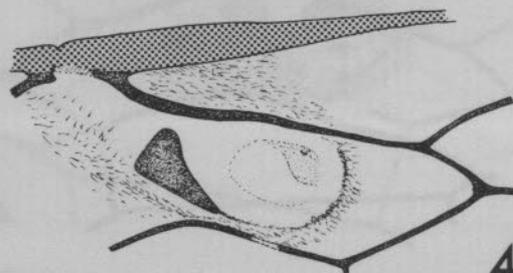
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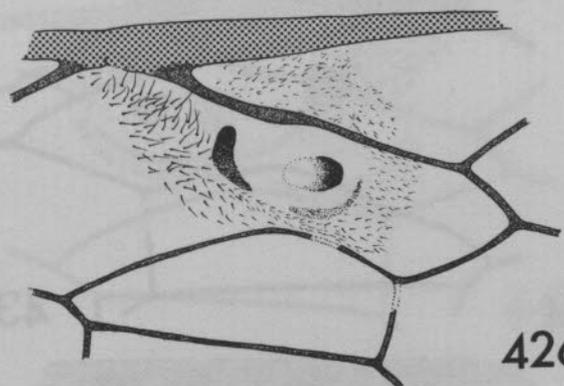
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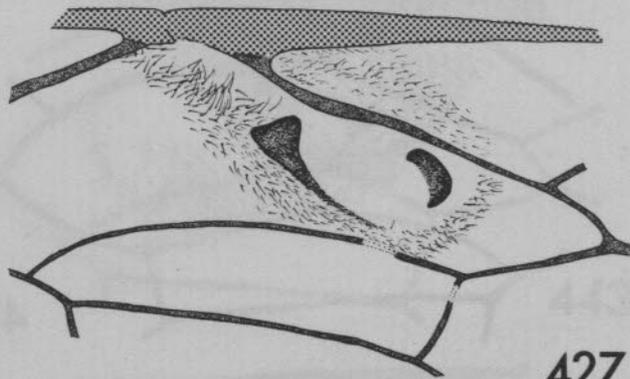
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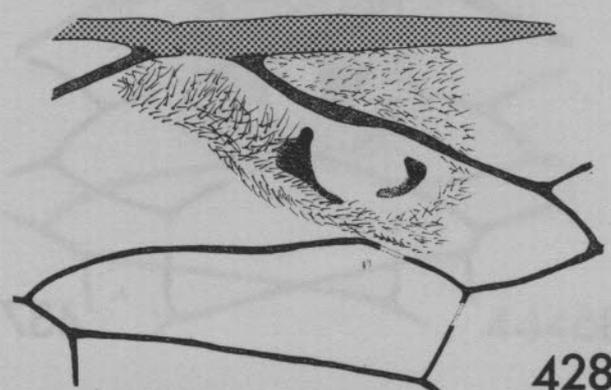
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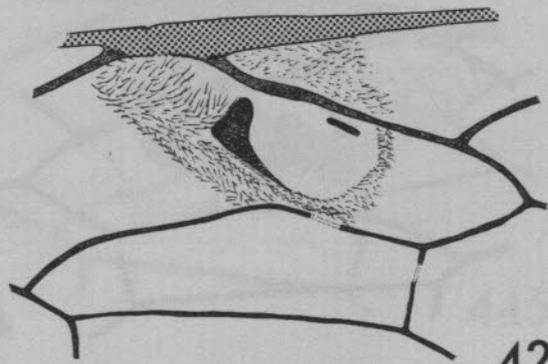
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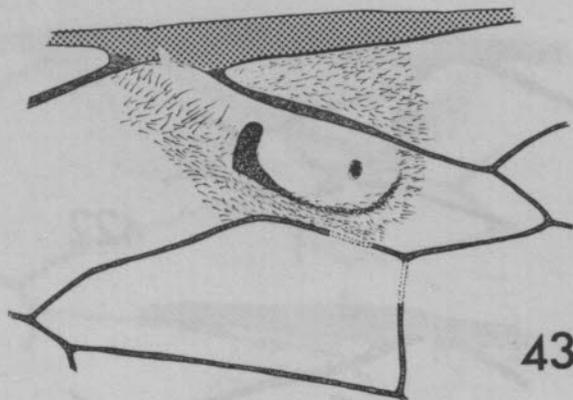


428

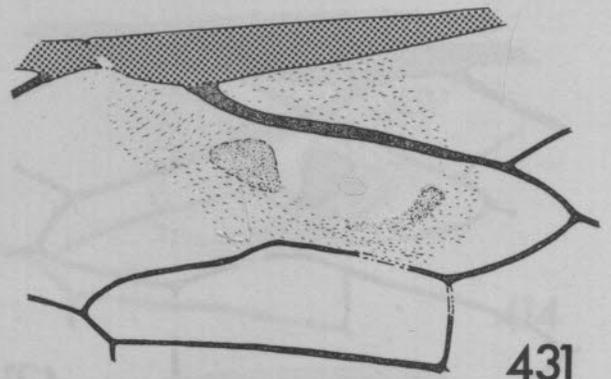


429

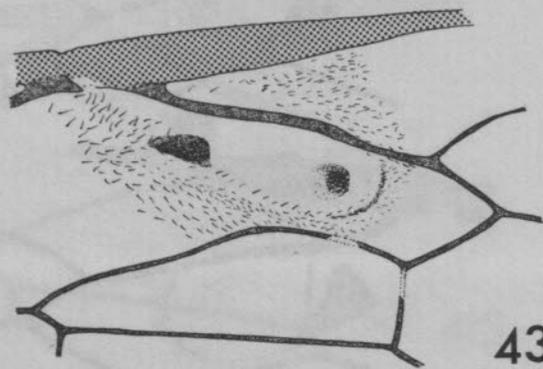
Figs 430-437. Forewing, central. 430. *Enicospilus pacificus*; 431. *E. nervellator*; 432. *E. emcedius*; 433. *E. nops*; 434. *E. odax*; 435. *E. pluvius*, 436. *E. ruidus*; 437. *E. oculator*.



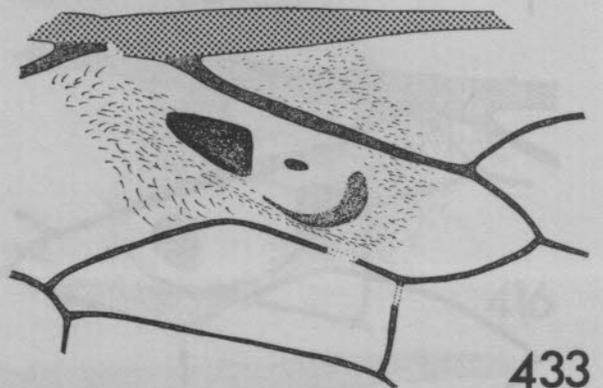
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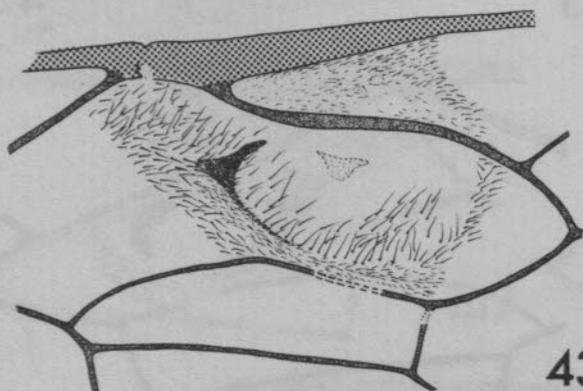
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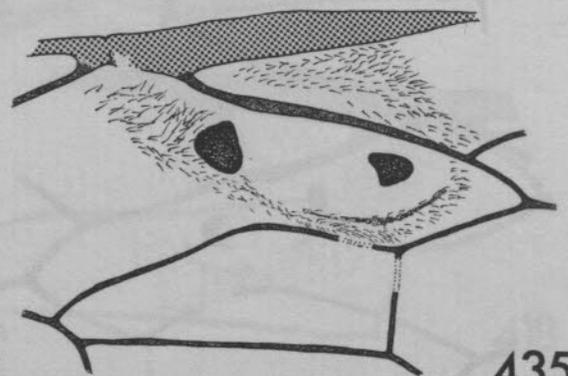
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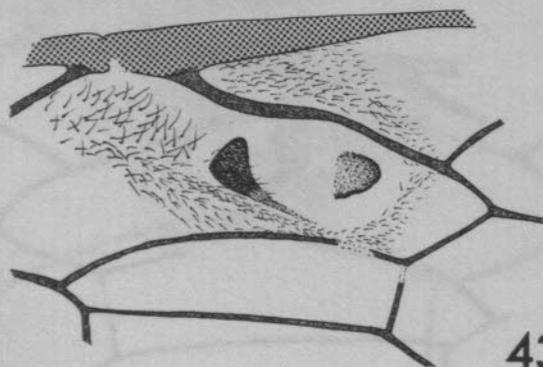
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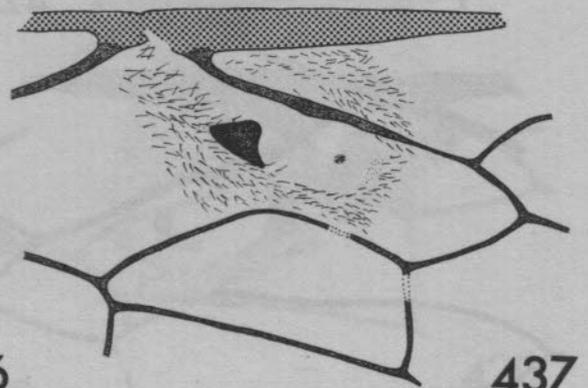
434



435

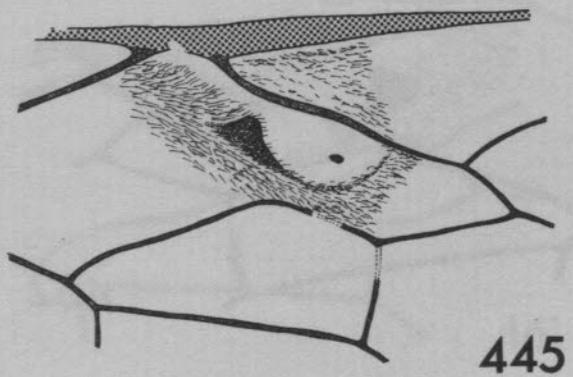
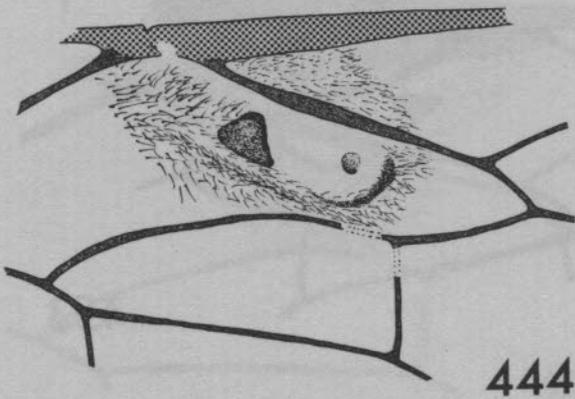
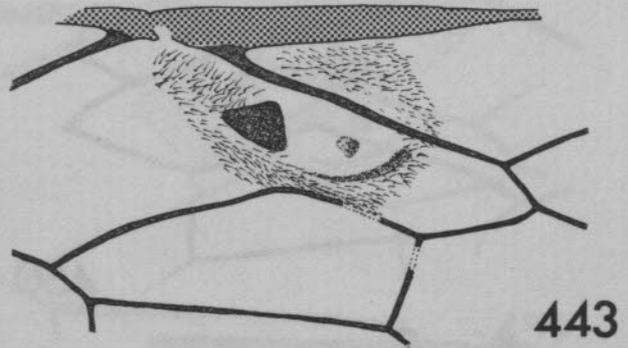
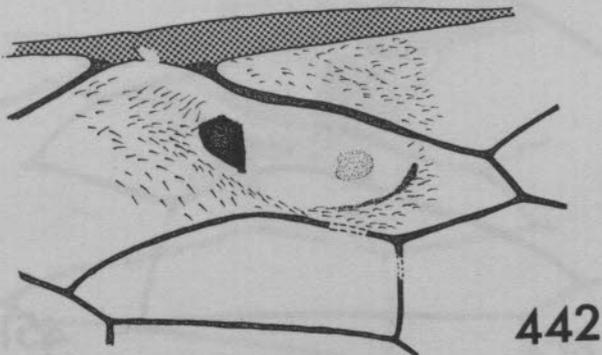
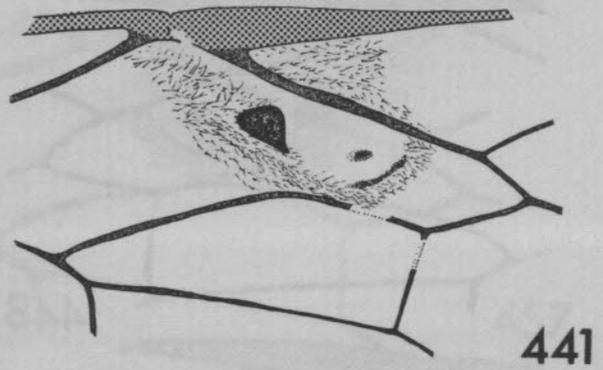
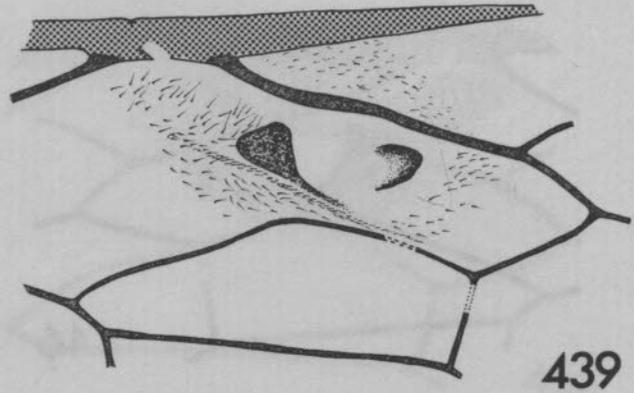
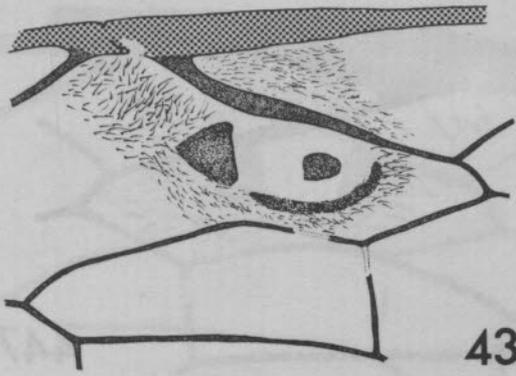


436

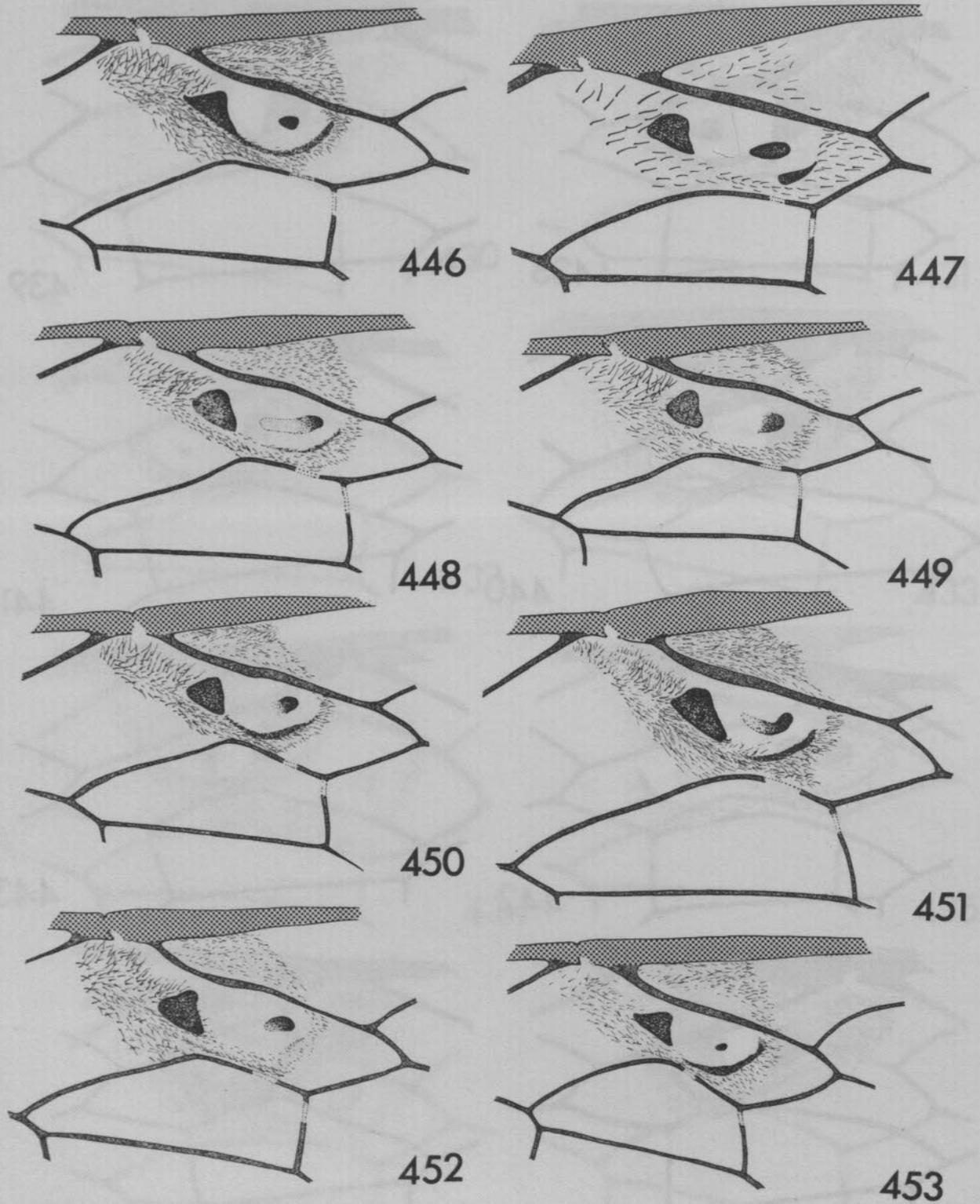


437

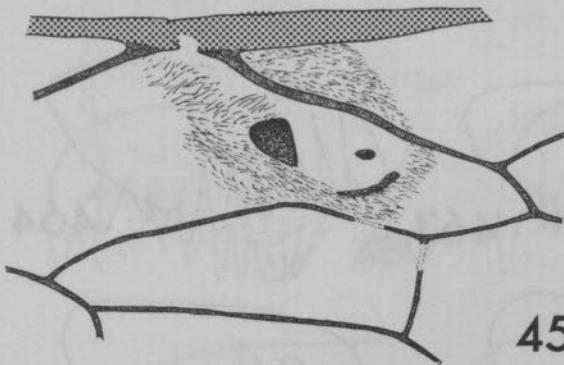
Figs 438-445. Forewing, central. 438. *Enicospilus arduus*; 439. *E. pallidus*; 440. *E. meniscus*; 441. *E. sesamiae*; 442. *E. bajulus*; 443. *E. capensis*; 444. *E. ruscus*; 445. *E. bicoloratus*.



Figs 446-453. Forewing, central. 446. *Enicospilus antefurcalis*; 447. *E. psammus*; 448. *E. rundiensis*; 449. *E. ktesus*; 450. *E. latus*; 451. *E. fenestralis*; 452. *E. natalensis*; 453. *E. inflexocarinatus*.



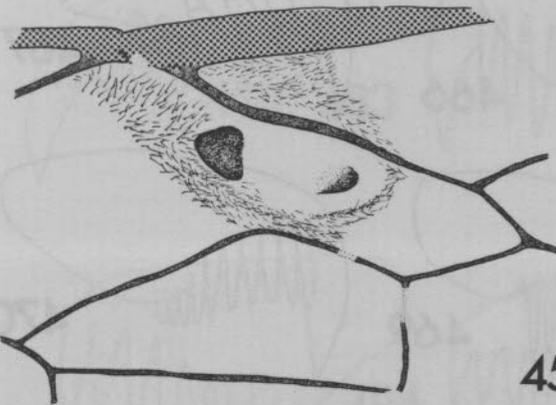
Figs 454-461. Forewing, central. 454. *Enicospilus braunsii*; 455. *E. krossus*; 456. *E. addendus*; 457. *E. vorax*; 458. *E. hova*; 459. *E. transvaalensis*; 460. *E. finalis*; 461. *E. betanimenus*.



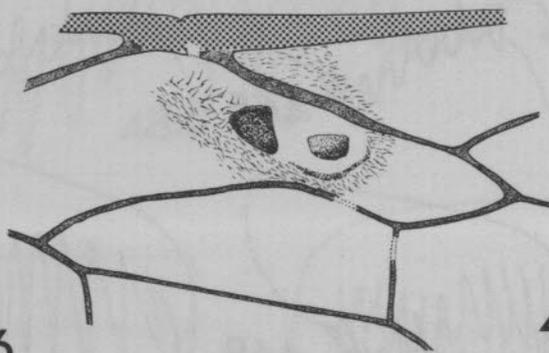
454



455



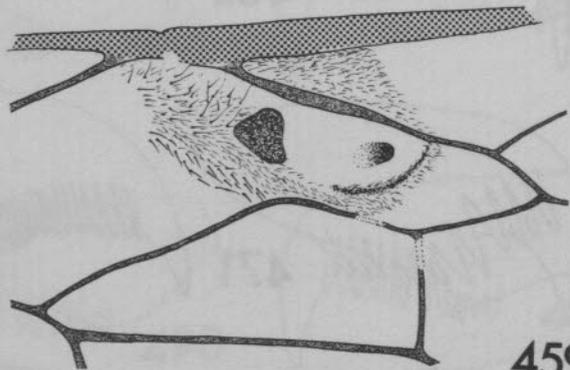
456



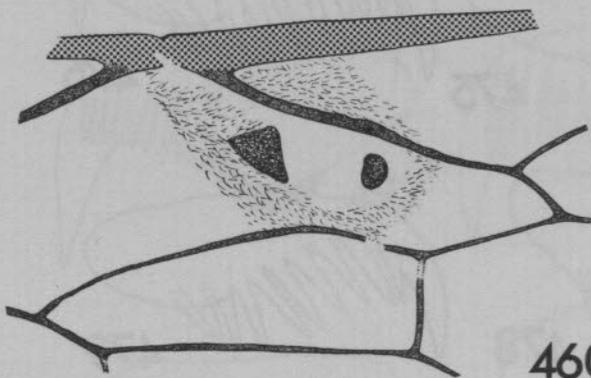
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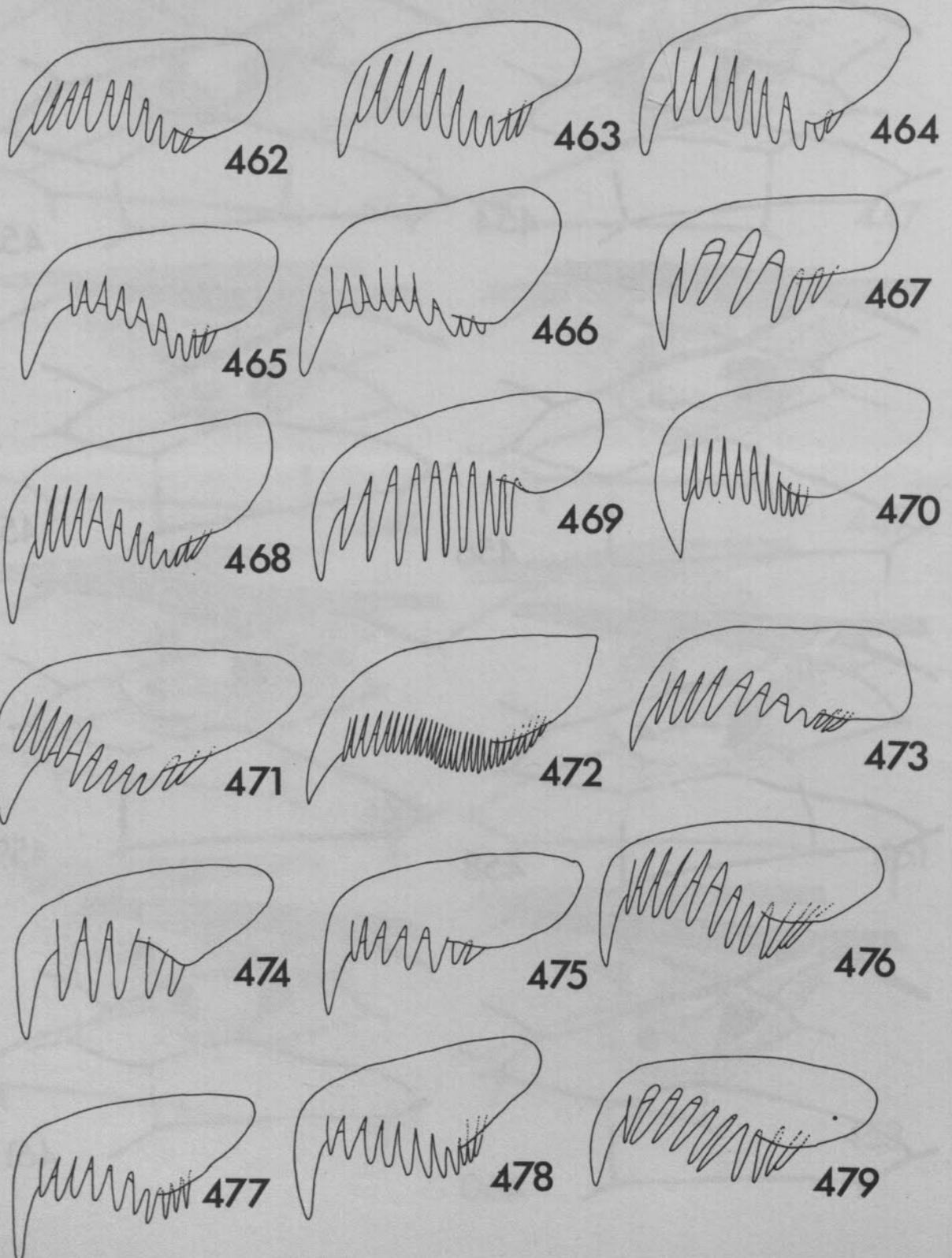


460

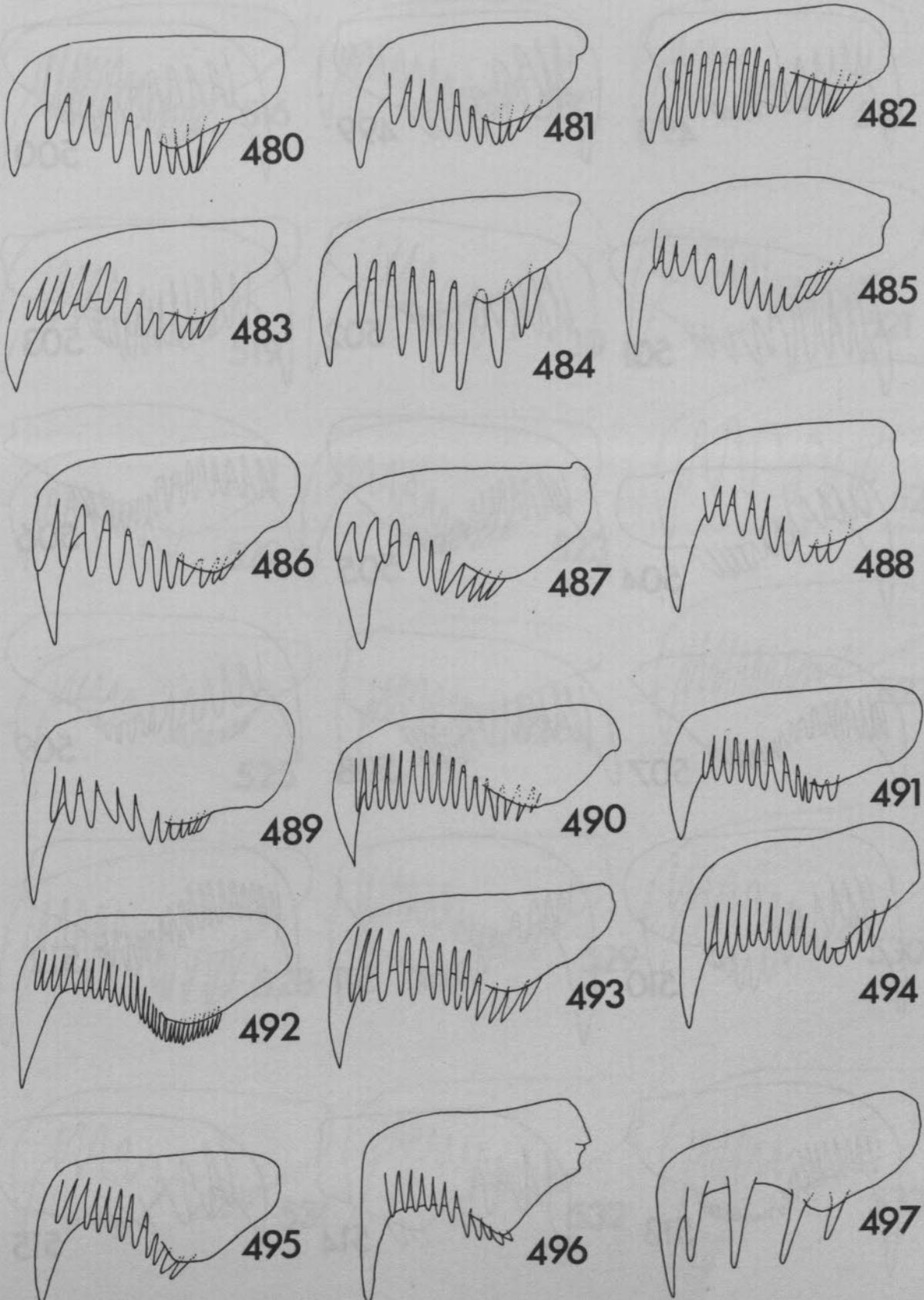


461

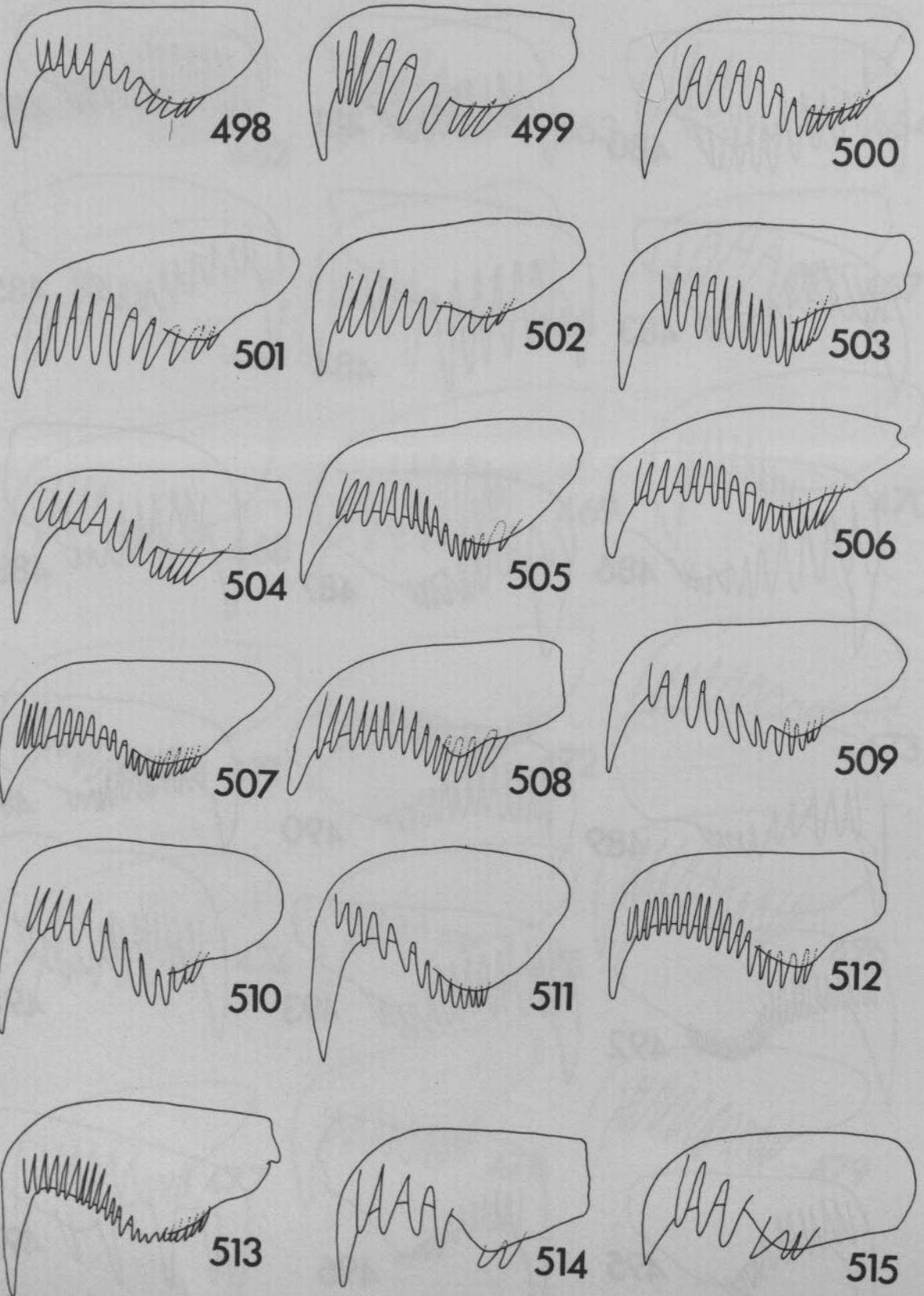
Figs 462-479. Outer hind tarsal claws. 462. *Enicospilus unidens* ♂; 463. *E. gonidius*, ♀; 464. *E. amygdalis*, ♀; 465. *E. akainus*, ♀, 466, the same, ♂; 467. *E. congoensis*, ♀; 468. the same, ♂; 469. *E. streblus*, ♀; 470. the same, ♂; 471. *E. camboui*, ♂; 472. *E. leucocotis*, ♂; 473. the same, ♀; 474. *E. prolixus*, ♀; 475. the same, ♂; 476. *E. cubitalis*, ♀; 477. the same, ♂, 478. *E. fatalis*, ♂; 479. *E. camerunensis*, ♀.



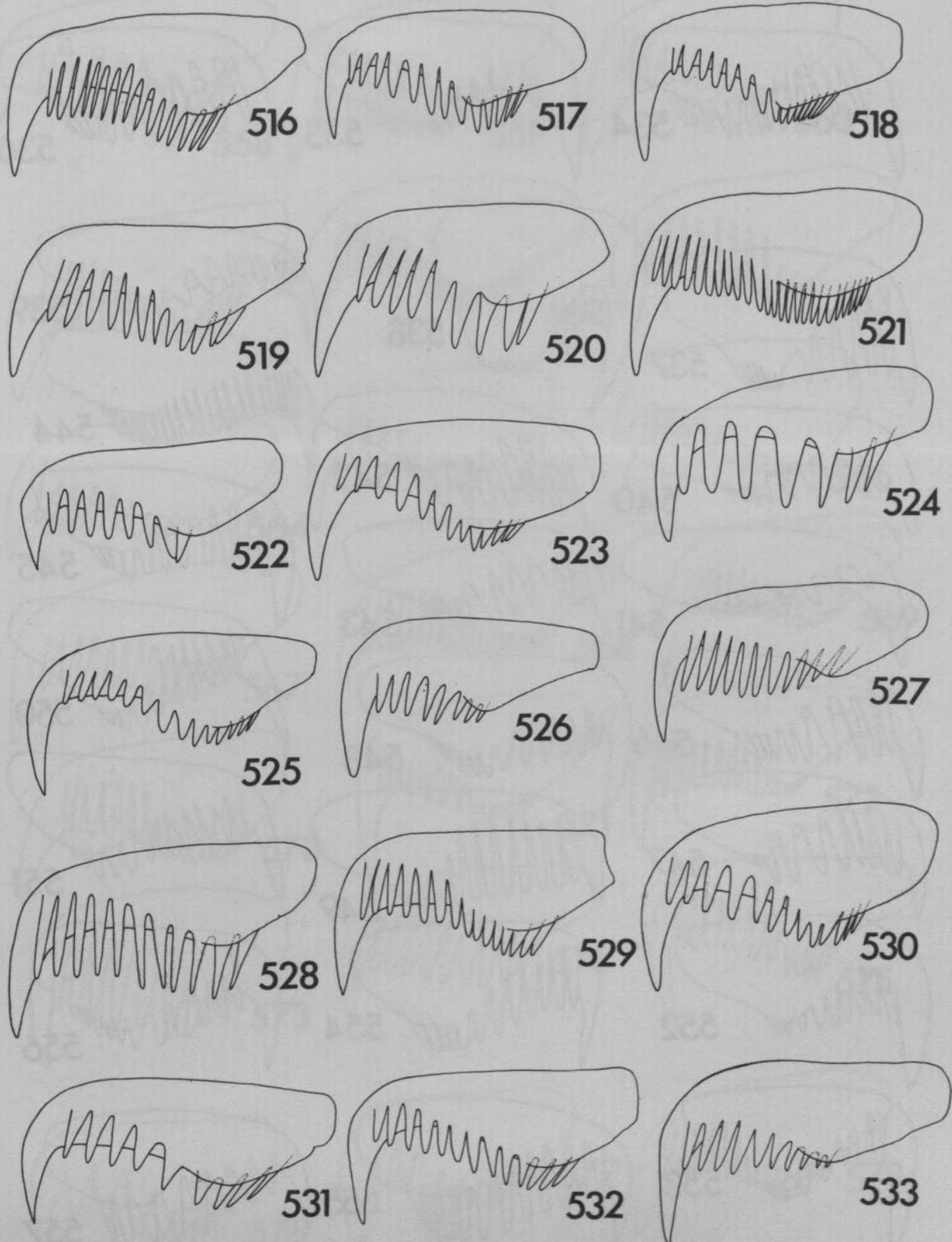
Figs 480-497. Outer hind tarsal claws. 480. *Enicospilus pressuratus*, ♀; 481. the same, ♂; 482. *E. marjorieae*, ♀; 483. the same, ♂; 484. *E. nugalis*, ♀; 485. the same, ♂; 486. *E. pseudonugalis*, ♀; 487. the same, ♂; 488. *E. equatus*, ♀; 489. the same, ♂; 490. *E. junctus*, ♀; 491. *E. angustatus*, ♀; 492. the same, ♂; 493. *E. cohacarus*, ♀; 494. the same, ♂; 495. *E. evanescens*, ♀; 496. the same, ♂; 497. *E. hyailosus*, ♀.



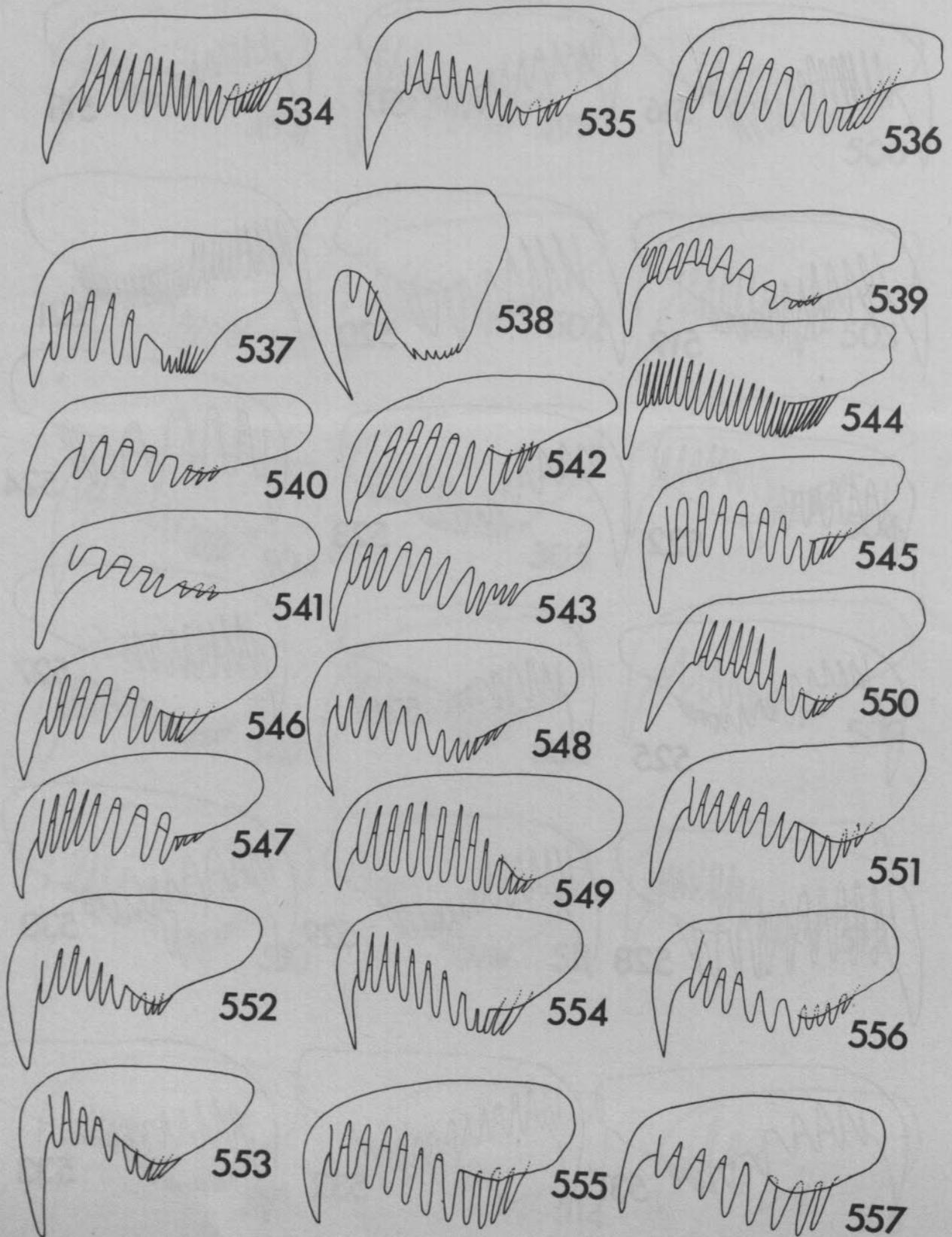
Figs 498-515. Outer hind tarsal claws. 498. *Enicospilus hyailosus*, ♂; 499. *E. senescens*, ♀; 500. the same, ♂; 501. *E. oweni*, ♀; 502. the same, ♂; 503. *E. glyphanosus*, ♀; 504. the same, ♂; 505. *E. eirmosus*, ♀; 506. *E. mamatus*, ♀; 507. the same, ♂; 508. *E. decaryi*, ♀; 509. *E. umbratus*, ♀; 510. *E. plagiatu*s, ♀; 511. the same, ♂; 512. *E. talaorus*, ♀; 513. the same, ♂; 514. *E. diro*, ♀; 515. the same, ♂.



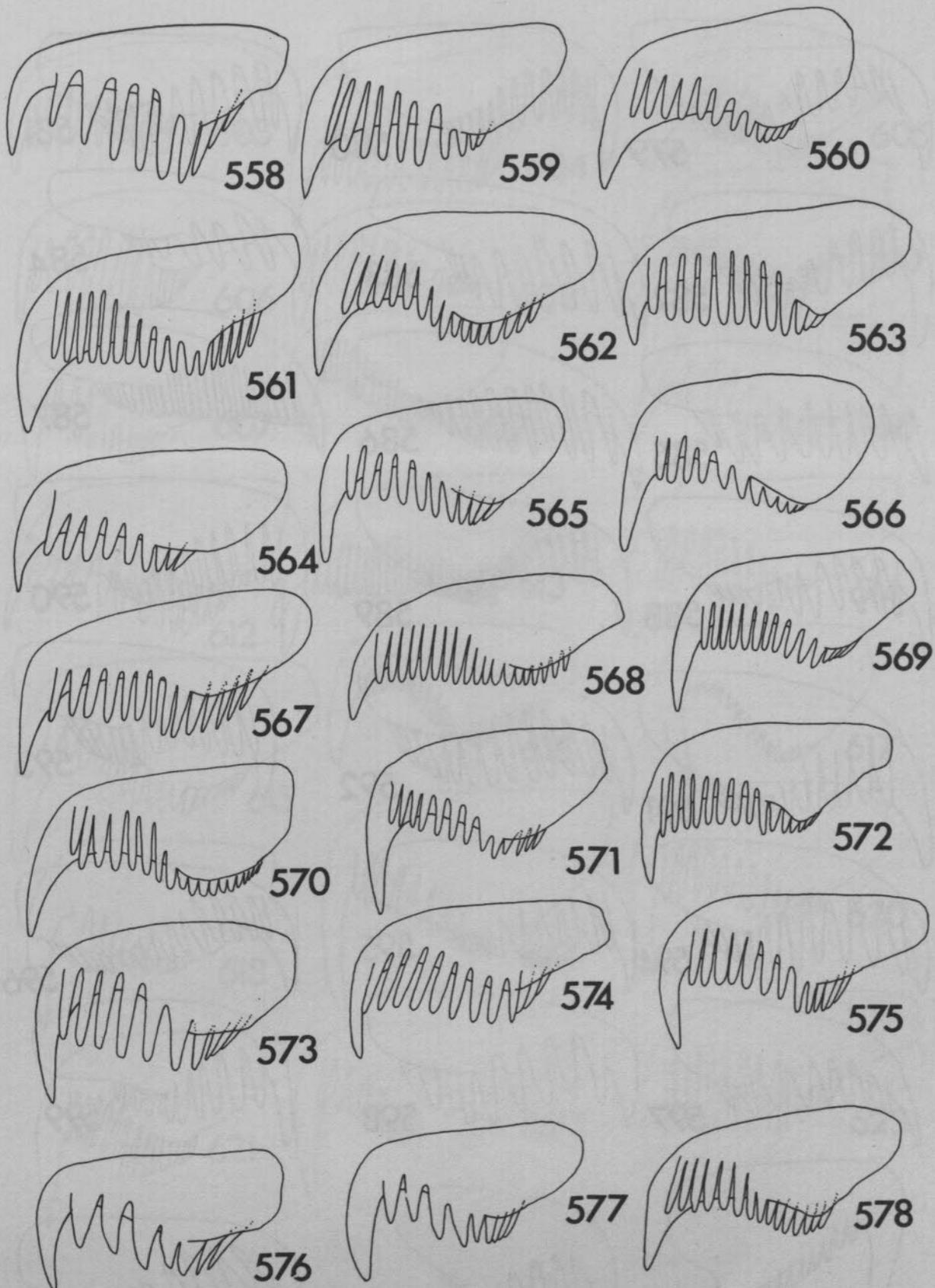
Figs 516-533. Outer hind tarsal claws. 516. *Enicospilus seyrigi*, ♀; 517. *E. rehanarius*, ♀; 518. the same, ♂; 519. *E. janakus*, ♀; 520. *E. volitius*, ♀; 521. the same, ♂; 522. *E. indovus*, ♀; 523. the same, ♂; 524. *E. antimena*, ♀; 525. the same, ♂; 526. *E. cariosus*, ♀; 527. the same, ♂; 528. *E. damius*, ♀; 529. the same, ♂; 530. *E. abessyniensis*, ♀; 531. the same, ♂; 532. *E. lancasteri*, ♀; 533. the same, ♂.



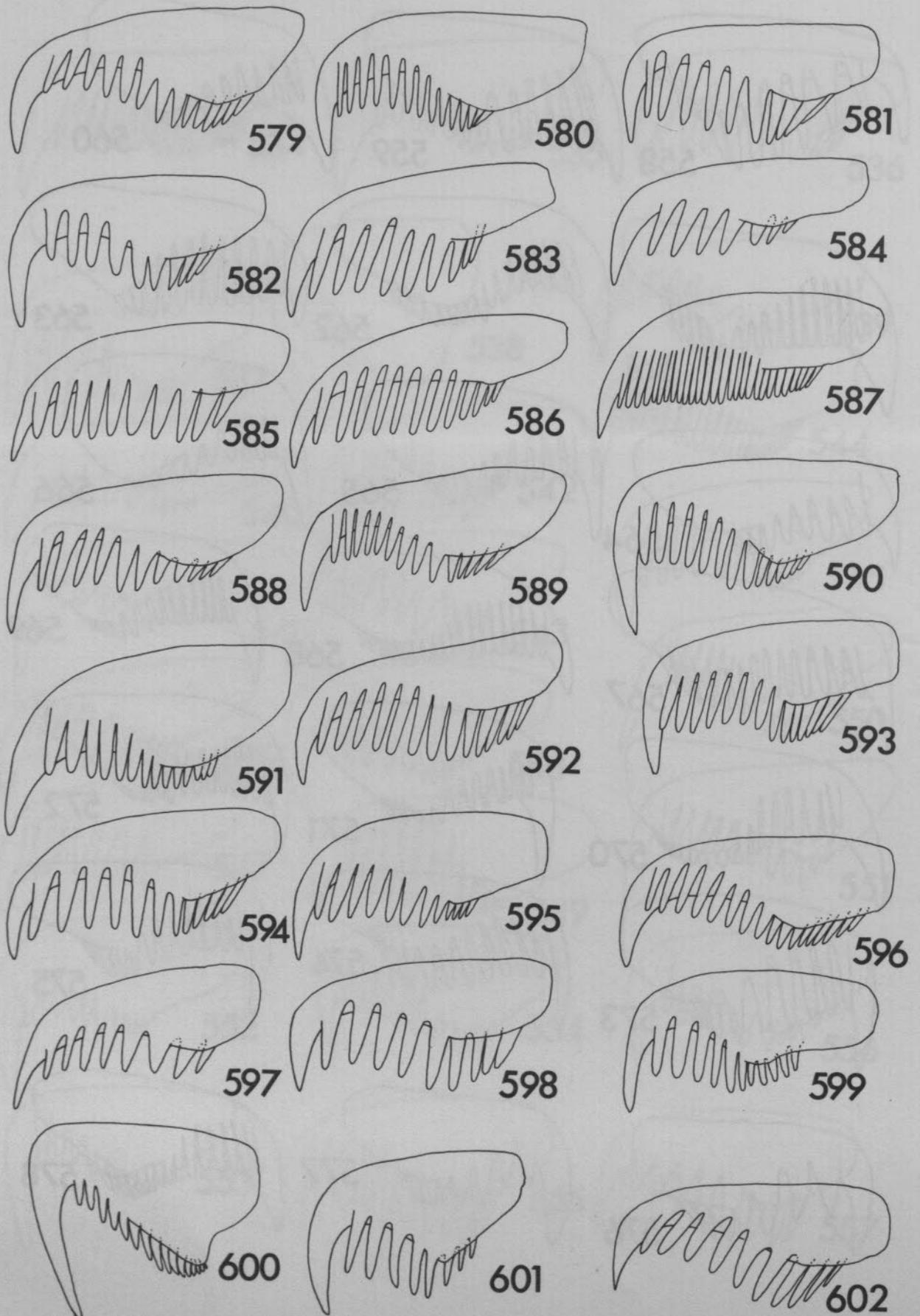
Figs 534-557. Outer hind tarsal claws (unless specified otherwise). 534. *Enicospilus microspilus*, ♀; 535. the same, ♂; 536. *E. luebberti*, ♀; 537. *E. nefarius*, ♀; 538. the same, ♀, inner; 539. *E. luebberti*, ♂; 540. *E. agrophus*, ♀; 541. the same, ♂; 542. *E. apicalis*, ♀; 543. the same, ♂; 544. *E. drakensbergi*, ♀; 545. the same, ♂; 546. *E. justus*, ♀; 547. the same, ♂; 548. *E. taxus*, ♂; 549. *E. diabolicus*, ♂; 550. *E. mahaloni*, ♀; 551. the same, ♂; 552. *E. mauritii*, ♀; 553. the same, ♂; 554. *E. dolosus*, ♂; 555. the same, ♀; 556. *E. belosus*, ♂; 557. the same ♀.



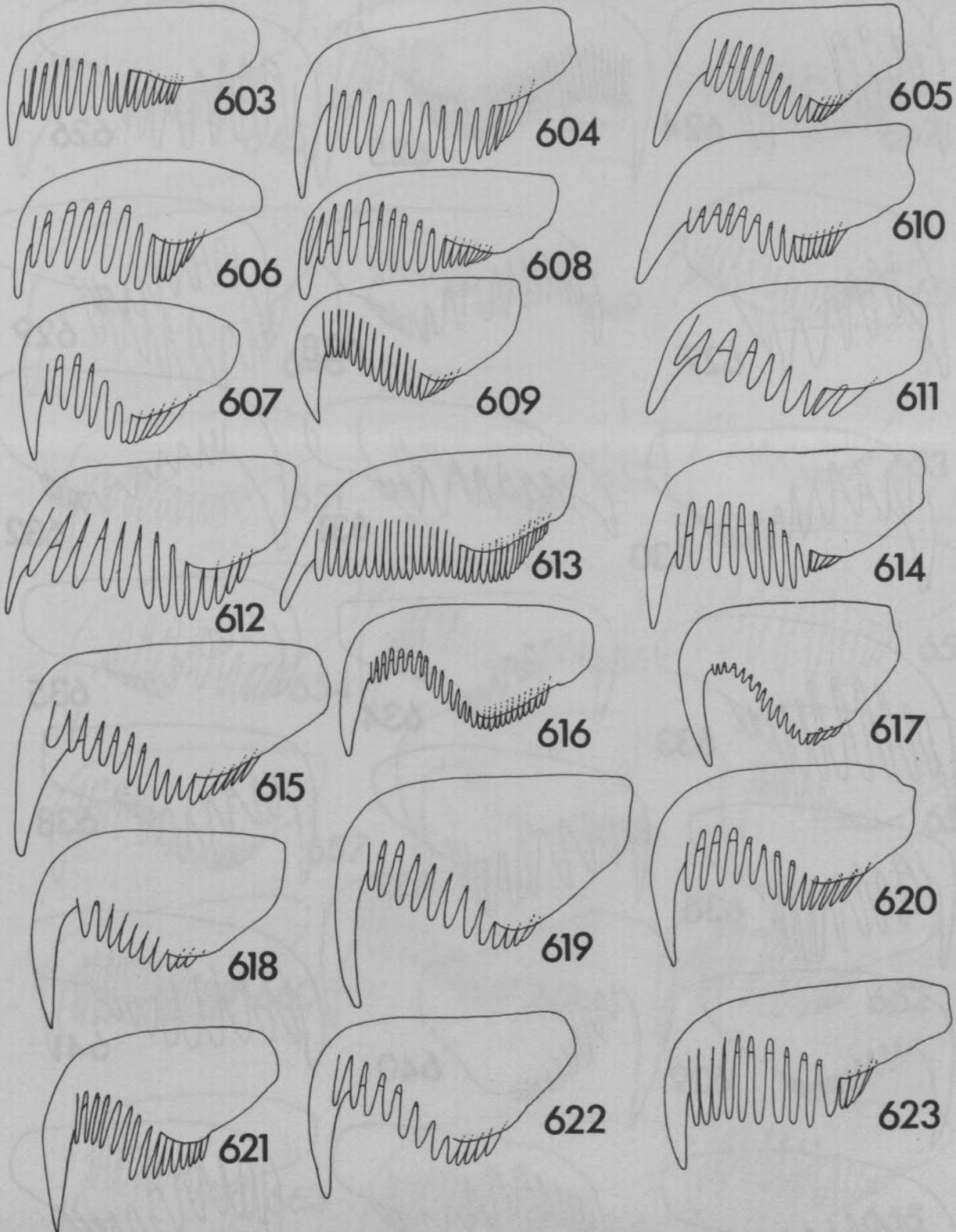
Figs 558-578. Outer hind tarsal claws. 558. *Enicospilus sliochus*, ♀; 559. *E. punctipinnis*, ♀; 560. the same, ♂; 561. *E. fananus*, ♀; 562. the same, ♂; 563. *E. retsifoius*, ♀; 564. the same, ♂; 565. *E. lanafius*, ♀; 566. the same, ♂; 567. *E. xandarar*, ♀; 568. *E. vorikus*, ♀; 569. the same, ♂; 570. *E. famantrus*, ♀; 571. *E. oswaldi*, ♂; 572. the same, ♀; 573. *E. nubluculatus*, ♀; 574. *E. icterus*, ♀; 575. the same, ♂; 576. *E. bantu*, ♀; 577. the same, ♂; 578. *E. sphenus*, ♀.



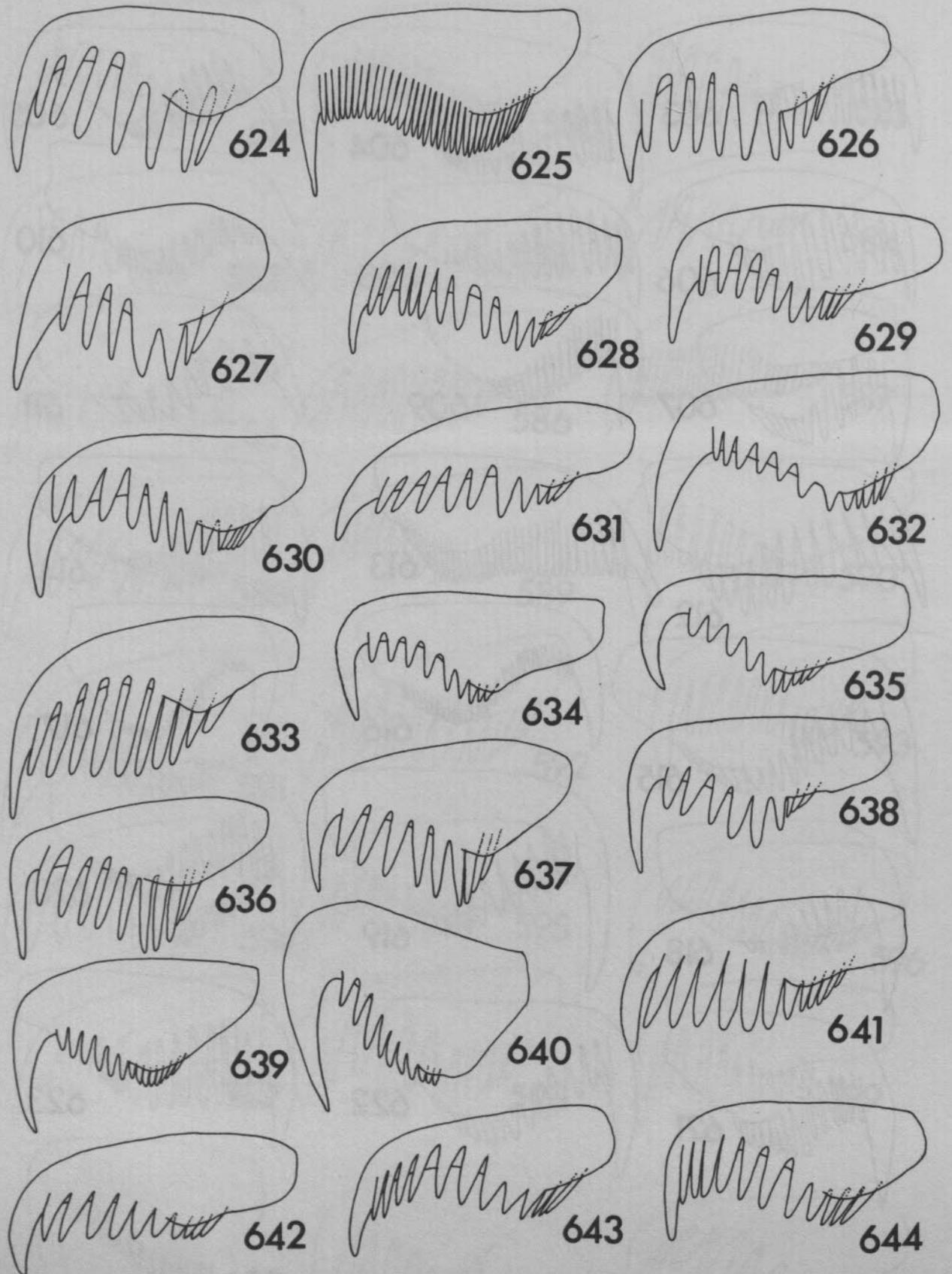
Figs 579-602. Outer hind tarsal claws (unless specified otherwise). 579. *Enicospilus helvolus*, ♀; 580. the same, ♂; 581. *E. dubius*, ♀; 582. the same, ♂; 583. *E. brevicornis*, ♀; 584. *E. henryi*, ♀; 585. *Enicospilus* species 6, ♀; 586. *E. herero*, ♀; 587. the same, ♂; 588. *E. leionotus*, ♀; 589. the same, ♂; 590. *E. grandiflavus*, ♀; 591. the same, ♂; 592. *E. albiger*, ♀; 593. *E. prospiracularis*, ♀; 594. *E. rufus*, ♀; 595. the same, ♂; 596. *E. quietus*, ♂; 597. the same, ♀; 598. *E. vatus*, ♀; 599. *E. drymosus*, ♀; 600. the same, ♀, inner; 601. *E. meledonosus*, ♀, inner; 602. the same, ♀, outer.



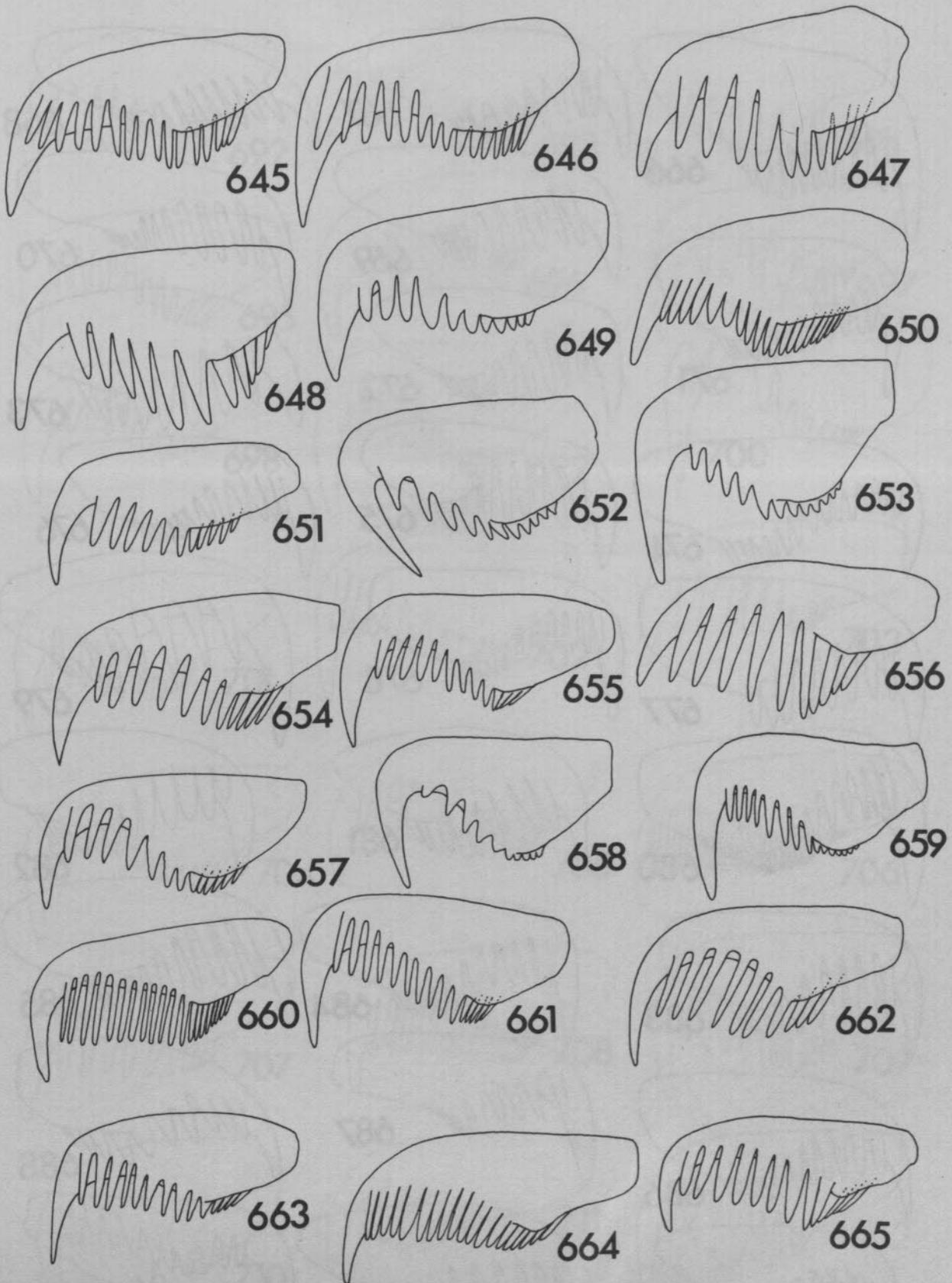
Figs 603-623. Outer hind tarsal claws (unless specified otherwise). 603. *Enicospilus babaulti*, ♀; 604. *E. polyspilus*, ♀; 605. the same, ♂; 606. *E. divisus*, ♀; 607. the same, ♀, inner; 608. the same, ♂, outer; 609. the same, ♂, inner; 610. *E. ruwenzorius*, ♀; 611. the same, ♂; 612. *E. cirtus*, ♀; 613. the same, ♂; 614. *E. hecastus*, ♀; 615. the same, ♂; 616. *E. simandrius*, ♂; 617. the same, ♂, inner; 618. *E. drasmosus*, ♀; 619. *E. biimpressus*, ♂; 620. the same, ♀; 621. *E. seminiger*, ♂; 622. the same, ♀; 623. *E. batus*, ♀.



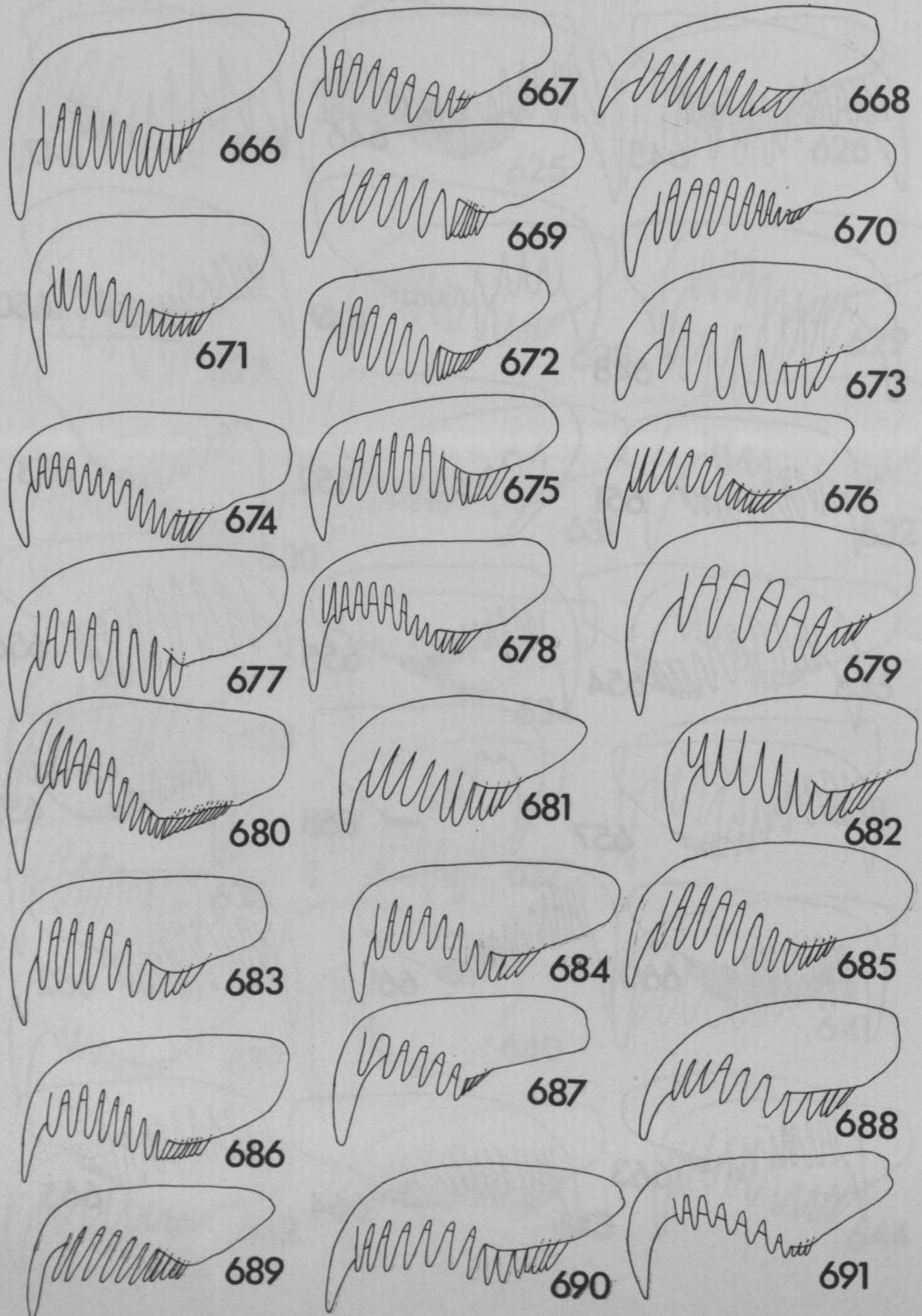
Figs 624-644. Outer hind tarsal claws (unless specified otherwise). 624. *Enicospilus amarus*, ♀; 625. the same, ♂; 626. *E. rulens*, ♀; 627. *E. corrugans*, ♀; 628. *E. kadiosus*, ♀; 629. the same, ♂; 630. *E. ovius*, ♀; 631. *E. reti*, ♂; 632. *E. vontalis*, ♂; 633. *Enicospilus* species 1, ♀; 634. *E. bebelus*, ♀; 635. the same, ♂; 636. *E. cedrus*, ♀, inner; 637. the same, ♀, outer; 638. the same, ♂, outer; 639. *E. daulus*, ♀; 640. the same, ♀, inner; 641. *E. furius*, ♀; 642. the same, ♂; 643. *E. communis*, ♀; 644. the same, ♂.



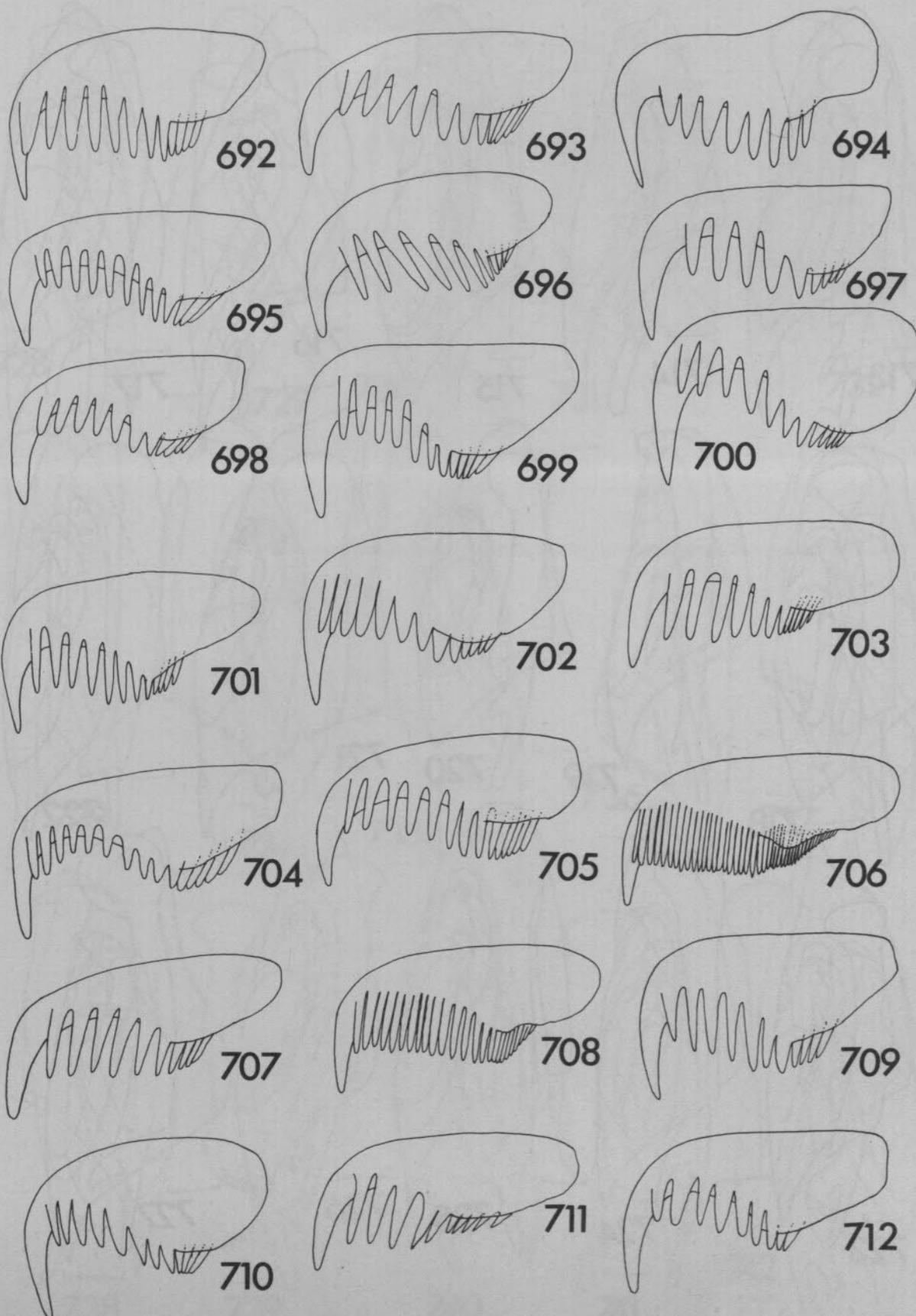
Figs 645-665. Outer hind tarsal claws (unless specified otherwise). 645. *Enicospilus fetus*, ♀; 646. the same, ♂; 647. *E. hoplus*, ♀; 648. *E. vontalis*, ♀; 649. *E. glarus*, ♀; 650. *E. hoplus*, ♂; 651. *E. octus*, ♀; 652. the same, ♀, inner; 653. *E. glarus*, ♀; 654. *E. expeditus*, ♀; 655. the same, ♂; 656. *E. mnous*, ♀; 657. *E. nesius*, ♀; 658. the same, ♀, inner; 659. the same, ♂, outer; 660. *E. lictus*, ♀; 661. the same, ♂; 662. *E. pacificus*, ♀; 663. the same, ♂; 664. *E. emcedius*, ♂; 665. *E. nops*, ♀.



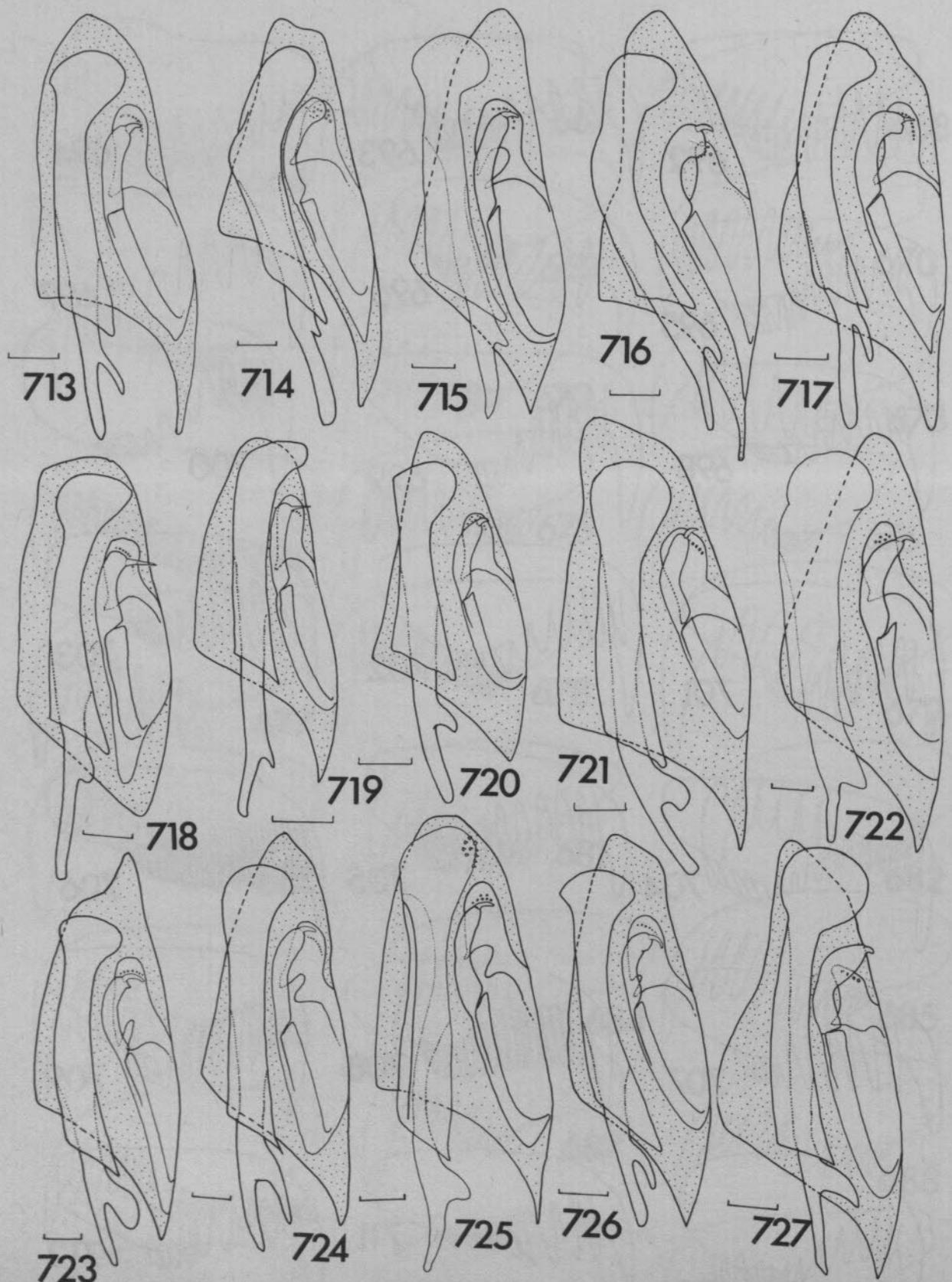
Figs 666-691. Outer hind tarsal claws. 666. *Enicospilus odax*, ♀; 667. *E. pluvius*, ♀; 668. *E. psammus*, ♀; 669. *E. oculator*, ♀; 670. the same, ♂; 671. *E. pallidus*, ♂; 672. the same, ♀; 673. *E. arduus*, ♀; 674. *E. meniscus*, ♀; 675. *E. sesamiae*, ♀; 676. the same, ♂; 677. *E. ruidus*, ♀; 678. the same, ♂; 679. *E. capensis*, ♀; 680. the same, ♂; 681. *E. ruscus*, ♀; 682. the same, ♂; 683. *E. bicoloratus*, ♀; 684. the same, ♂; 685. *E. antefurcalis*, ♀; 686. the same, ♂; 687. *E. rundiensis*, ♀; 688. the same, ♂; 689. *E. ktesus*, ♀; 690. the same, ♂; 691. *E. latus*, ♂.



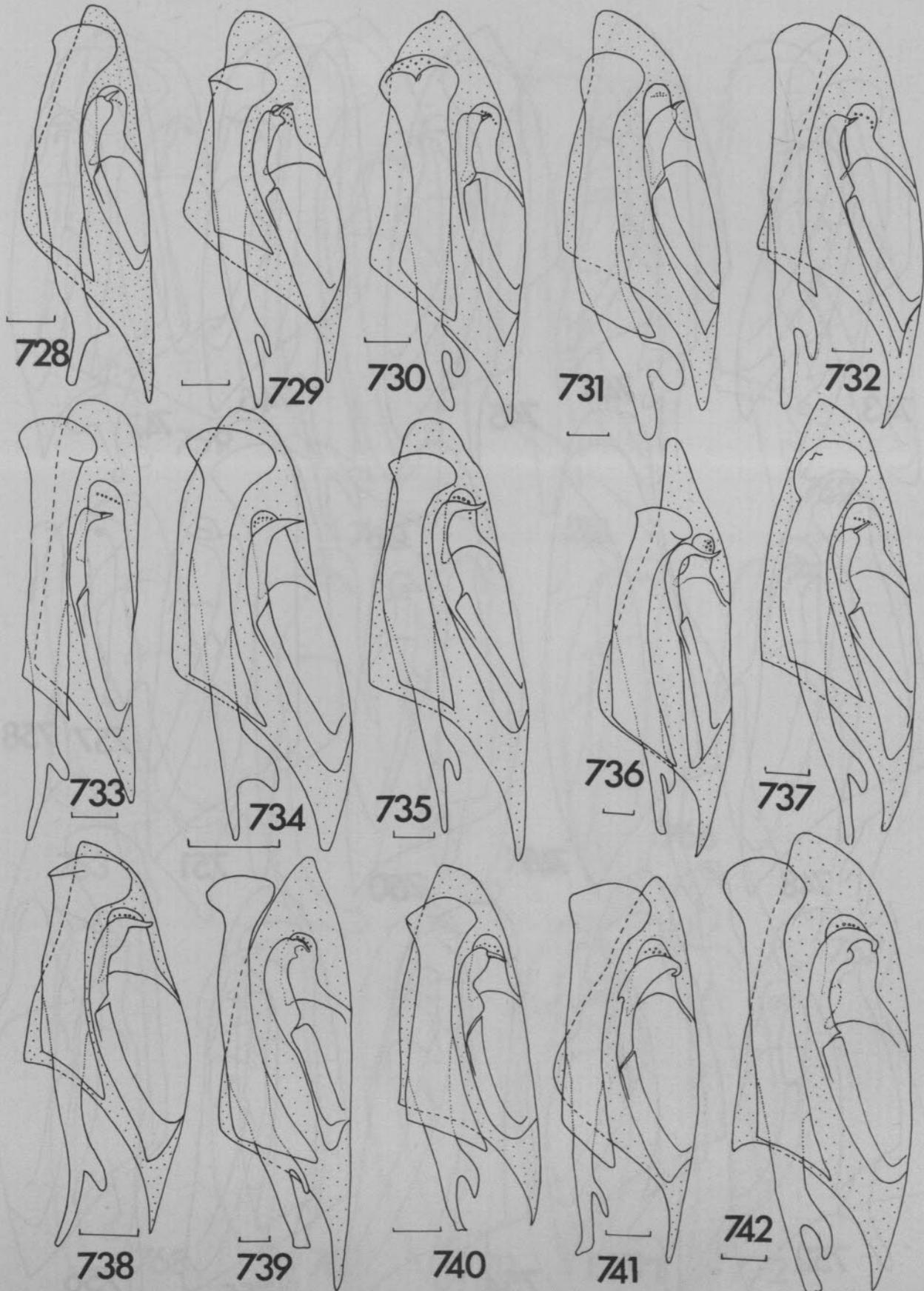
Figs 692-712. Outer hind tarsal claws. 692. *Enicospilus fenestralis*, ♀; 693. the same, ♂; 694. *E. inflexocarinatus*, ♀; 695. *E. interstitialis*, ♀; 696. the same, ♂; 697. *E. medius*, ♀; 698. the same, ♂; 699. *E. krossus*, ♀; 700. the same, ♂; 701. *E. addendus*, ♀; 702 the same, ♂; 703. *E. vorax*, ♀; 704. the same, ♂; 705. *E. hova*, ♀; 706. the same, ♂; 707. *E. transvaalensis*, ♀; 708. the same, ♂; 709. *E. betanimenus*, ♀; 710. the same, ♂; 711. *E. finalis*, ♀; 712. the same, ♂.



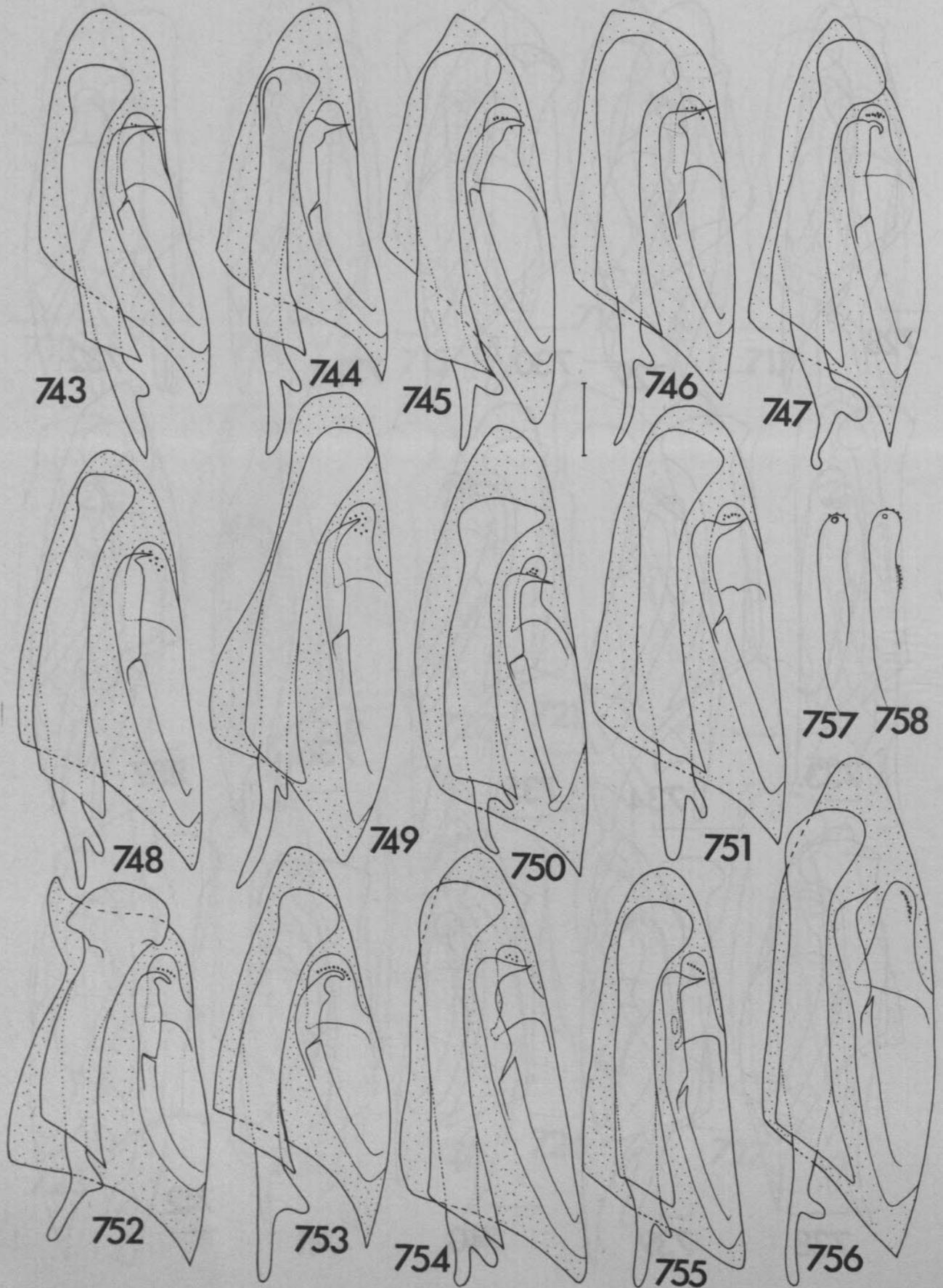
Figs 713-727. Male genitalia, lateral. 713 *Enicospilus congoensis*; 714. *E. streblus*; 715. *E. leucocotis*; 716. *E. prolixus*; 717. *E. cubitalis*; 718. *E. fatalis*; 719. *E. pressuratus*; 720. *E. nugalis*; 721. *E. pseudonugalis*; 722. *E. equatus*; 723. *E. angustatus*; 724. *E. cohacarus*; 725. *E. evanescens*; 726. *E. oweni*; 727. *E. hyailosus*.
Scale line = 0.1mm.



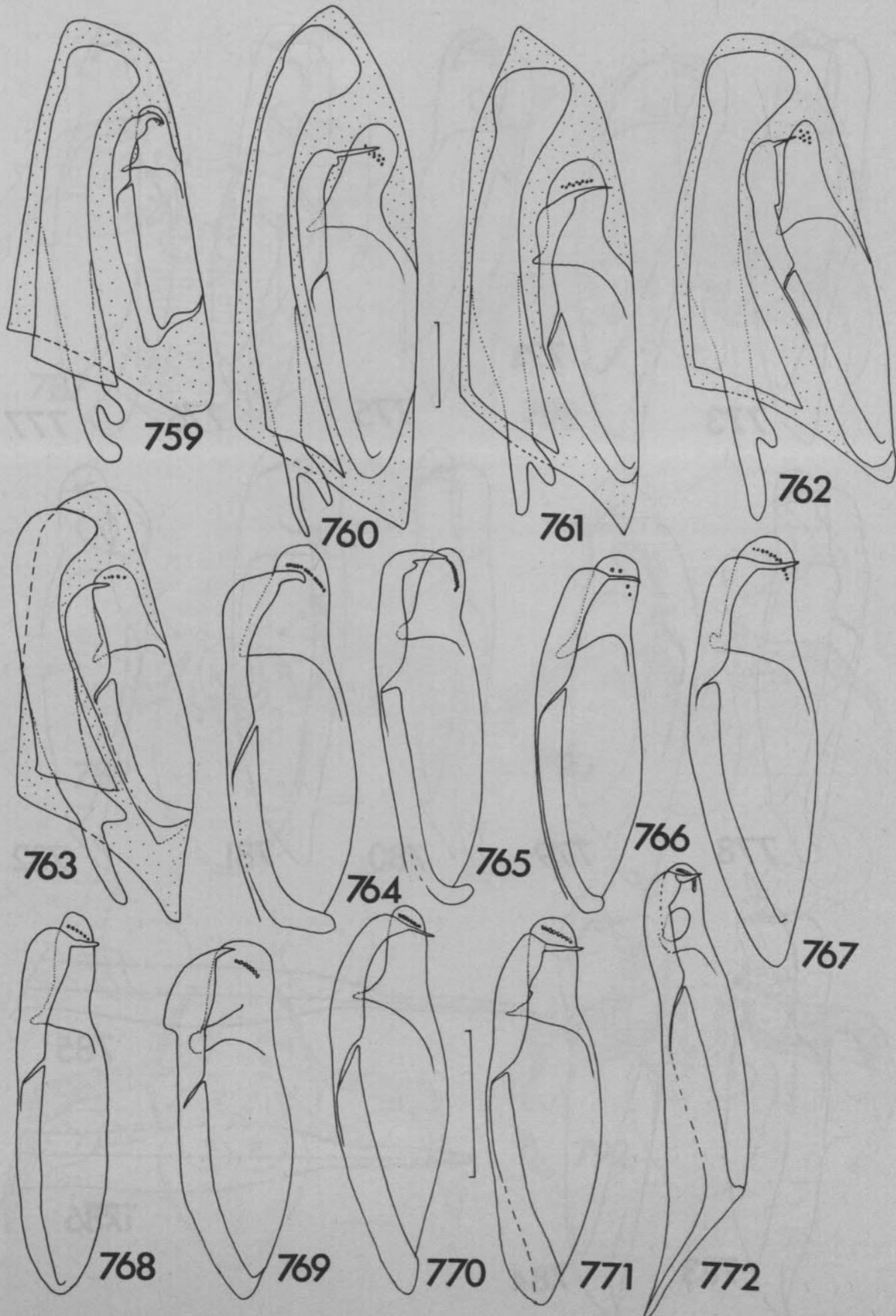
Figs 728-742. Male genitalia, lateral. 728. *Enicospilus senescens*; 729. *E. glyphanosus*; 730. *E. mamatus*; 731. *E. decaryi*; 732. *E. talaorus*; 733. *E. rehanarius*; 734. *E. indovus*; 735. *E. volitius*; 736. *E. plagiatus*; 737. *E. antimena*; 738. *E. damius*; 739. *E. cariosus*; 740. *E. abessyniensis*; 741. *E. lancasteri*; 742. *E. microspilus*.
Scale line = 0.1mm.



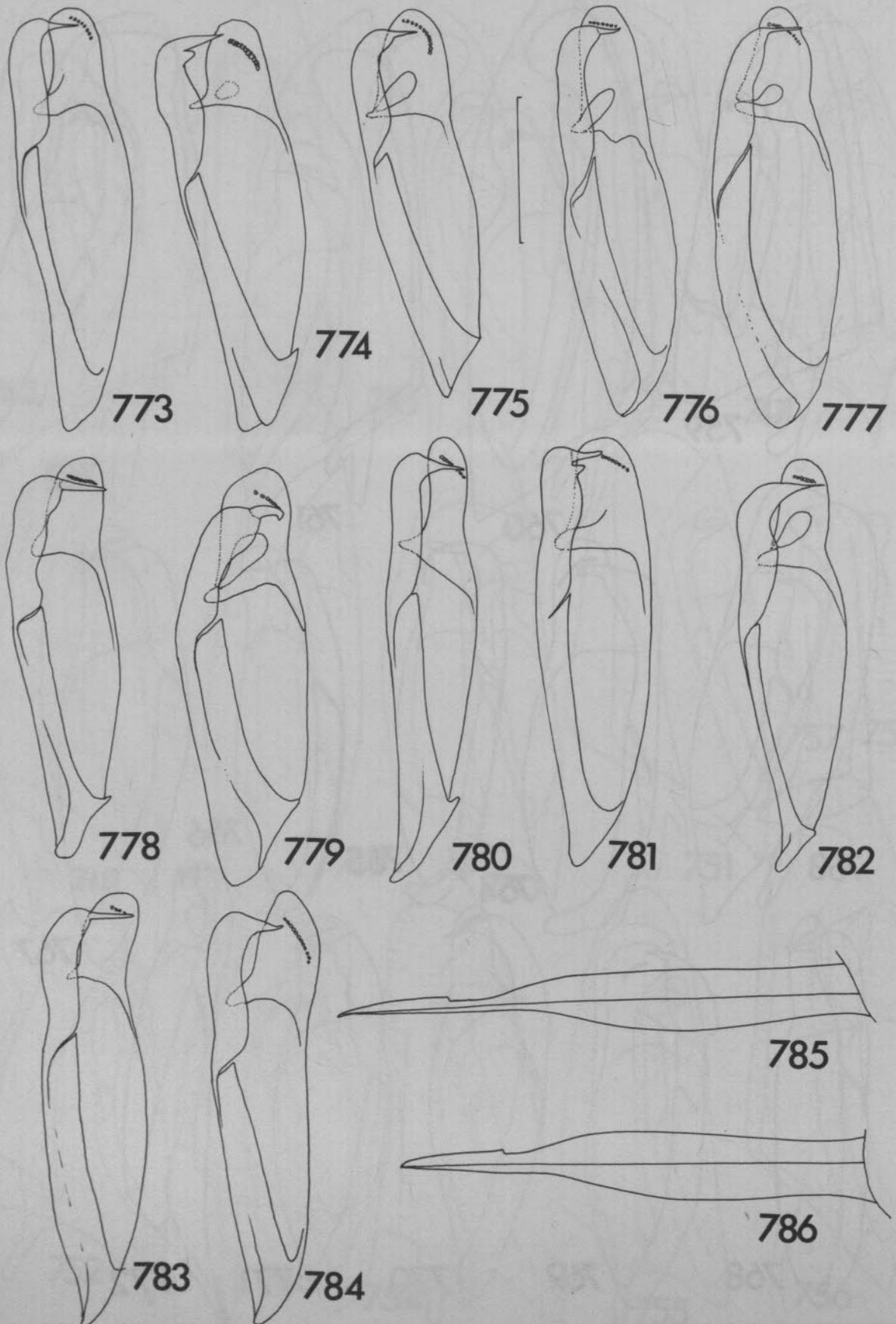
Figs 743-756. Male genitalia, lateral. 743. *Enicospilus drakensbergi*; 744. *E. diabolicus*; 745. *E. mahalonius*; 746. *E. mauritii*; 747. *E. belosus*; 748. *E. dolosus*; 749. *E. icterus*; 750. *E. bantu*; 751. *E. helvolus*; 752. *E. rufus*; 753. *E. quietus*; 754. *E. leionotus*; 755. *E. herero*; 756. *E. dubius*. Figs 757-758. Gonolacinia, dorsal. 757. *E. leionotus*; 758. *E. herero*. All to same scale; scale line = 0.1mm.



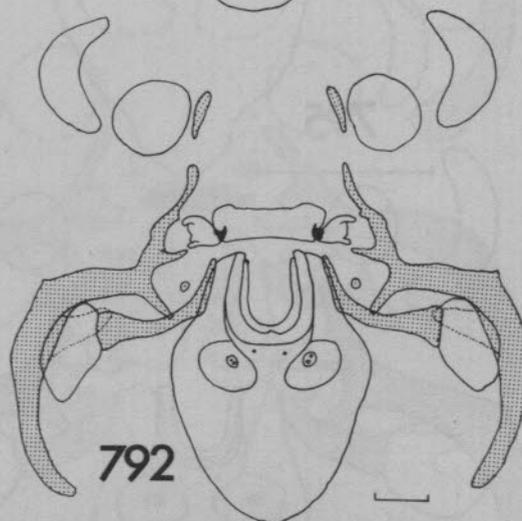
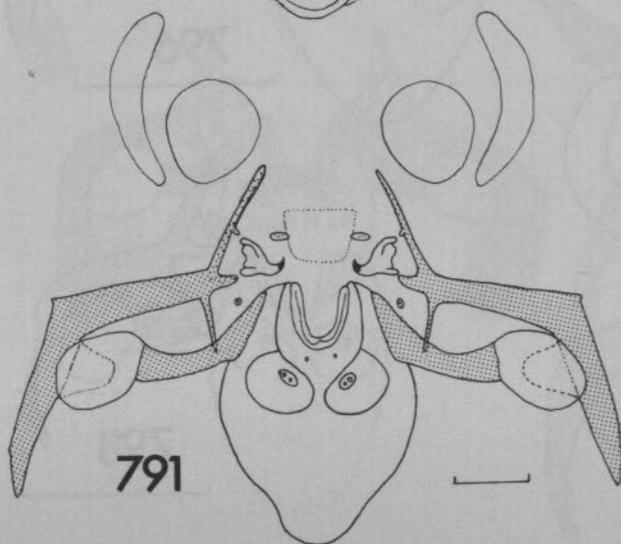
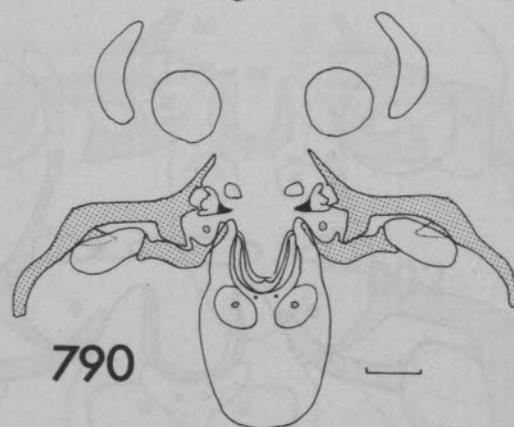
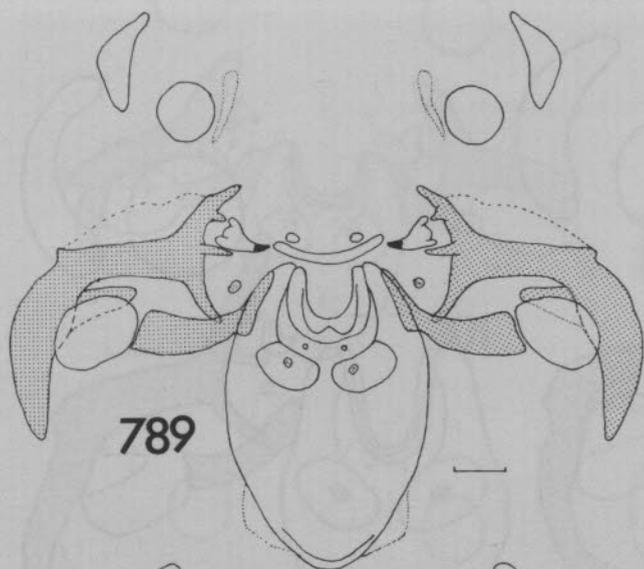
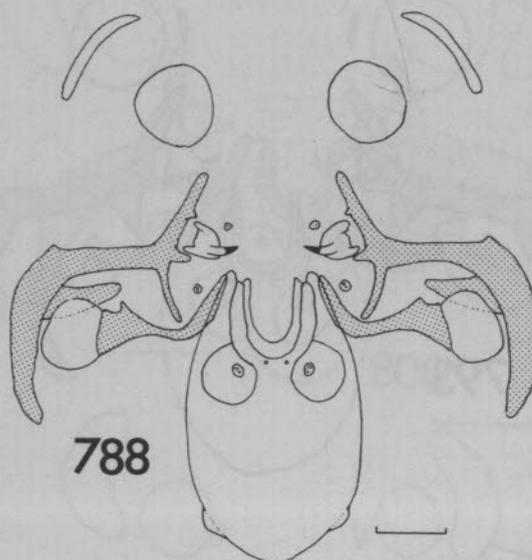
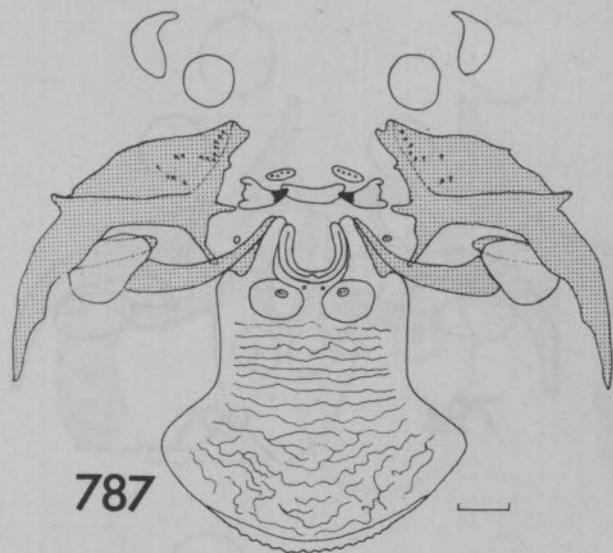
Figs 759-763. Male genitalia, lateral. 759. *Enicospilus simandrius*; 760. *E. vontalis*; 761. *E. fetus*; 762. *E. cirtus*; 763. *E. kadiosus*. Figs 764-772. Claspers. 764. *E. biimpressus*; 765. *E. amarus*; 766. *E. communis*; 767. *E. expeditus*; 768. *E. pacificus*; 769. *E. ruidus*; 770. *E. capensis*; 771. *E. ruscus*; 772. *E. bicoloratus*.
759-763 to same scale; scale line = 0.1mm. 764-772 to same scale, scale line = 0.1mm.



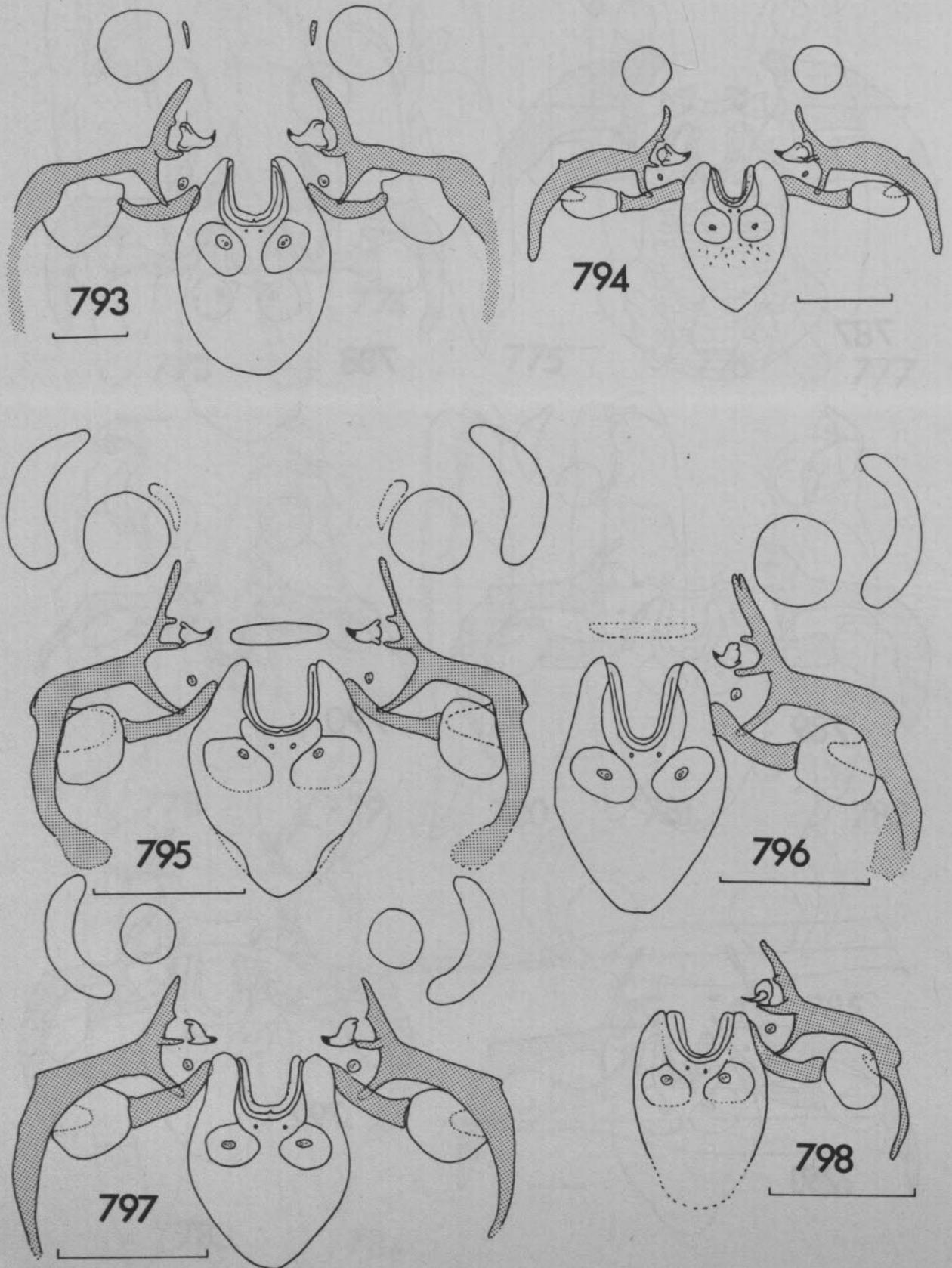
Figs 773-784. Claspers. 773. *Enicospilus antefurcalis*; 774. *E. fenestralis*; 775. *E. rundiensis*; 776. *E. sesamiae*; 777. *E. transvaalensis*; 778. *E. betanimenus*; 779. *E. punctipinnis*; 780. *E. finalis*; 781. *E. braunsii*; 782. *E. hova*; 783. *E. vorax*; 784. *E. addendus*. Figs 785-786. Ovipositors, lateral. 785. *E. vorax*; 786. *E. communis*. 733-784 to same scale; scale line = 0.1 mm.



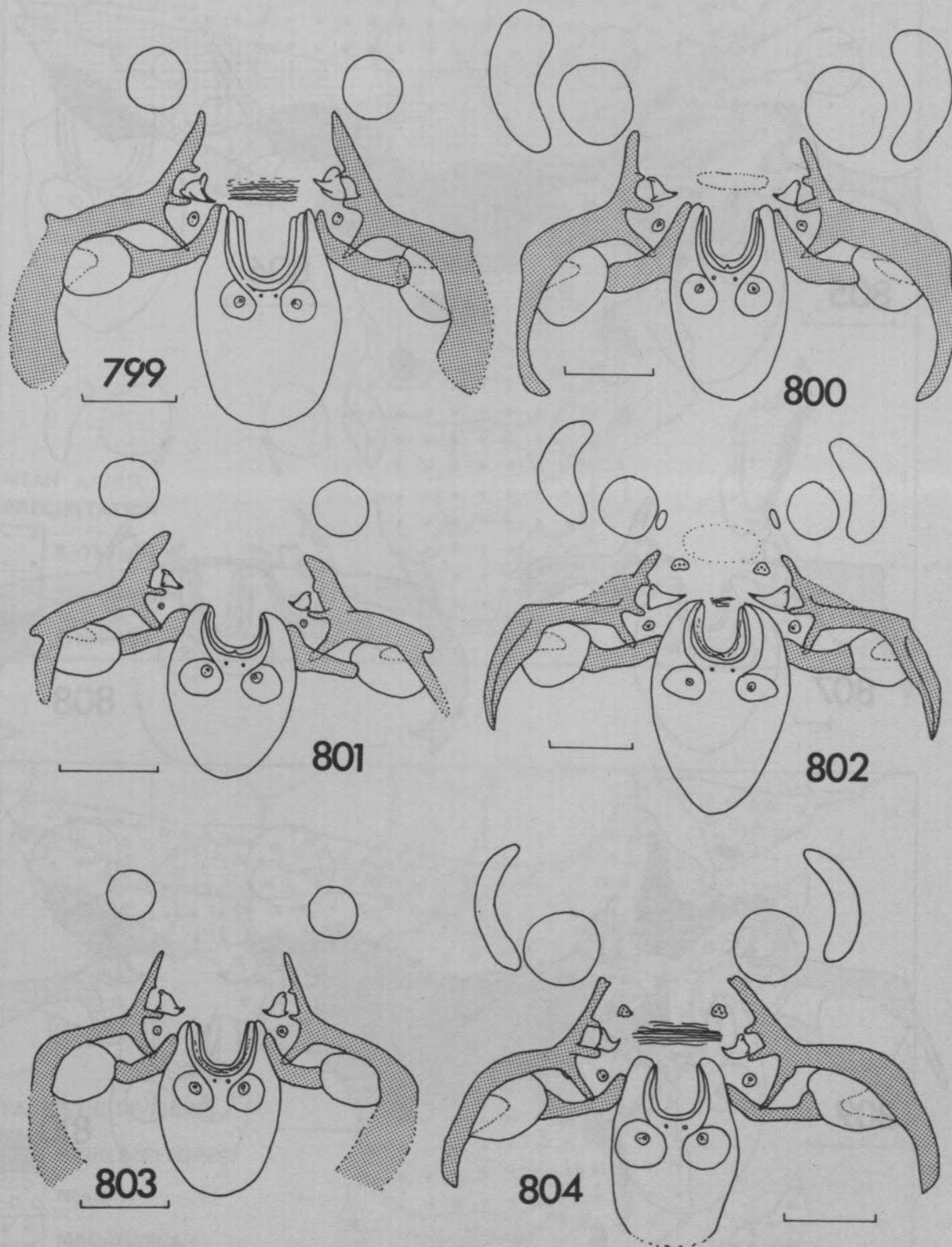
Figs 787-792. Cephalic capsules of final instar larvae. 787. *E. cohacarus*; 788. *E. streblus*; 789. *E. evanescens*; 790. *E. prolixus*; 791. *E. nugalis*; 792. *E. equatus*.
Scale line = 0.1mm.



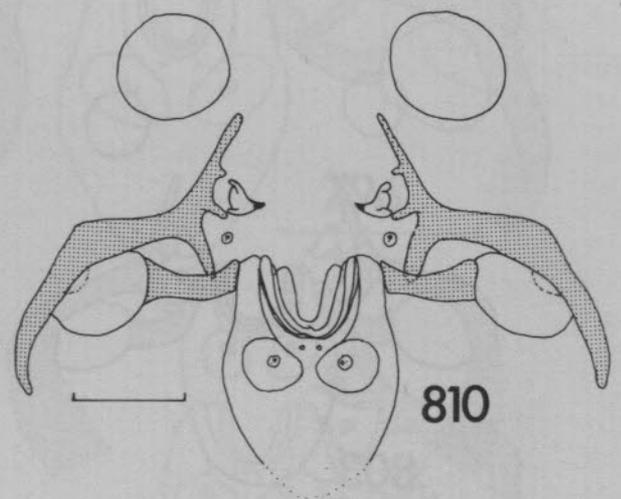
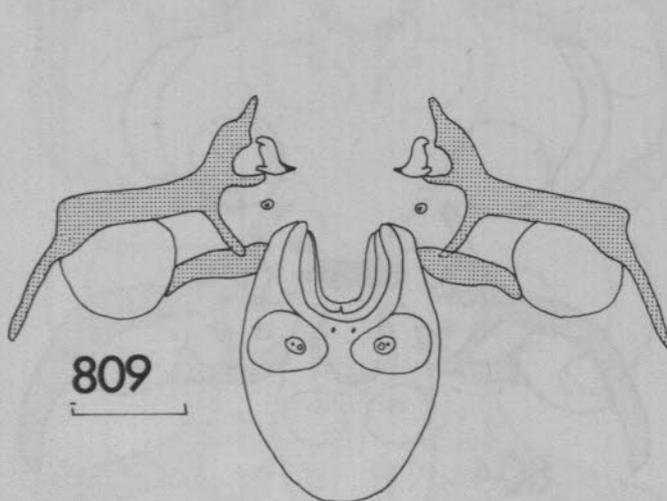
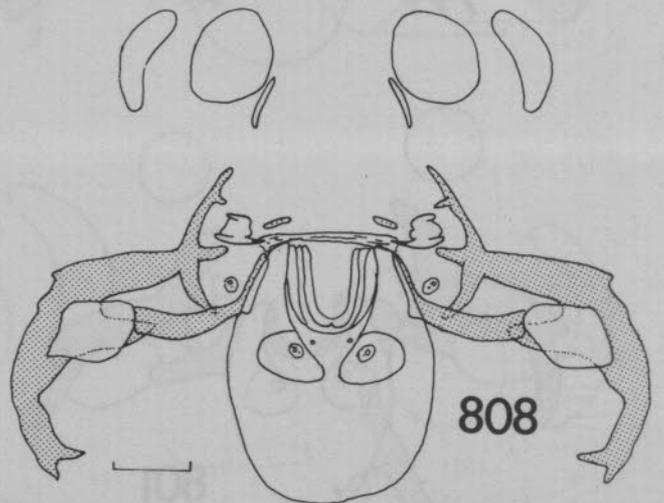
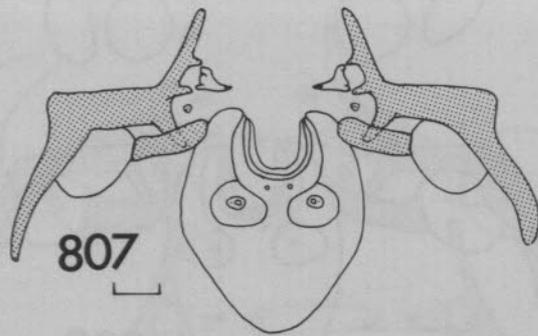
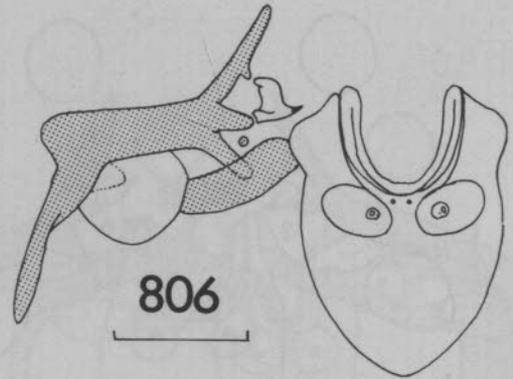
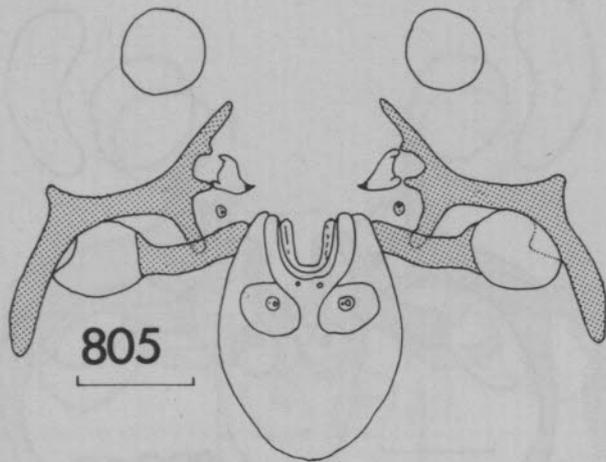
Figs 793-798. Cephalic capsules of final instar larvae. 793. *E. abyssiniensis*; 794. *E. cariosus*; 795. *E. dolosus*; 796. *E. nubeculatus* (lacking right hypostoma etc.); 797. *E. rufus*; 798. *E. quietus* (lacking right hypostoma etc.). Scale line = 0.1mm.

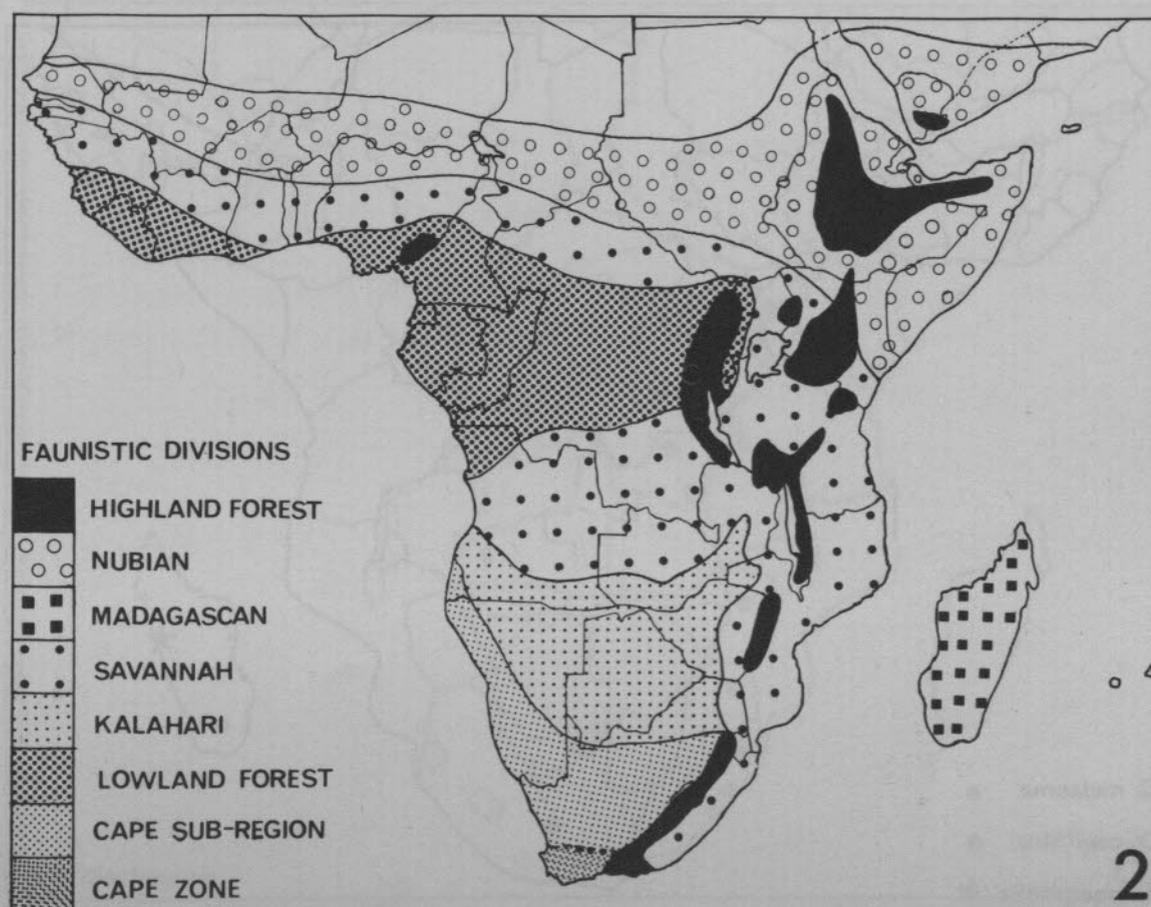
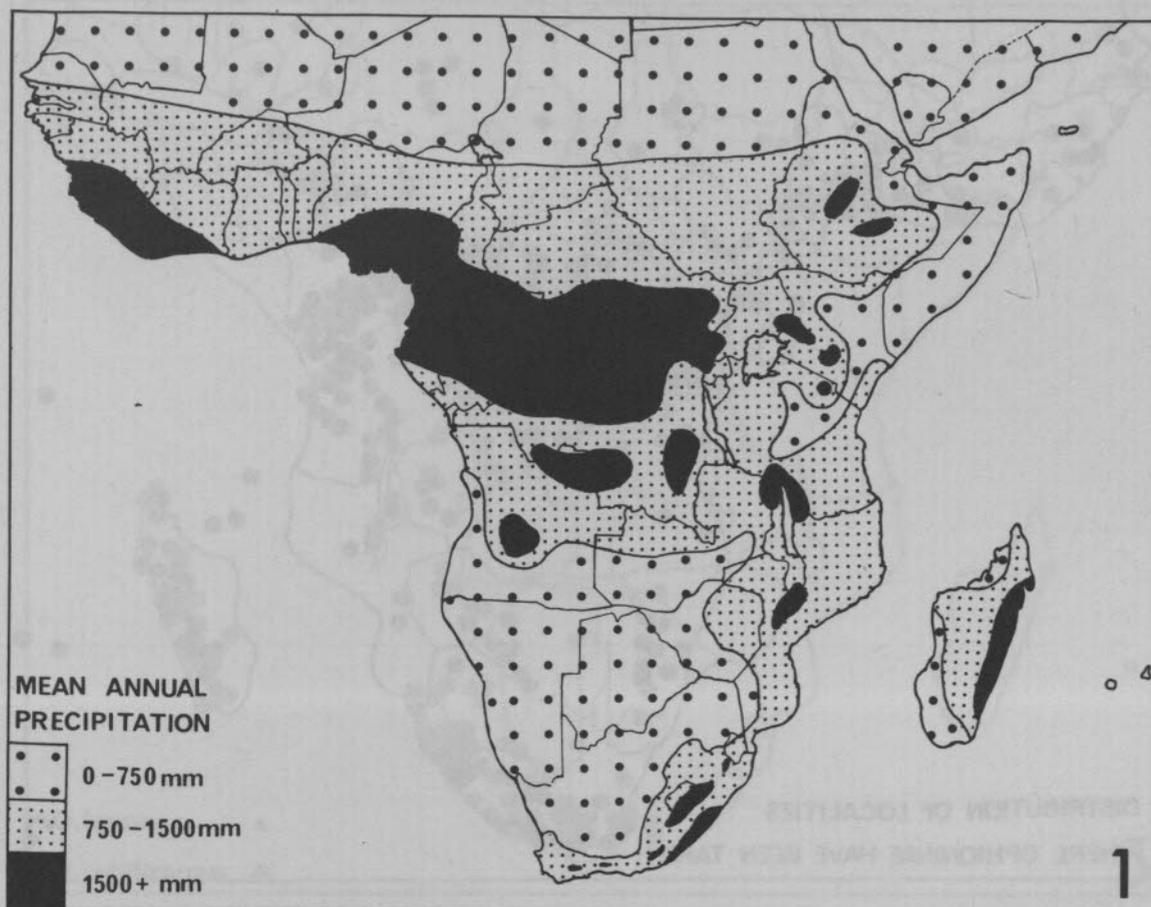


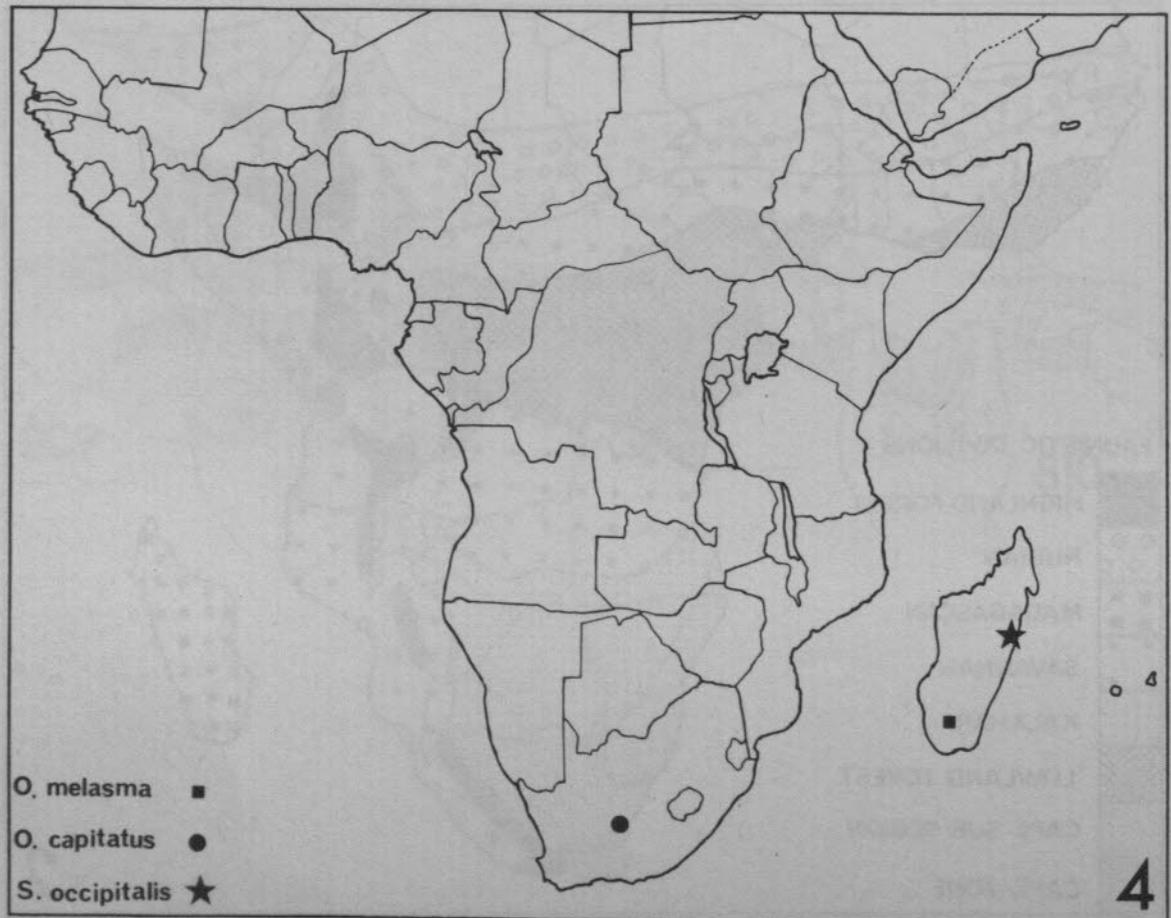
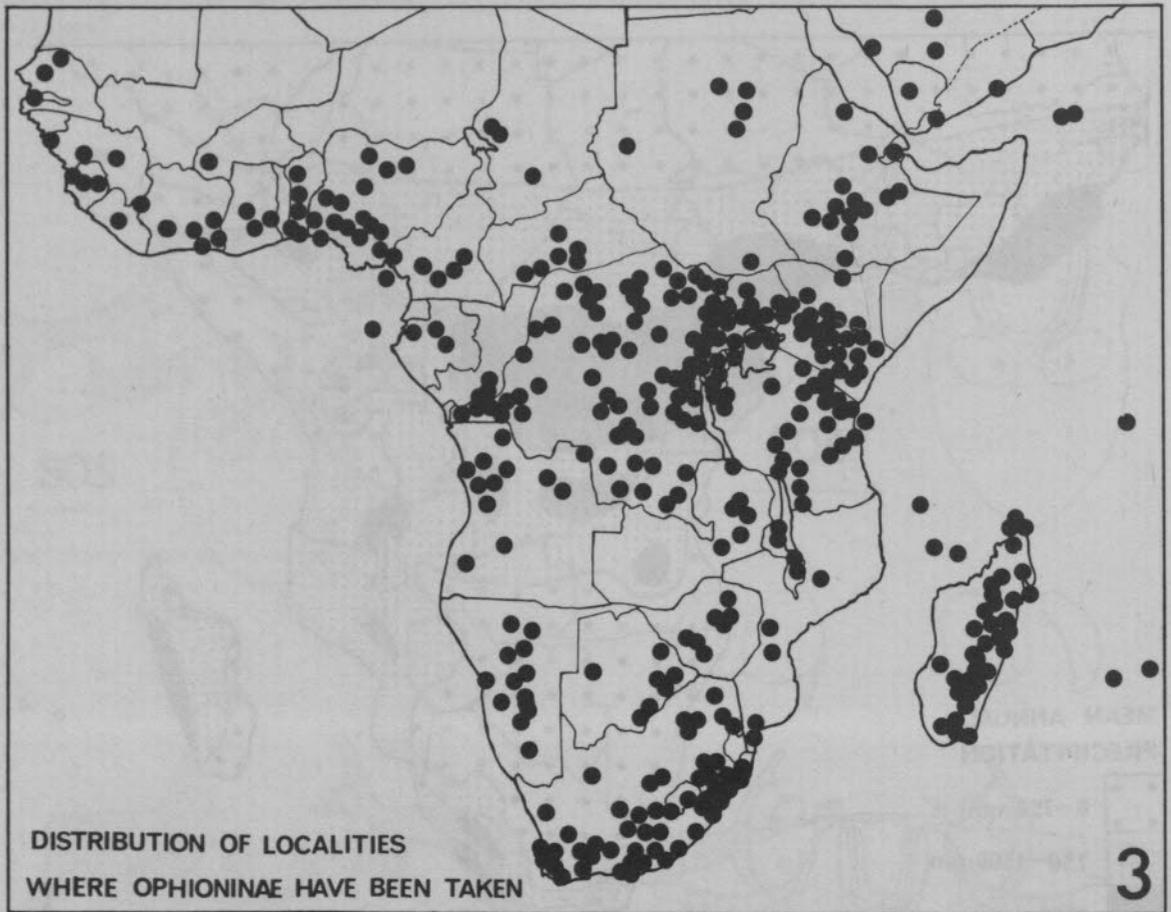
Figs 799-804. Cephalic capsules of final instar larvae. 799. *E. ruidus*; 800. *E. finalis*; 801. *E. hova*; 802. *E. biimpresus*; 803. *E. antefurcalis*; 804. *E. sesamiae*. Scale line = 0.1mm.

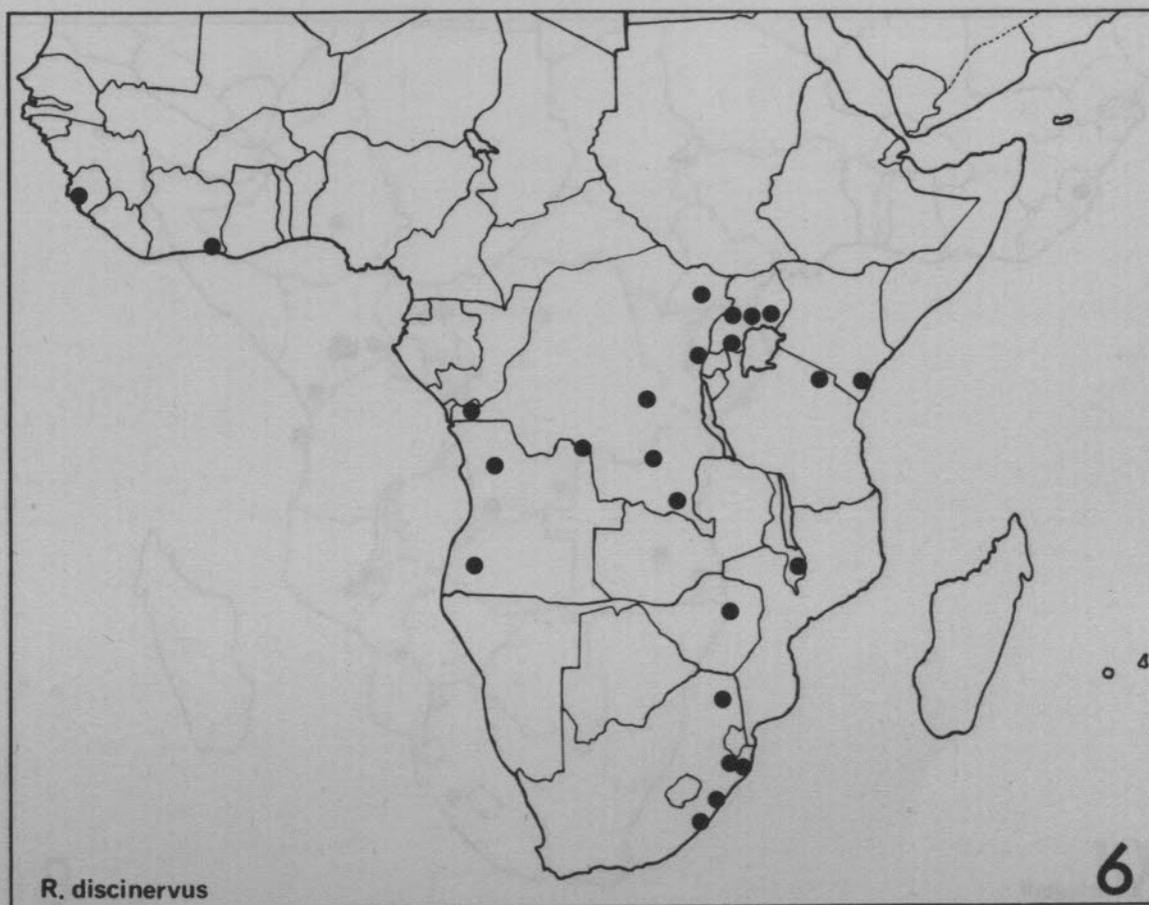
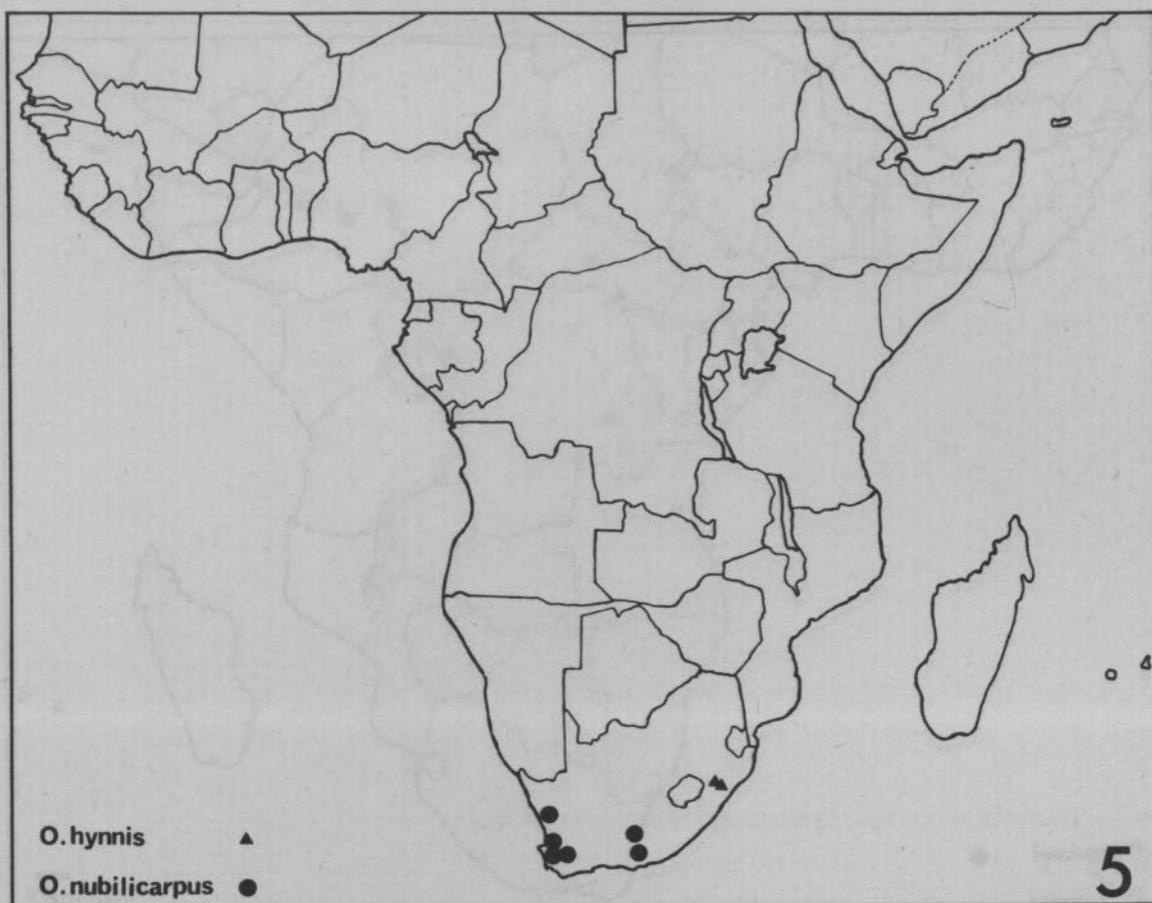


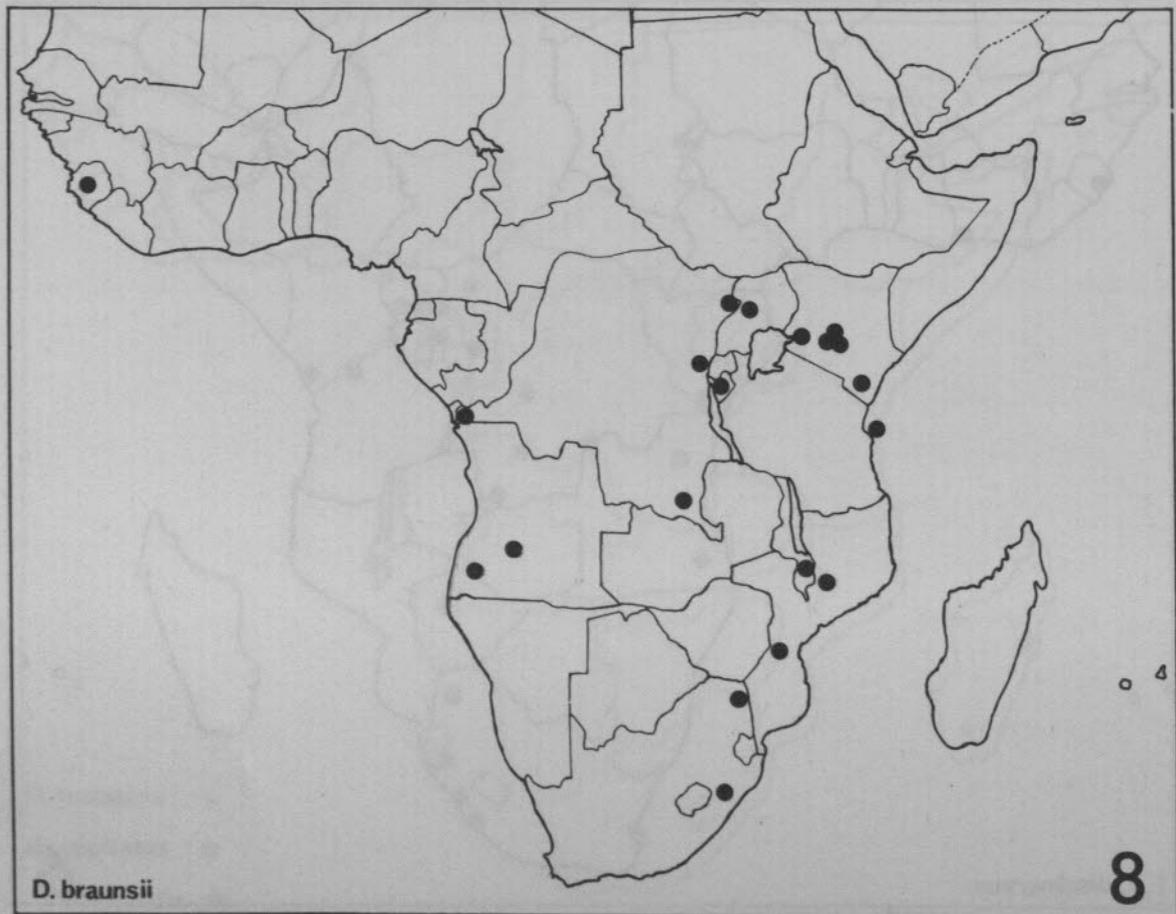
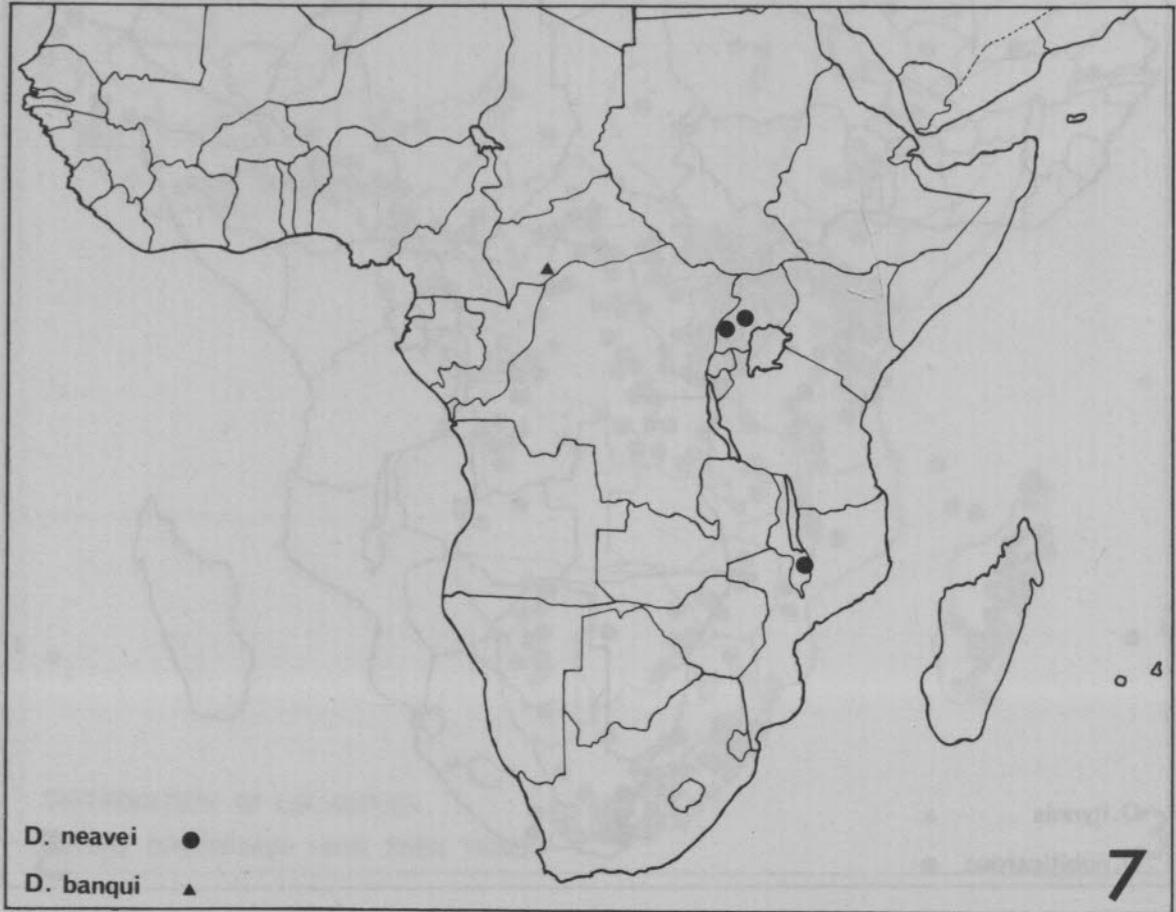
Figs 805-810. Cephalic capsules of final instar larvae. 805. *E. pacificus*; 806. *E. drasmosus* (lacking left hypostoma etc.); 807. *E. betanimenus*; 808. *Euryophion latipennis*; 809. *Enicospilus capensis*; 810. *E. ruscus*.
Scale line = 0.1 mm.

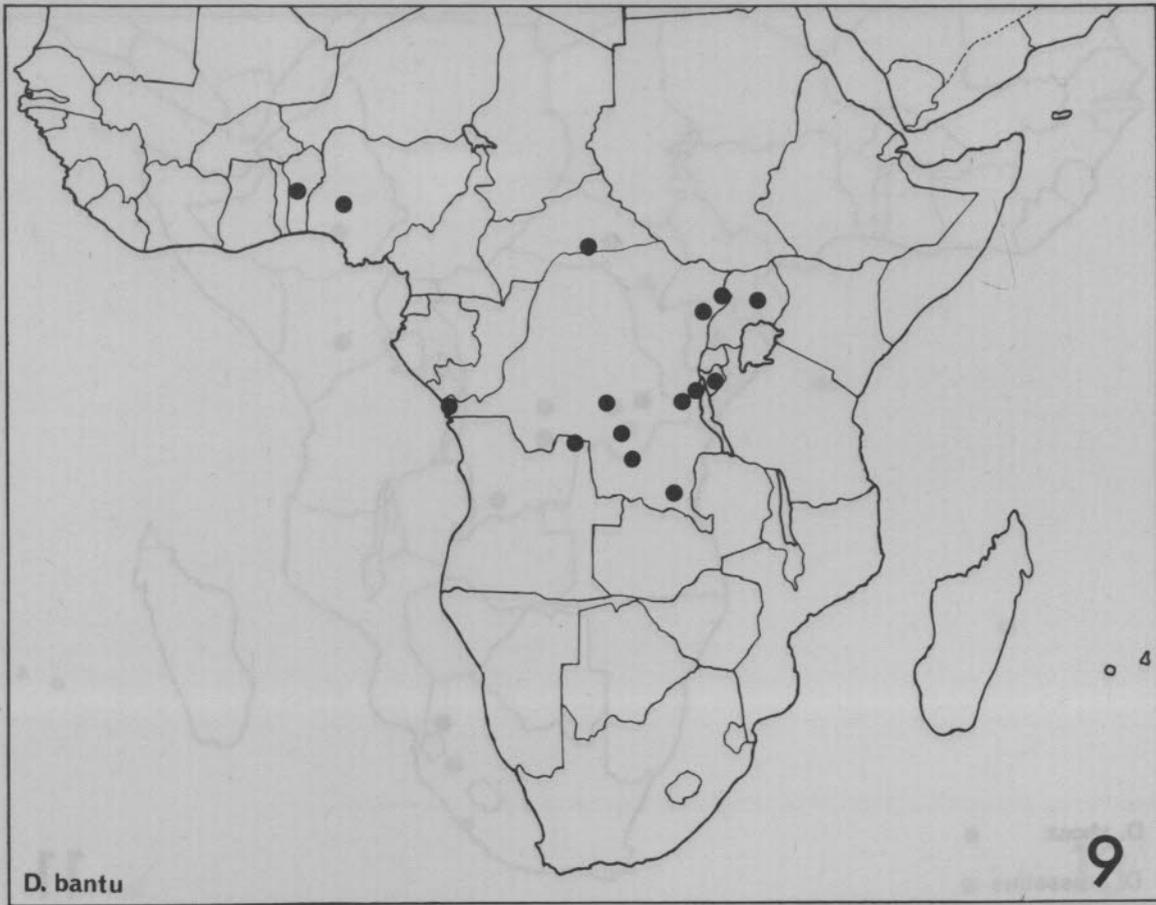




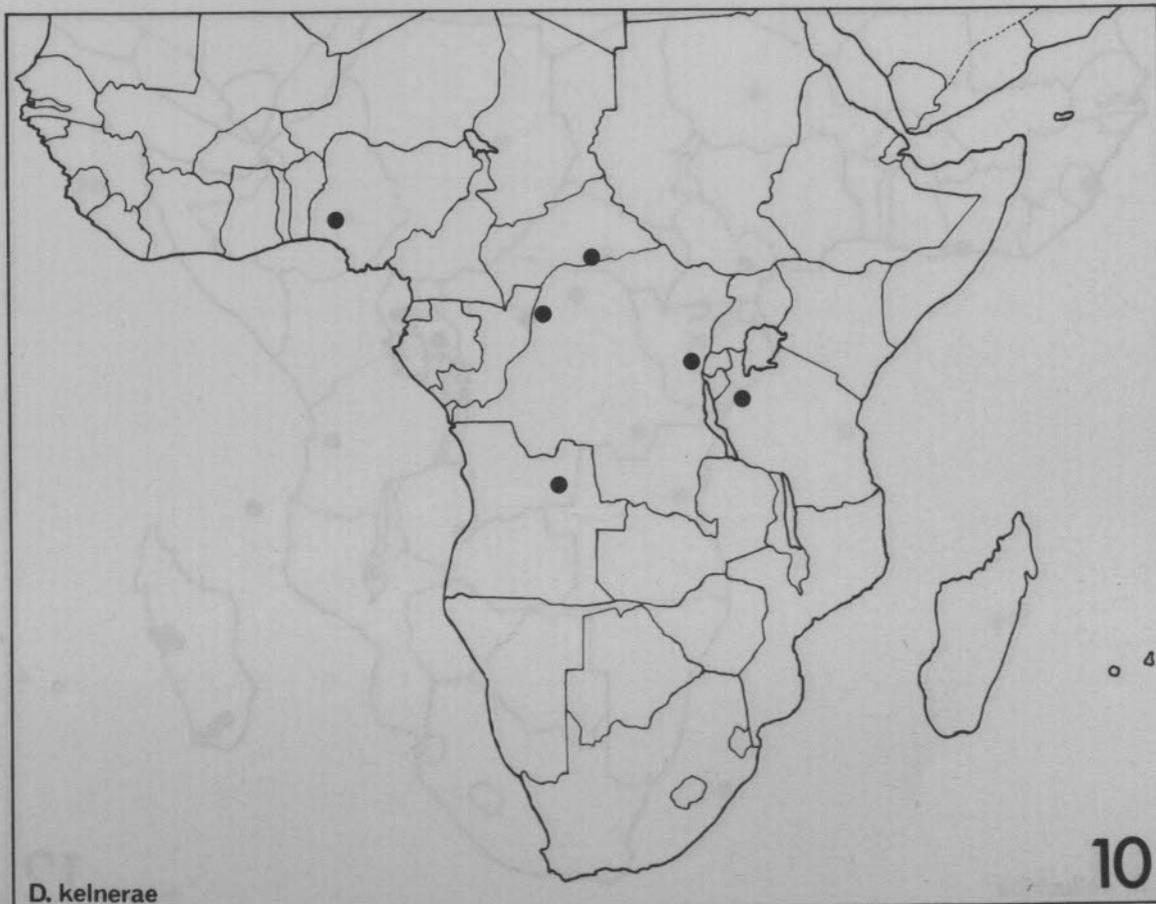




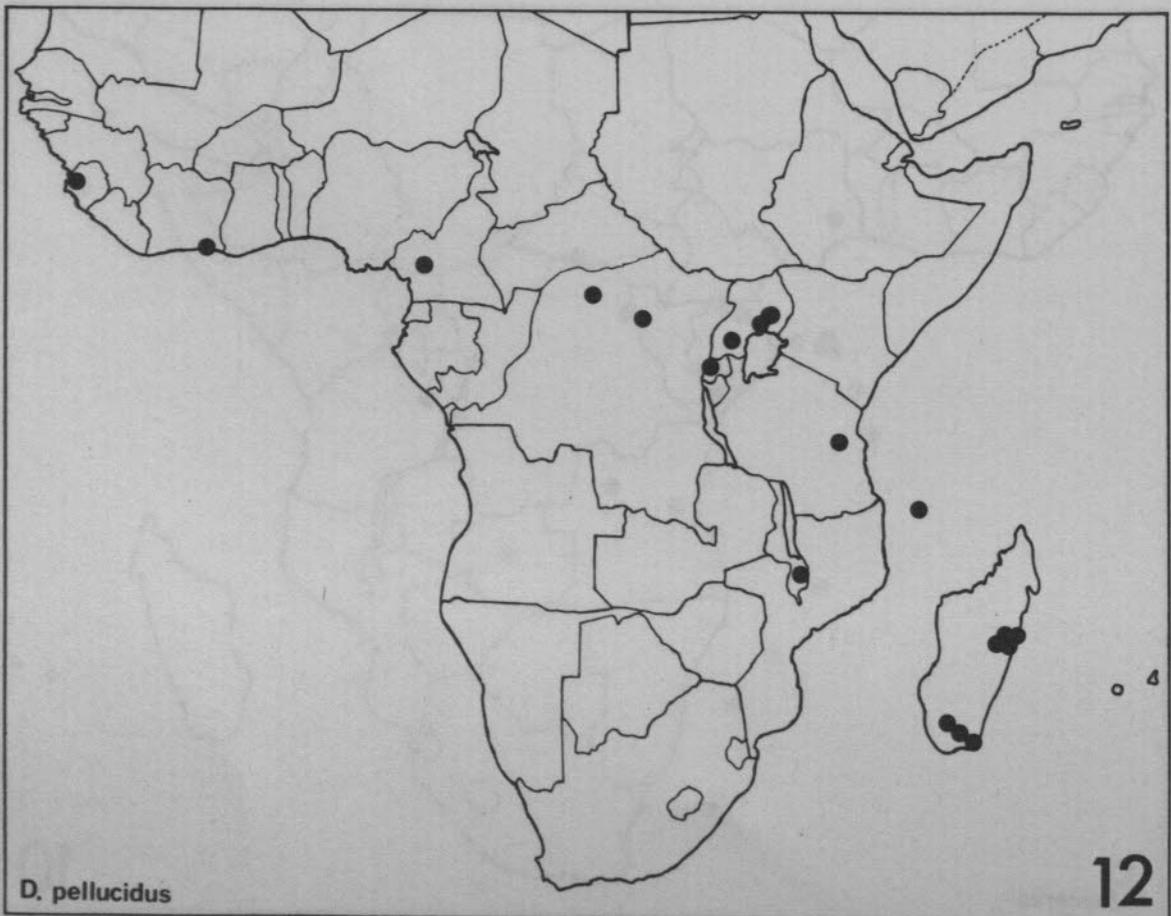
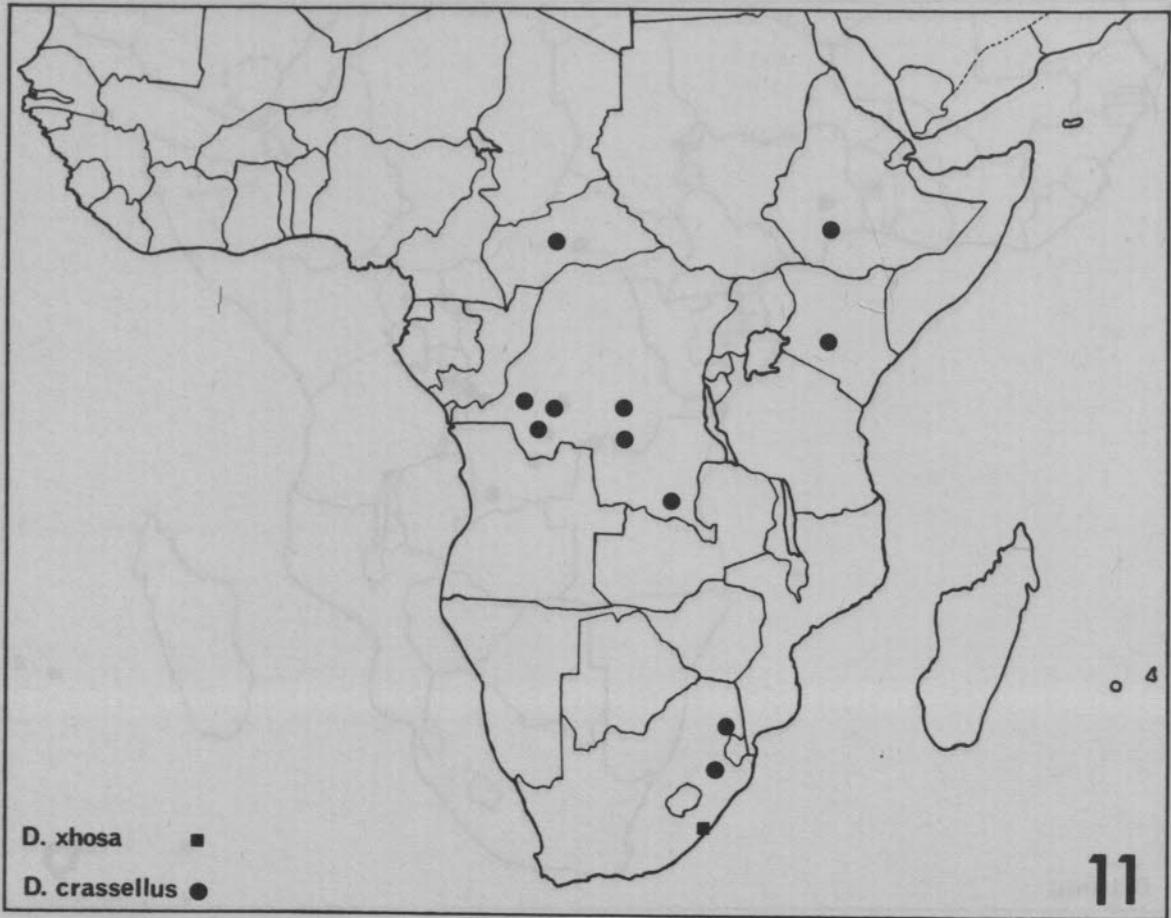


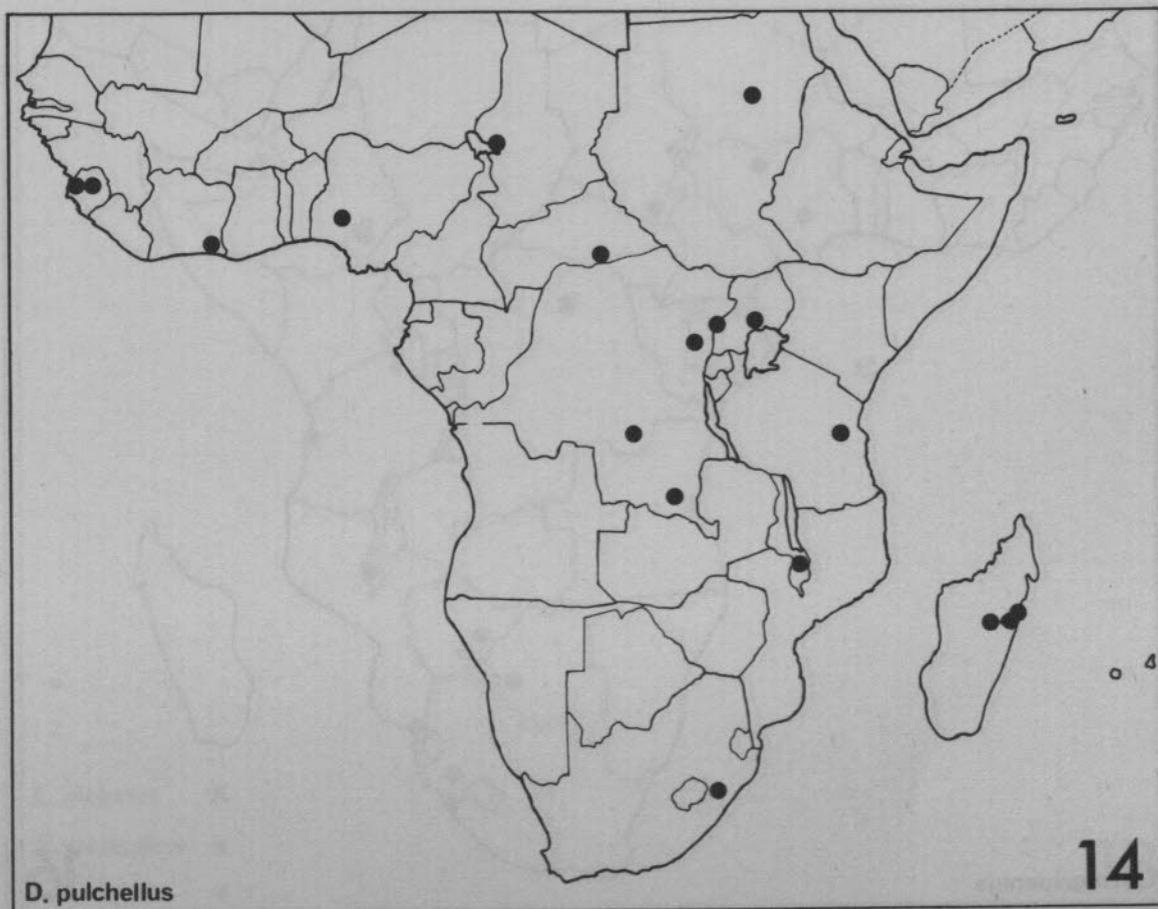
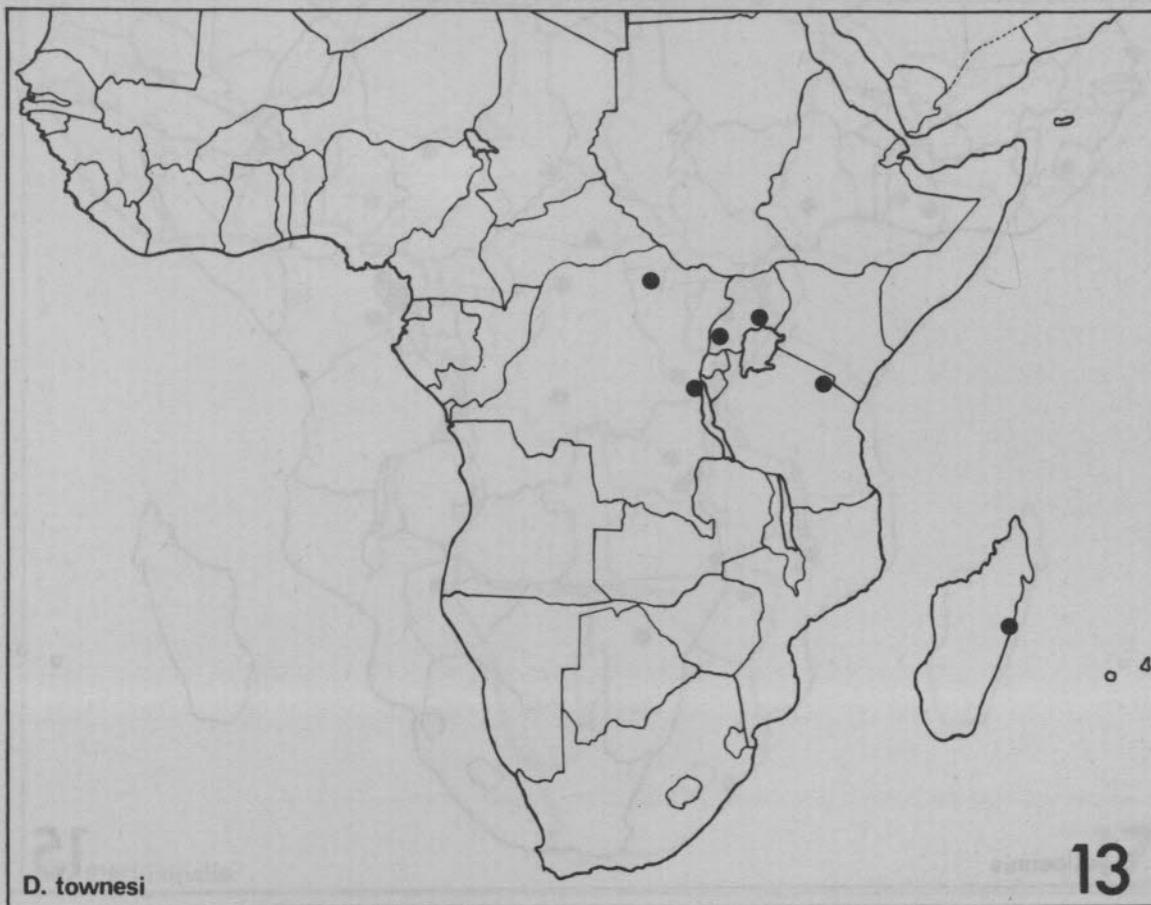


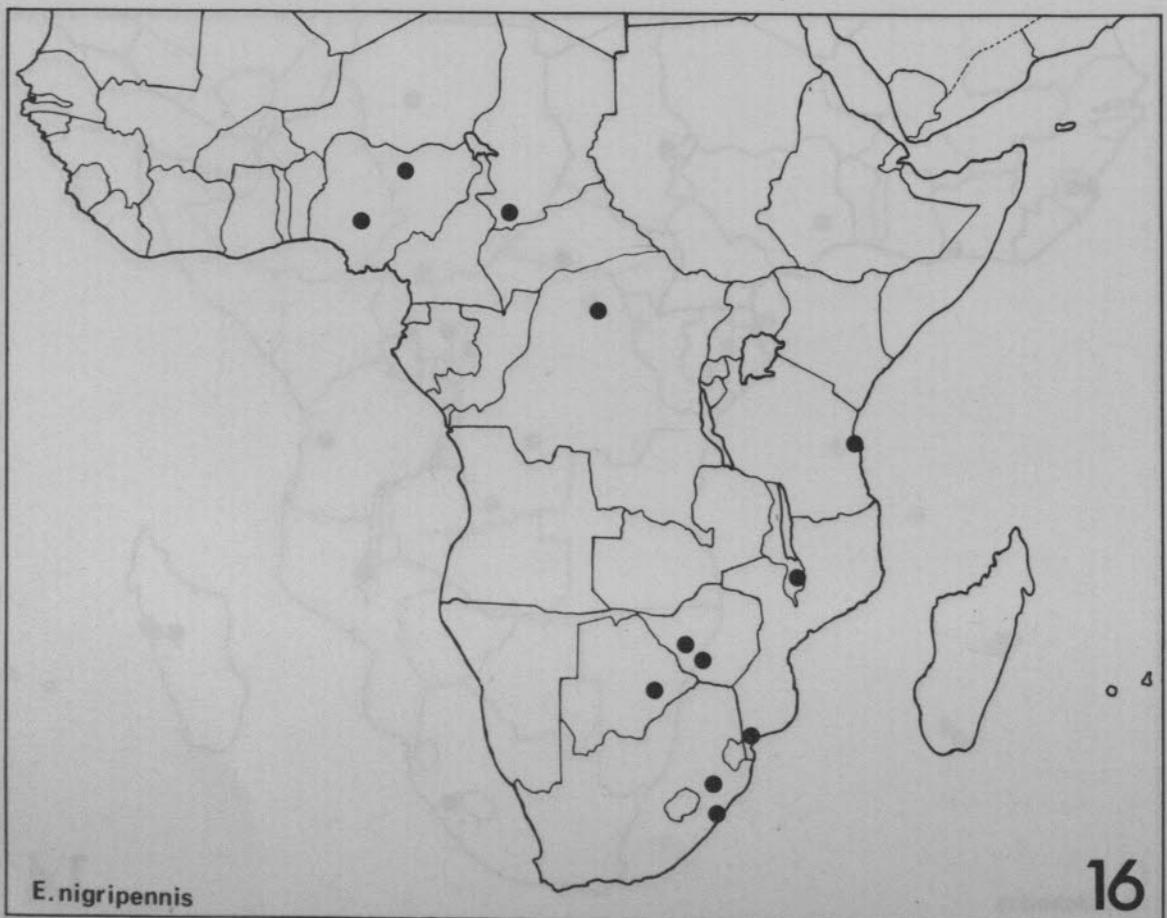
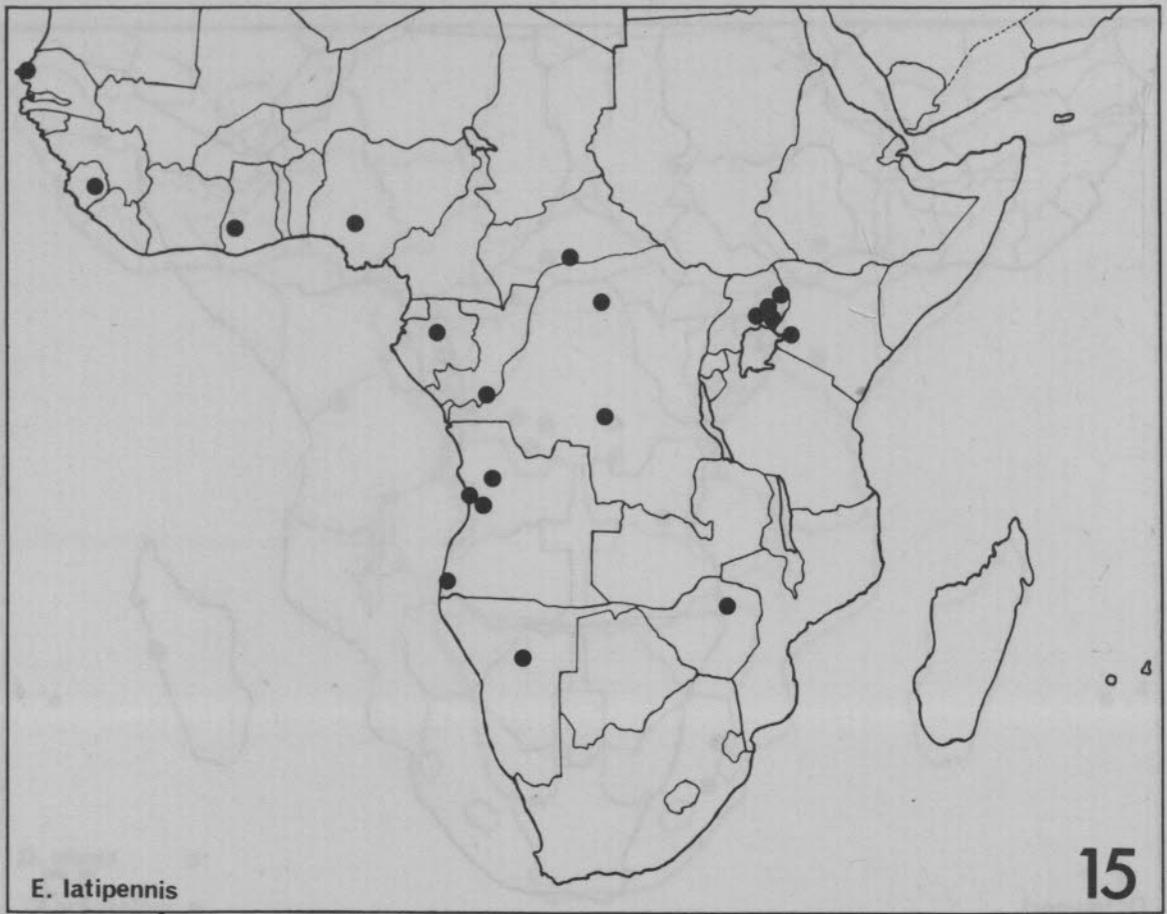
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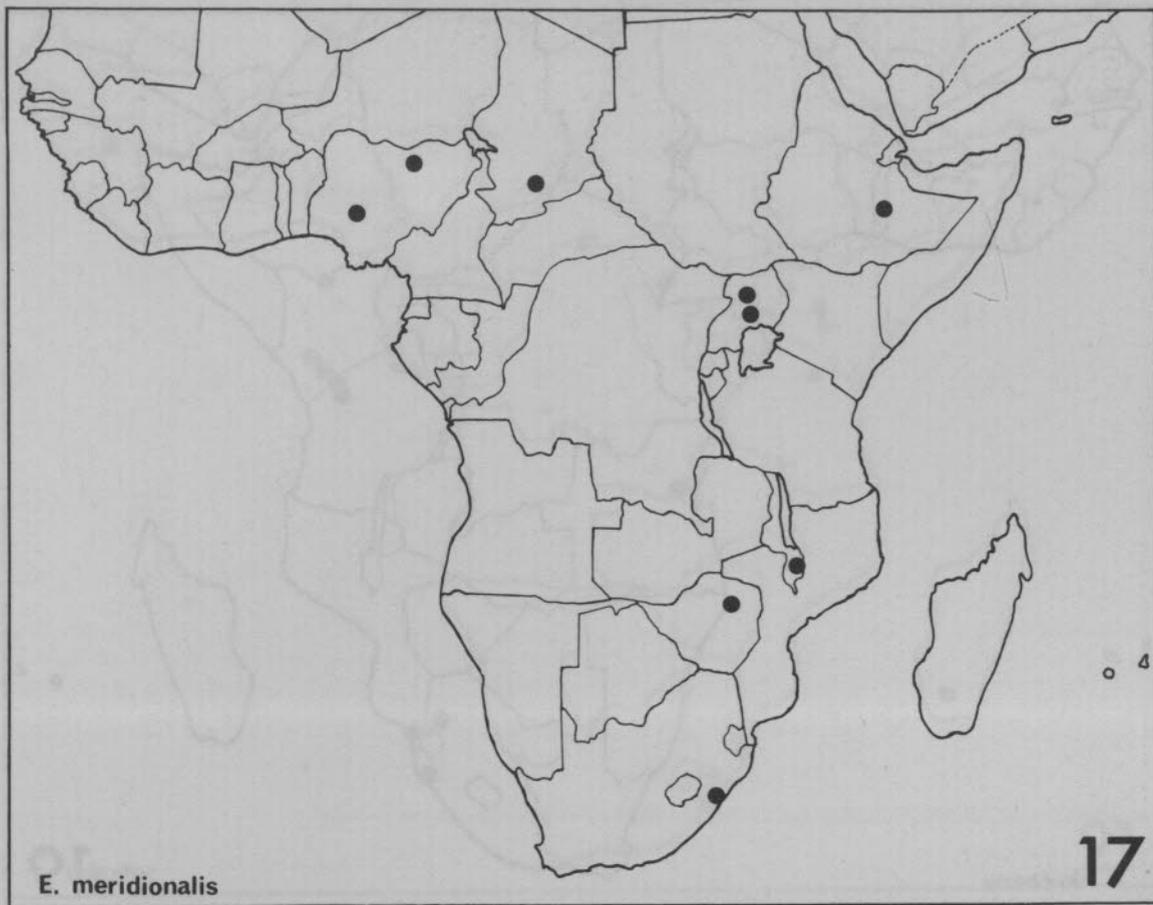


D. kelnerae

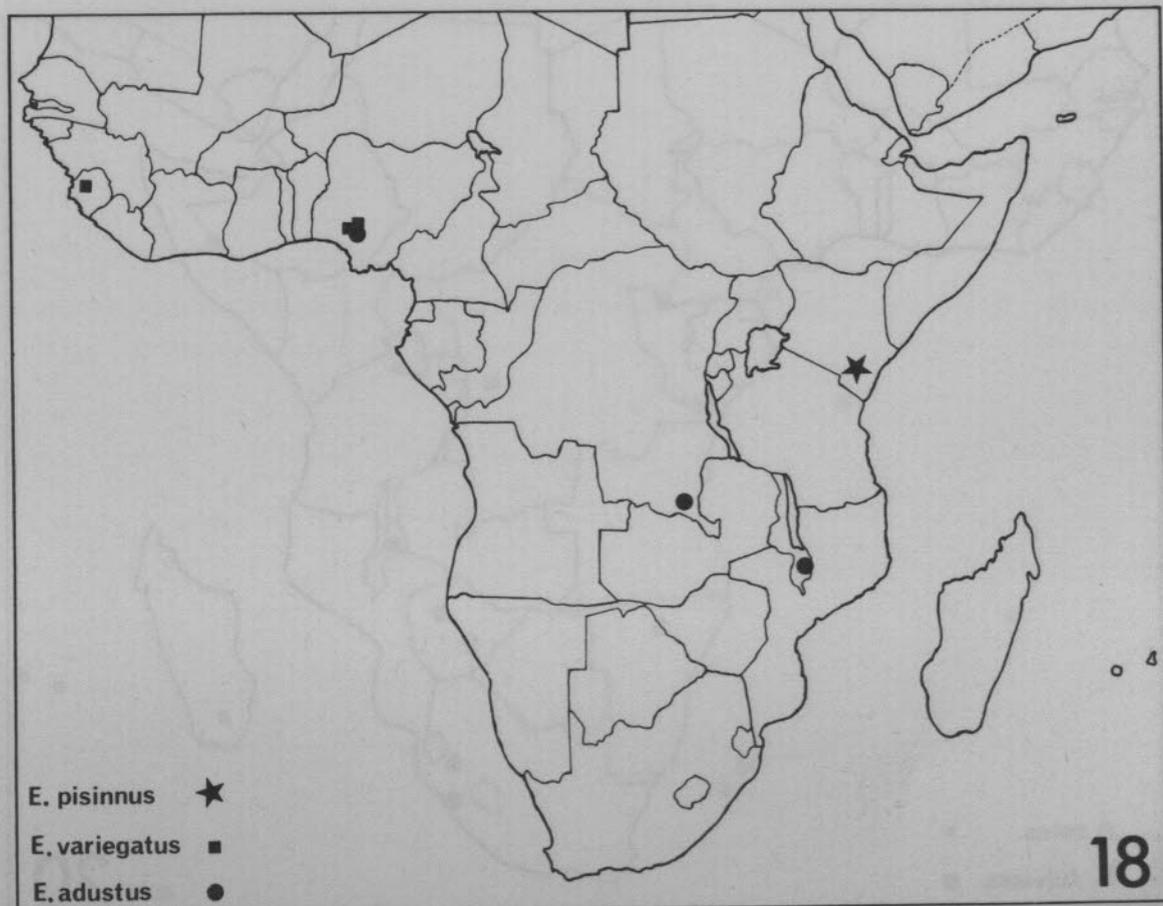




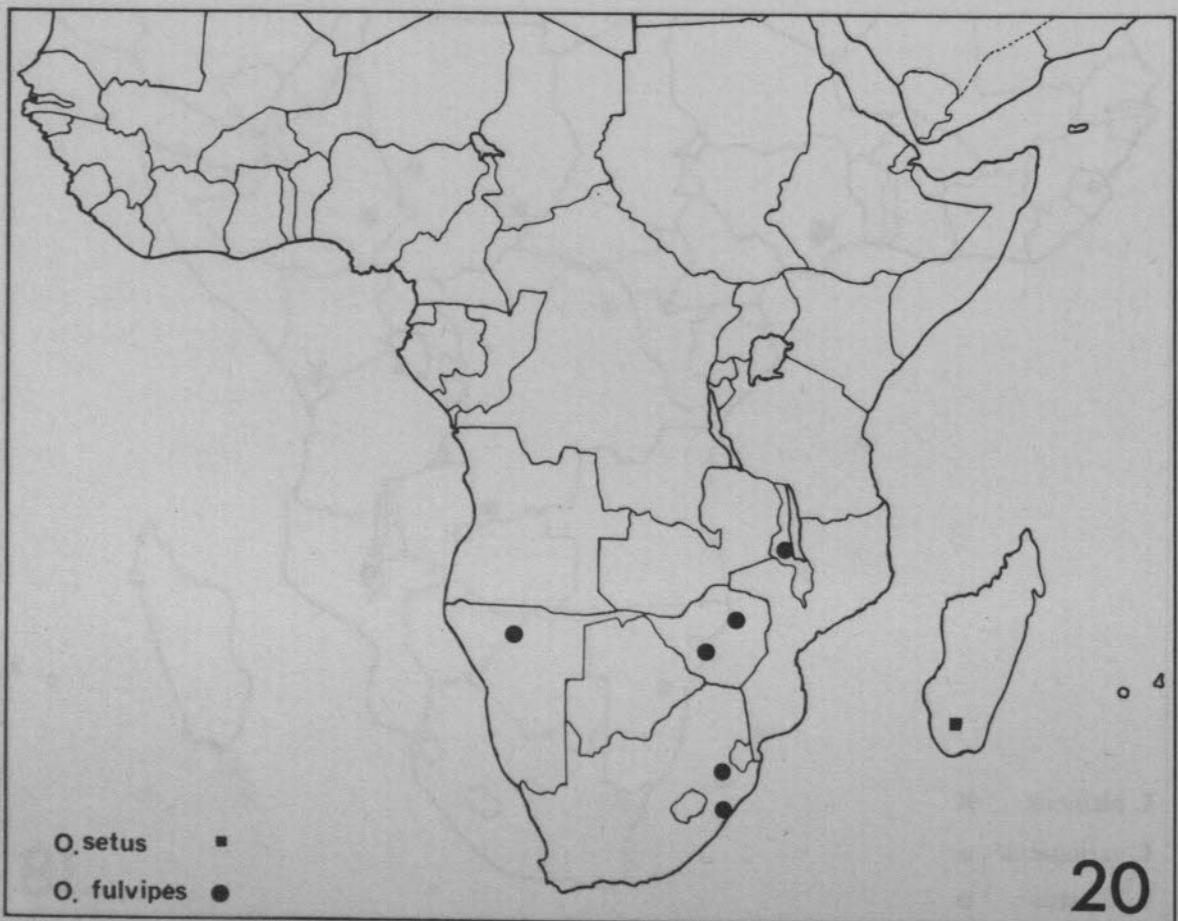
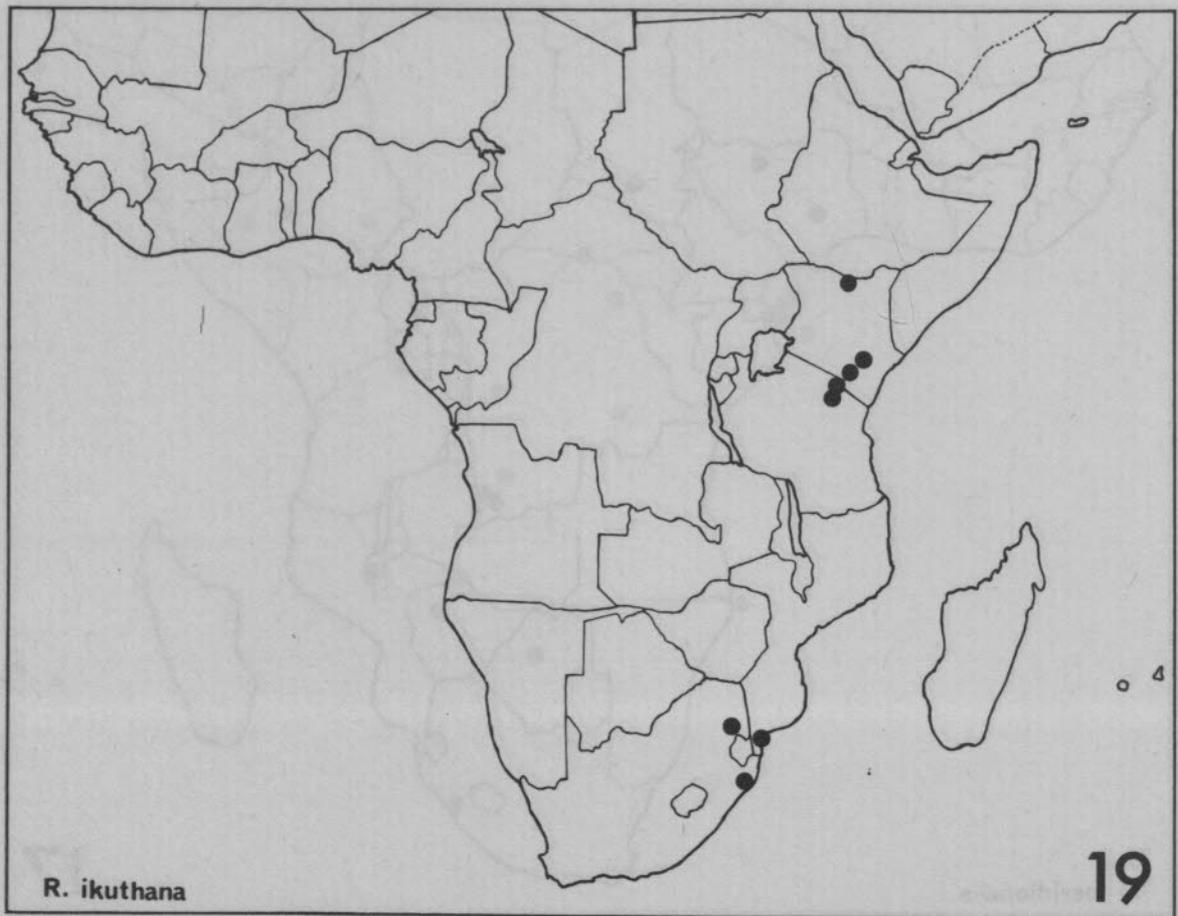


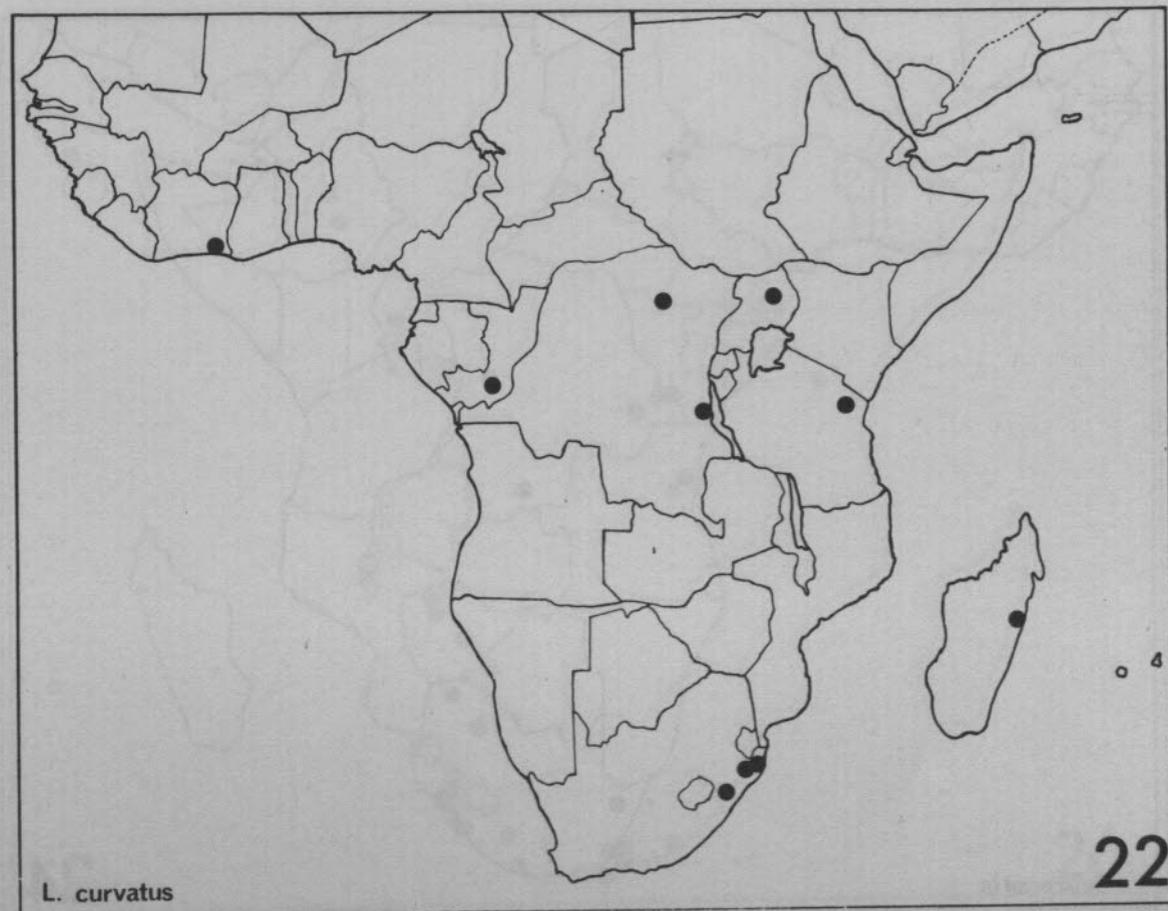
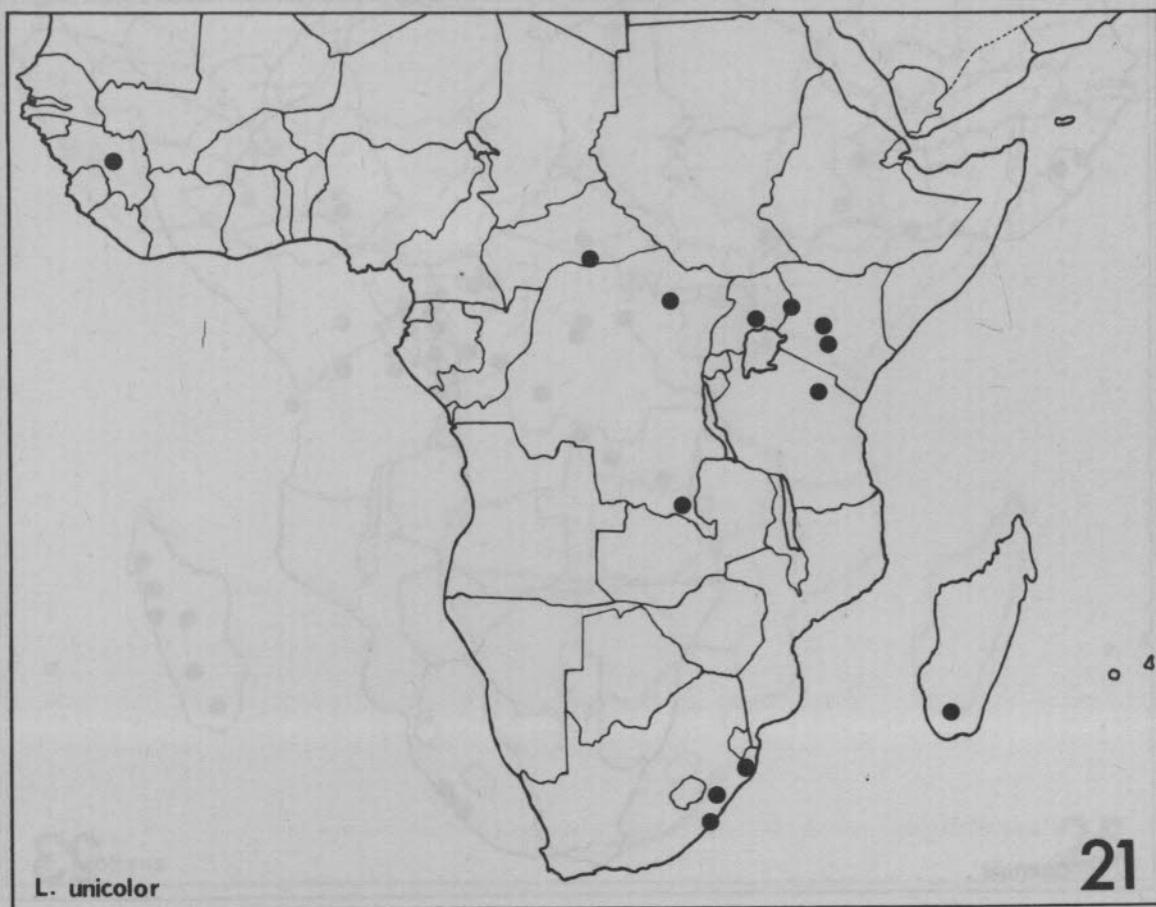


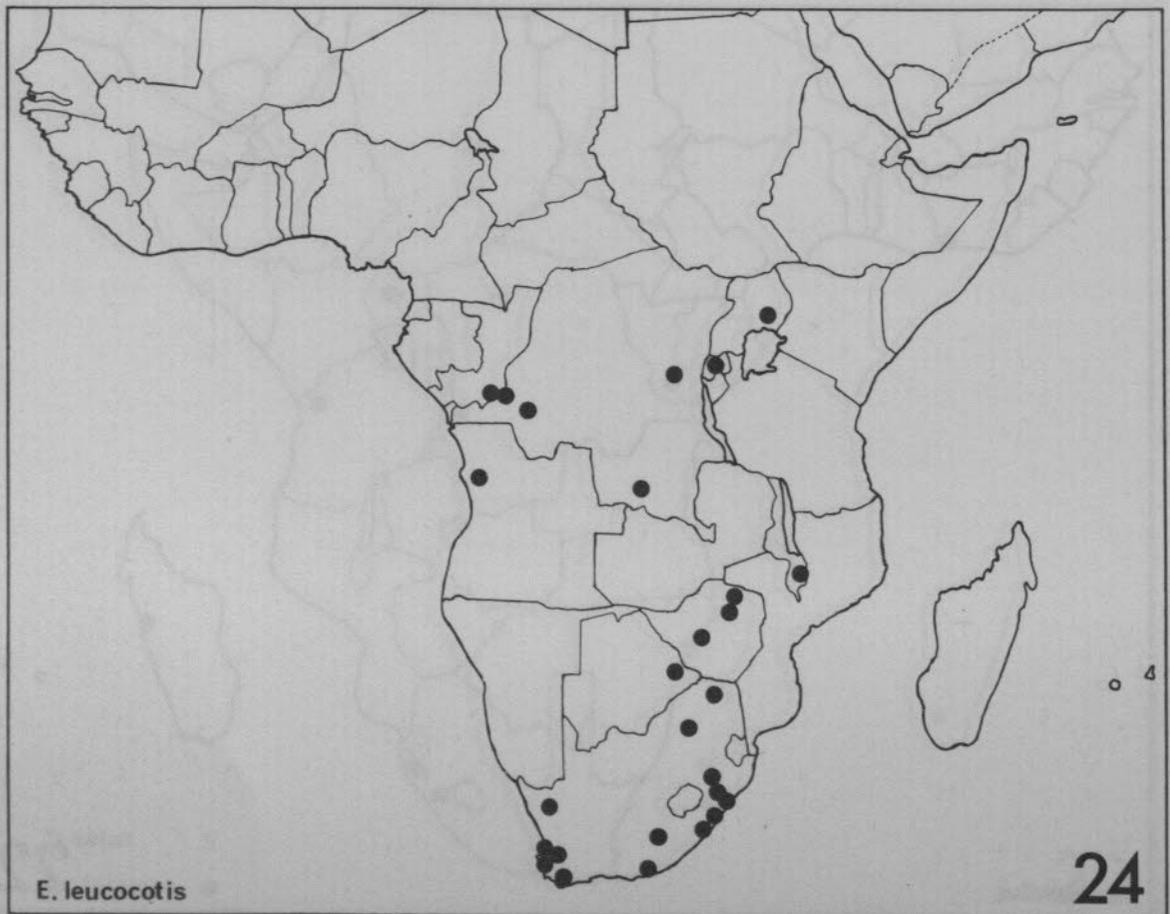
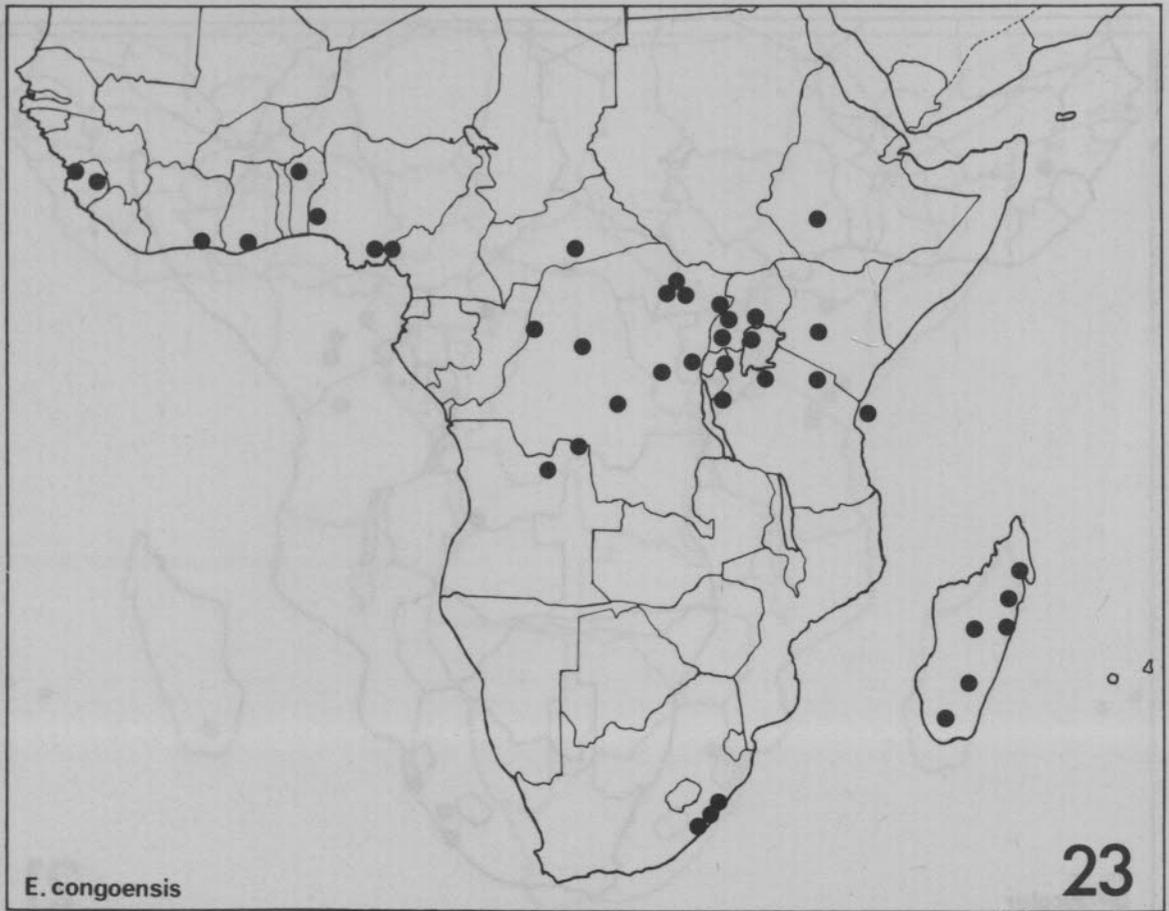
E. meridionalis

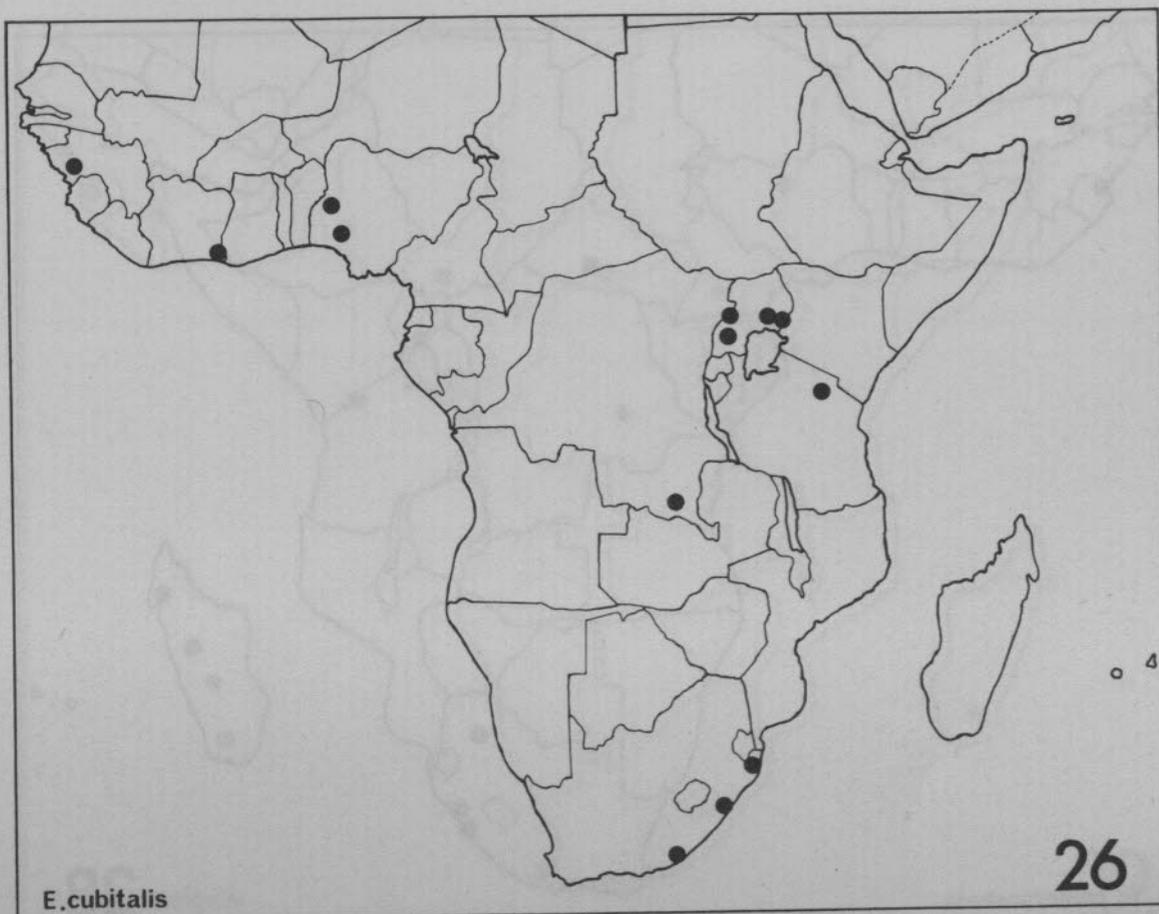
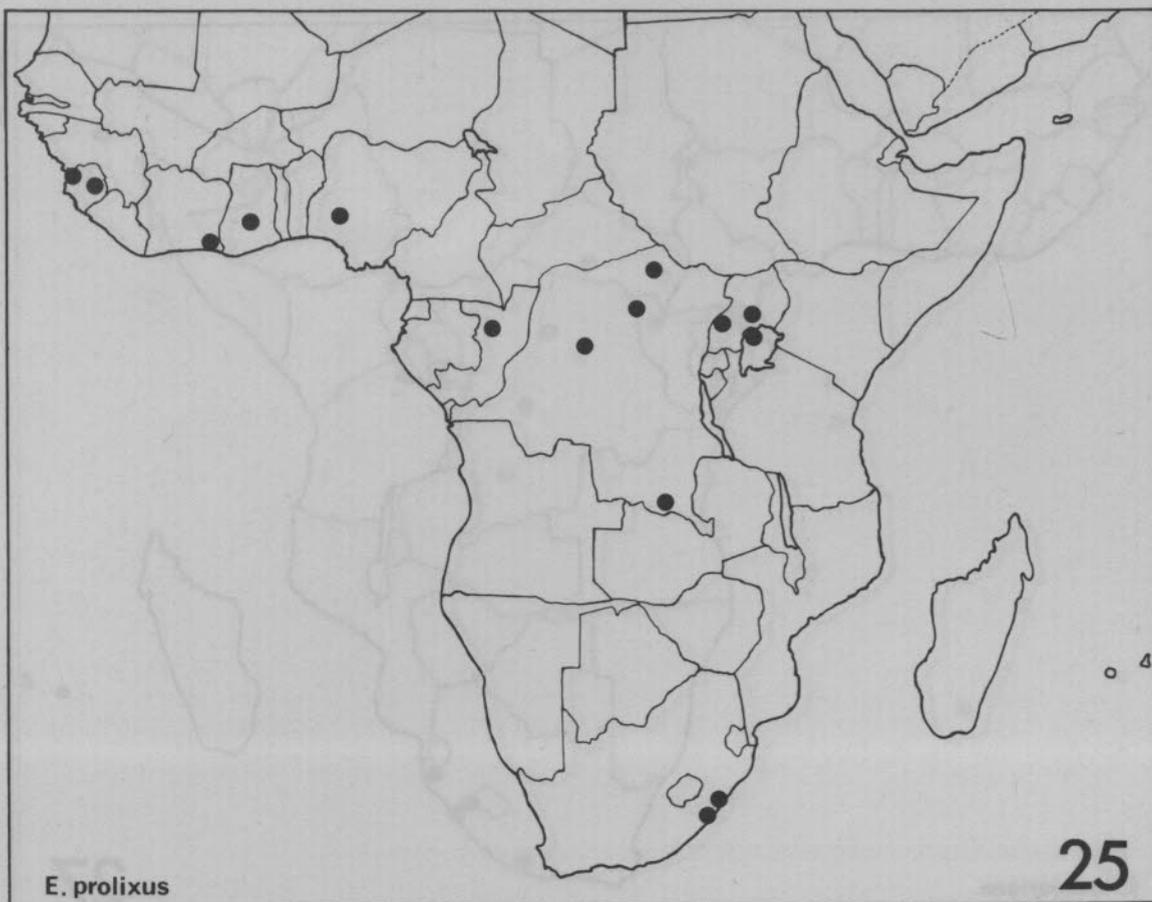


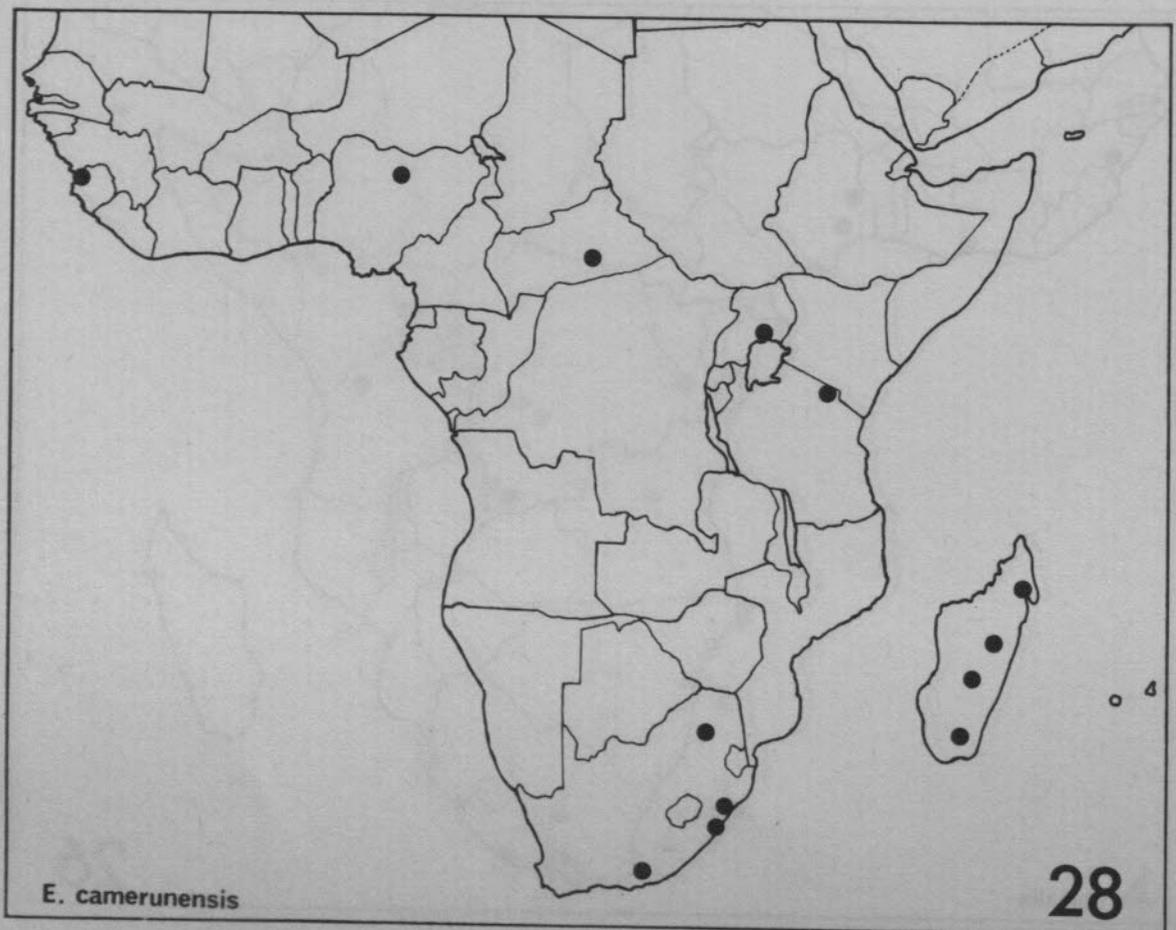
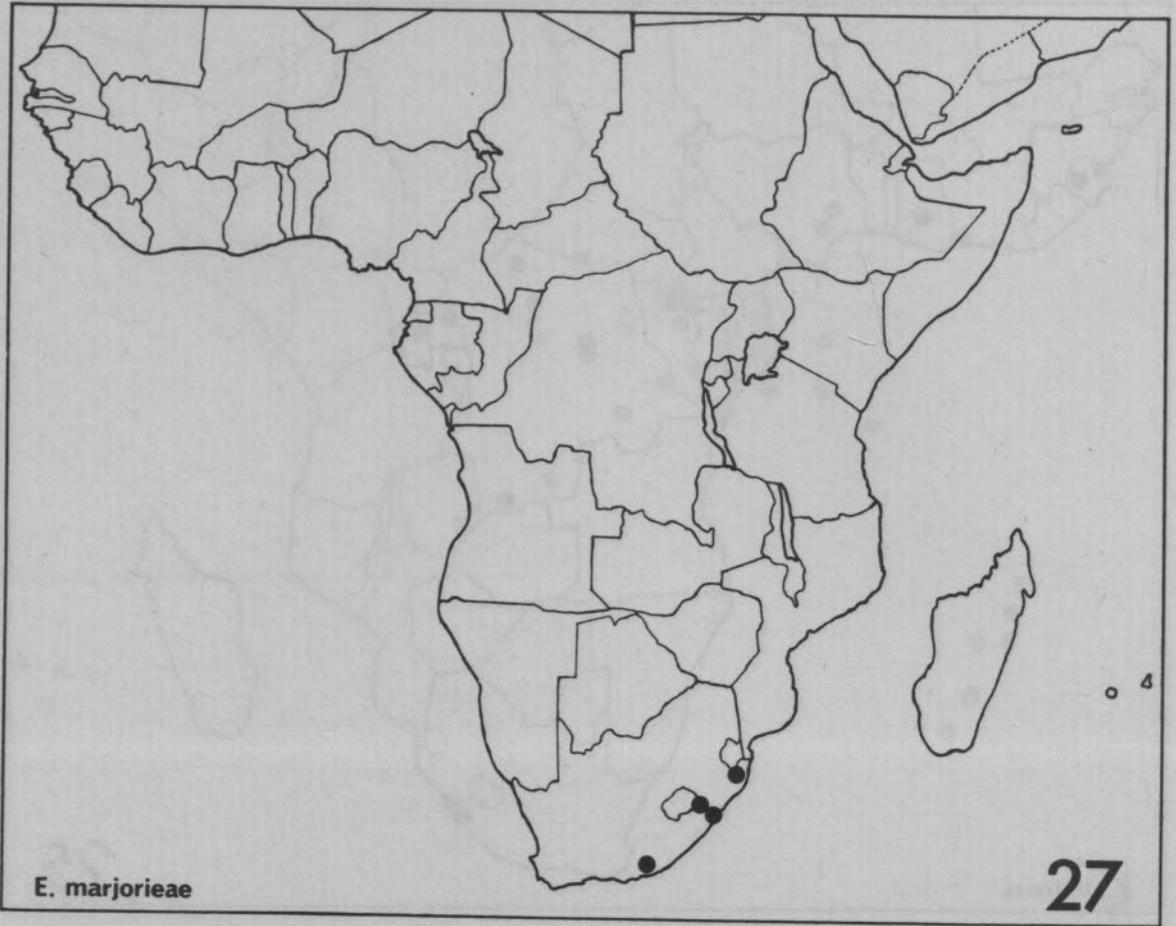
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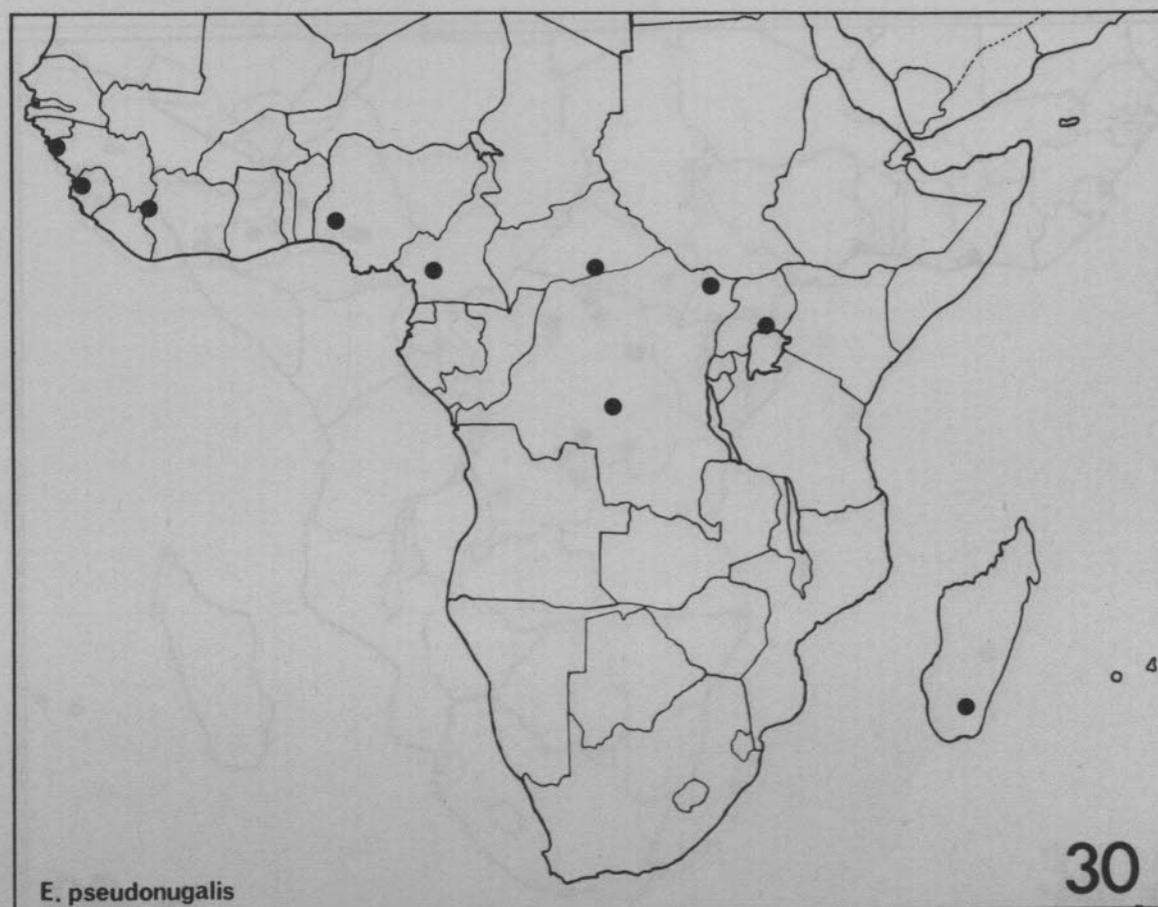
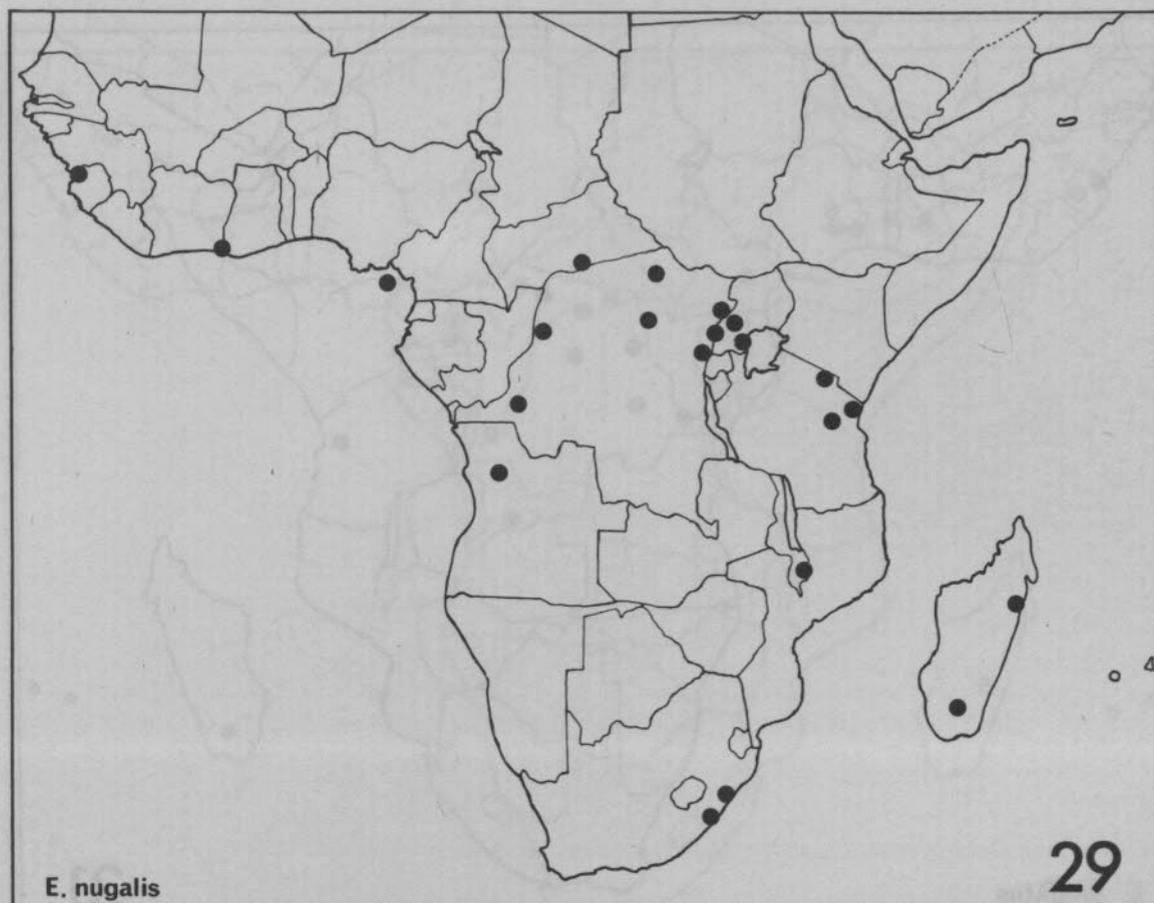


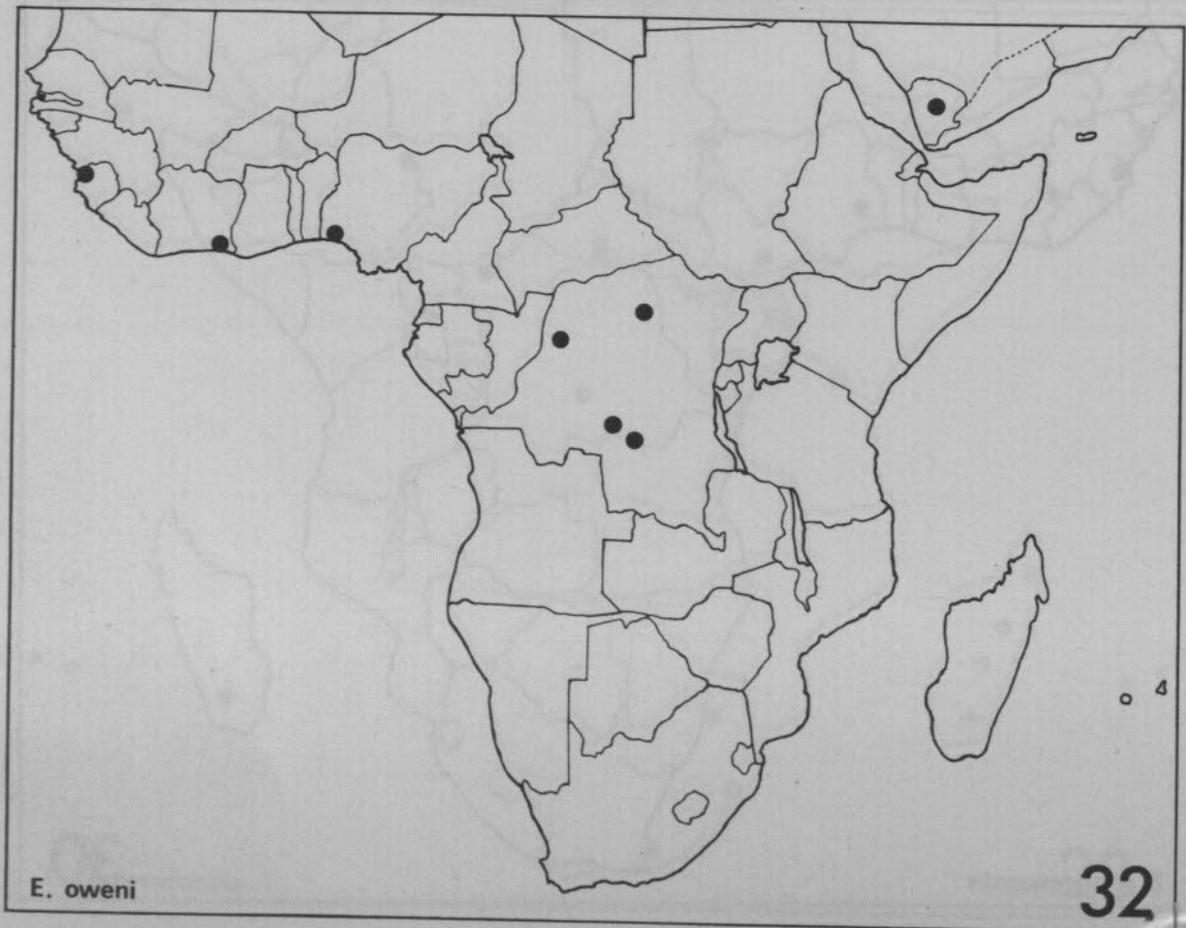
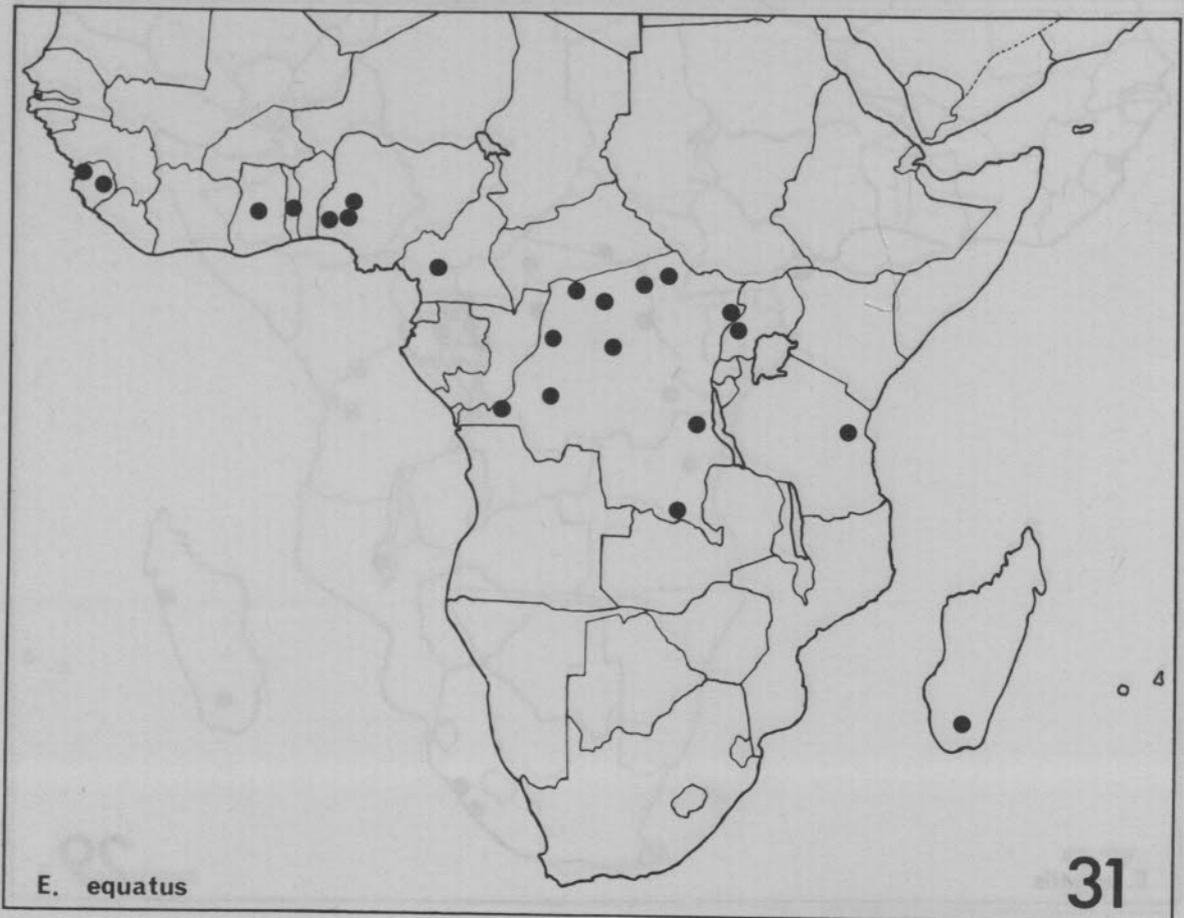


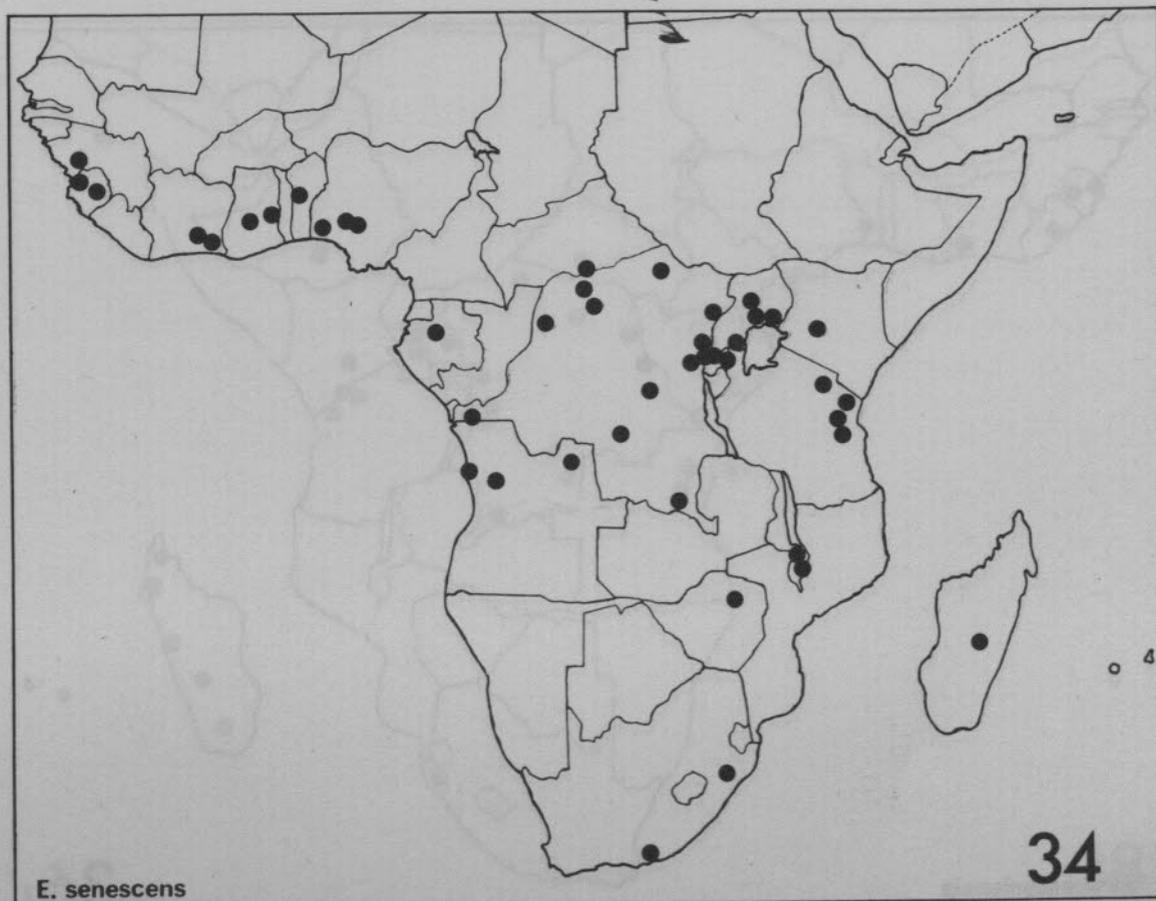
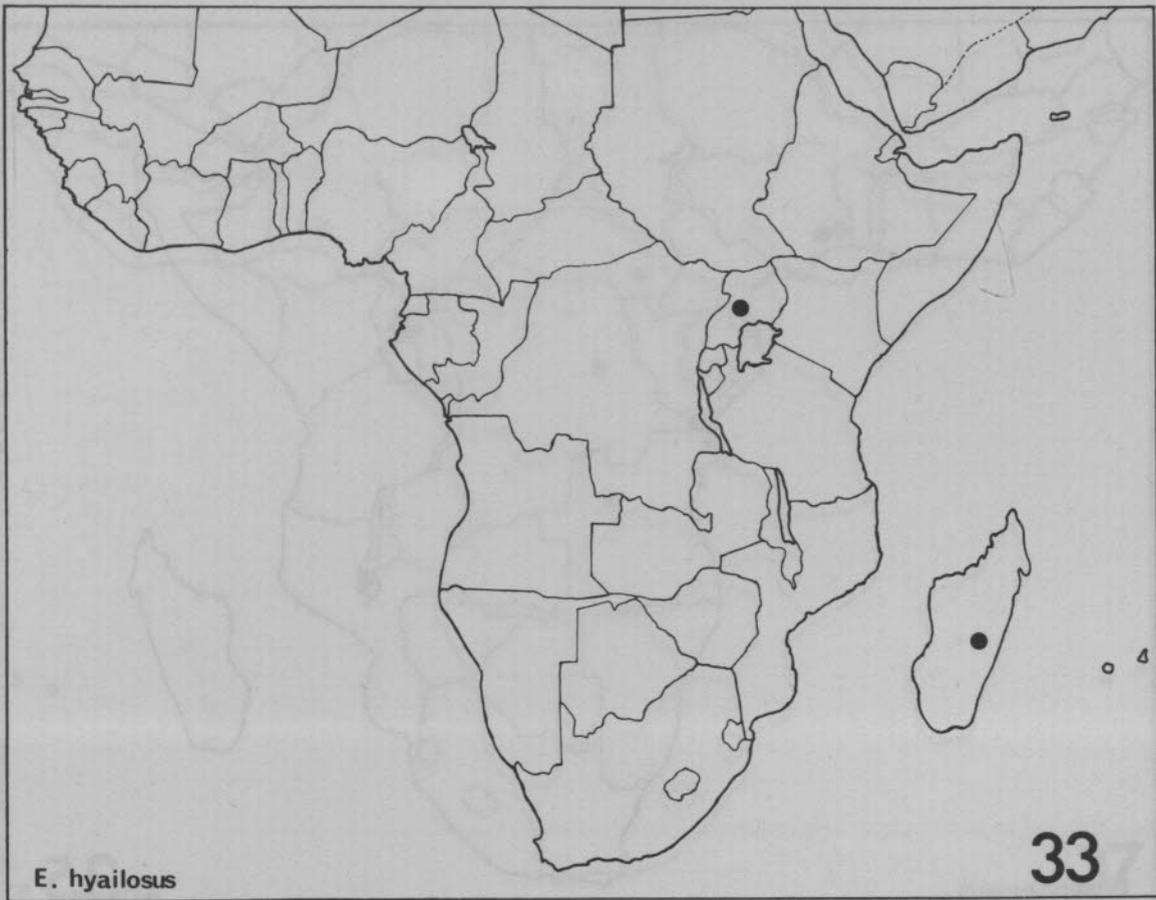


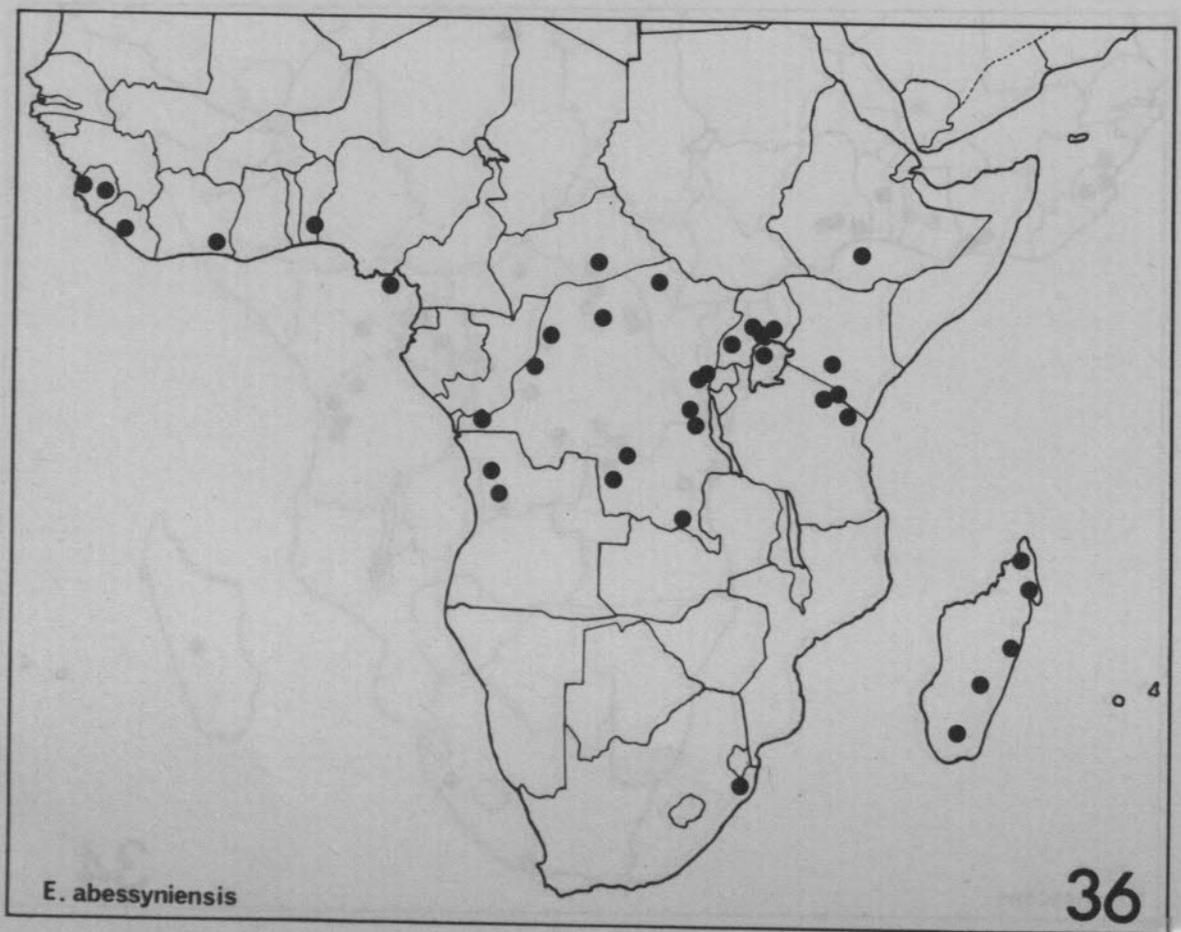
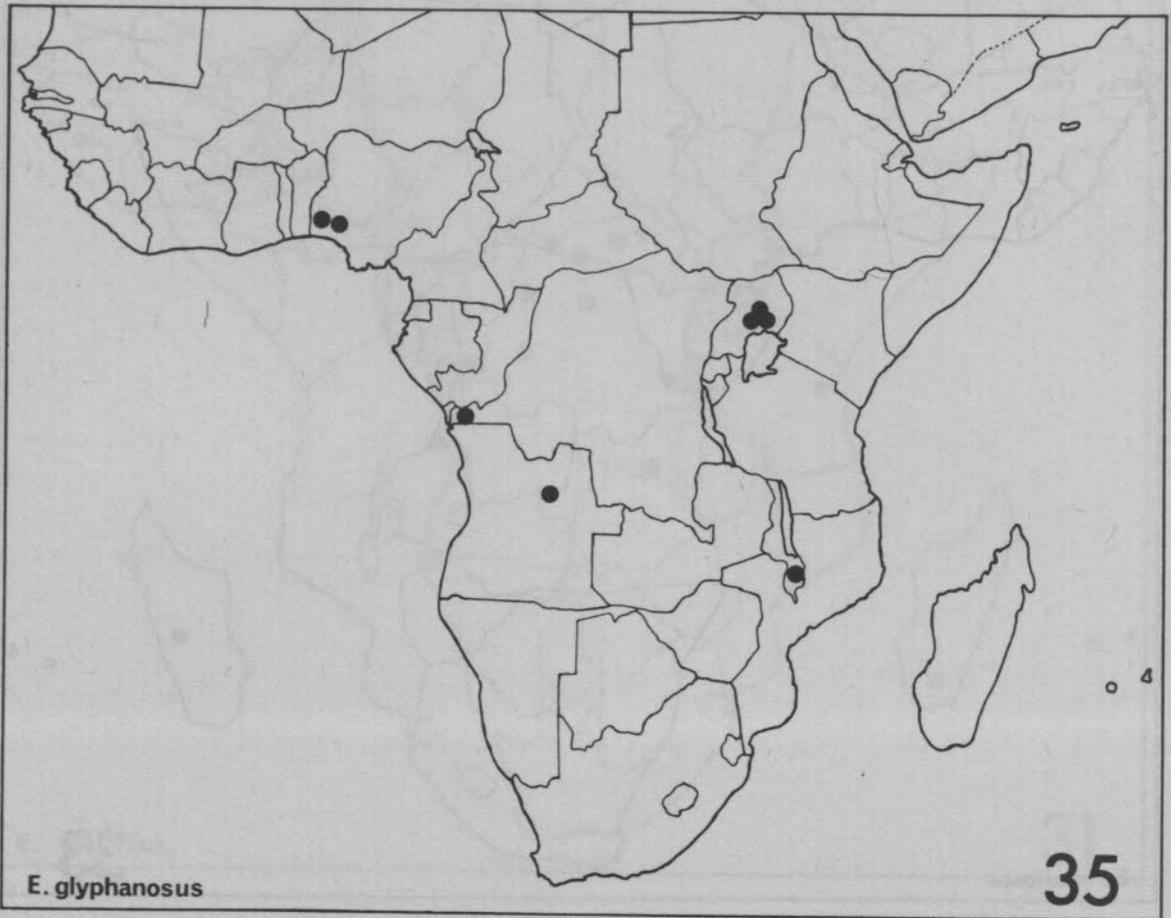


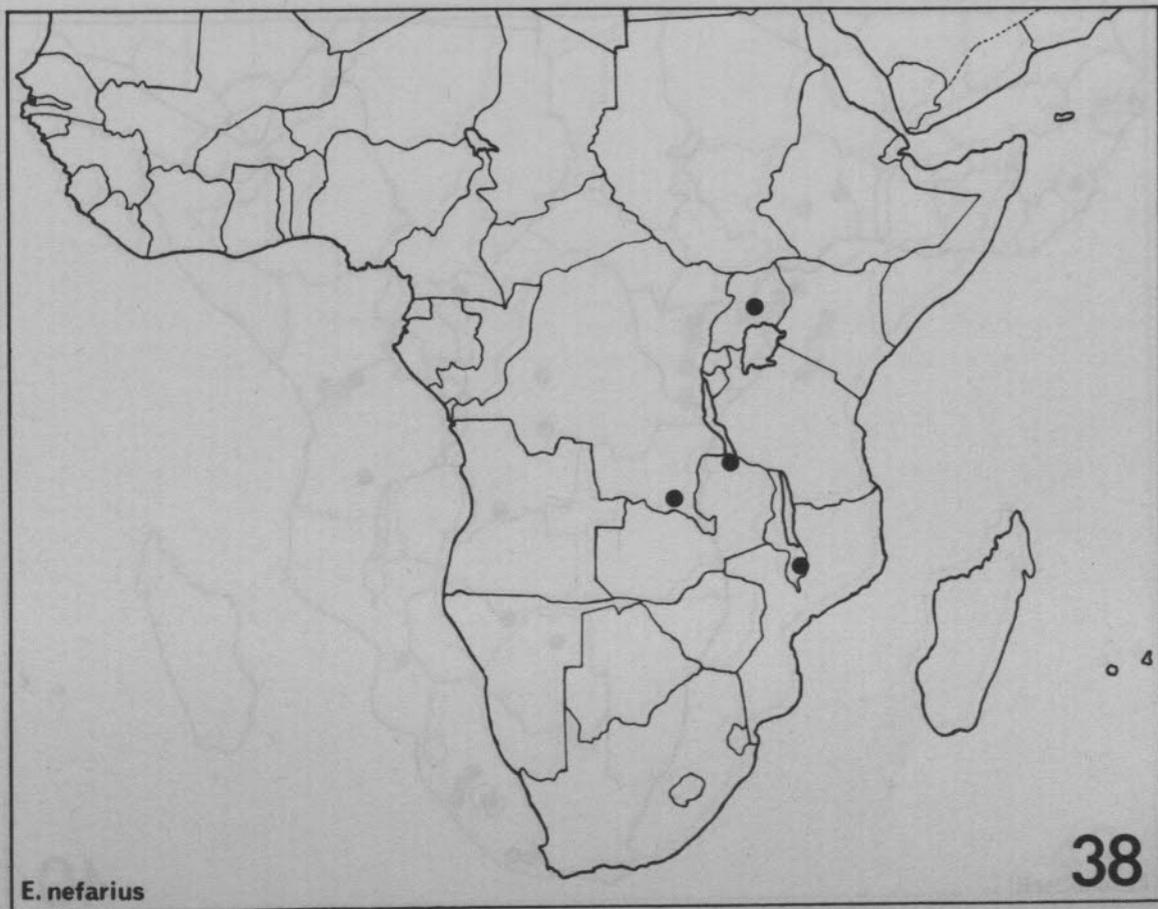
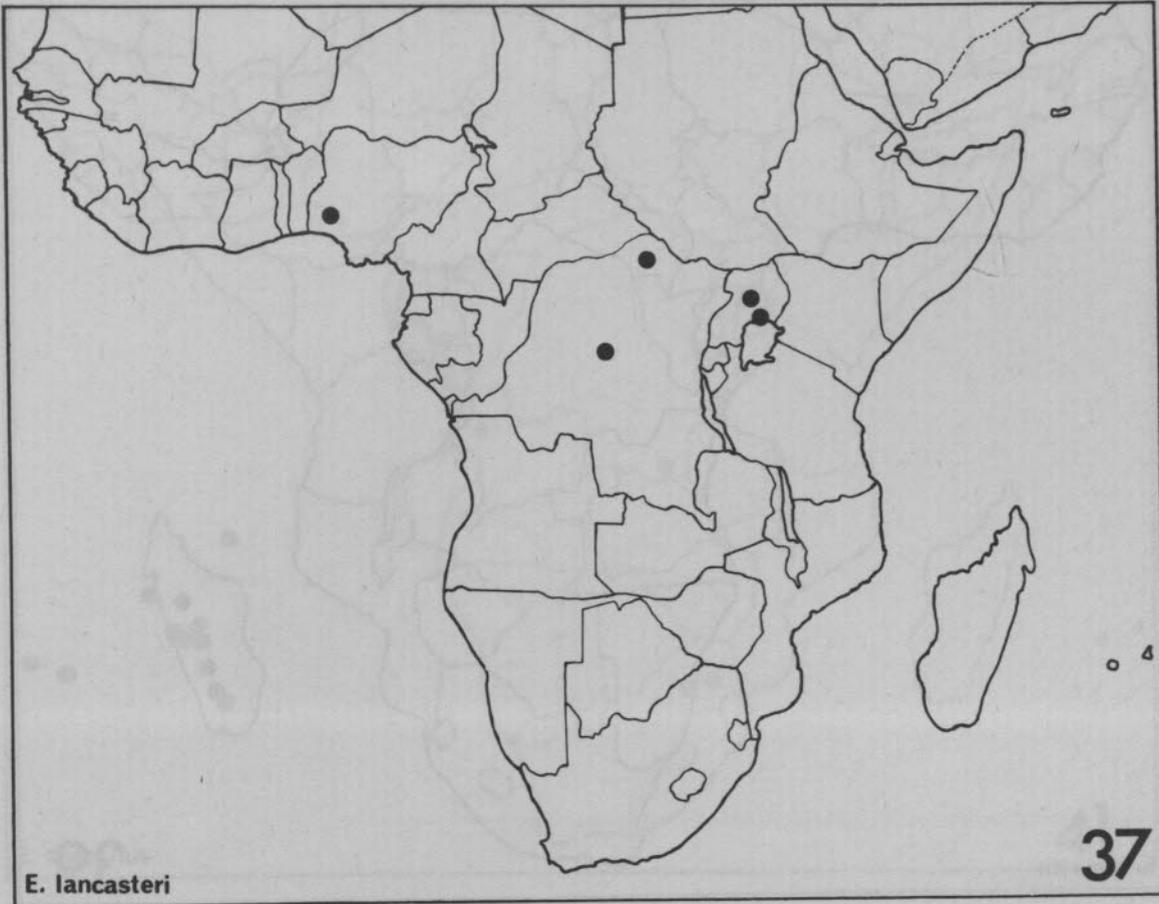


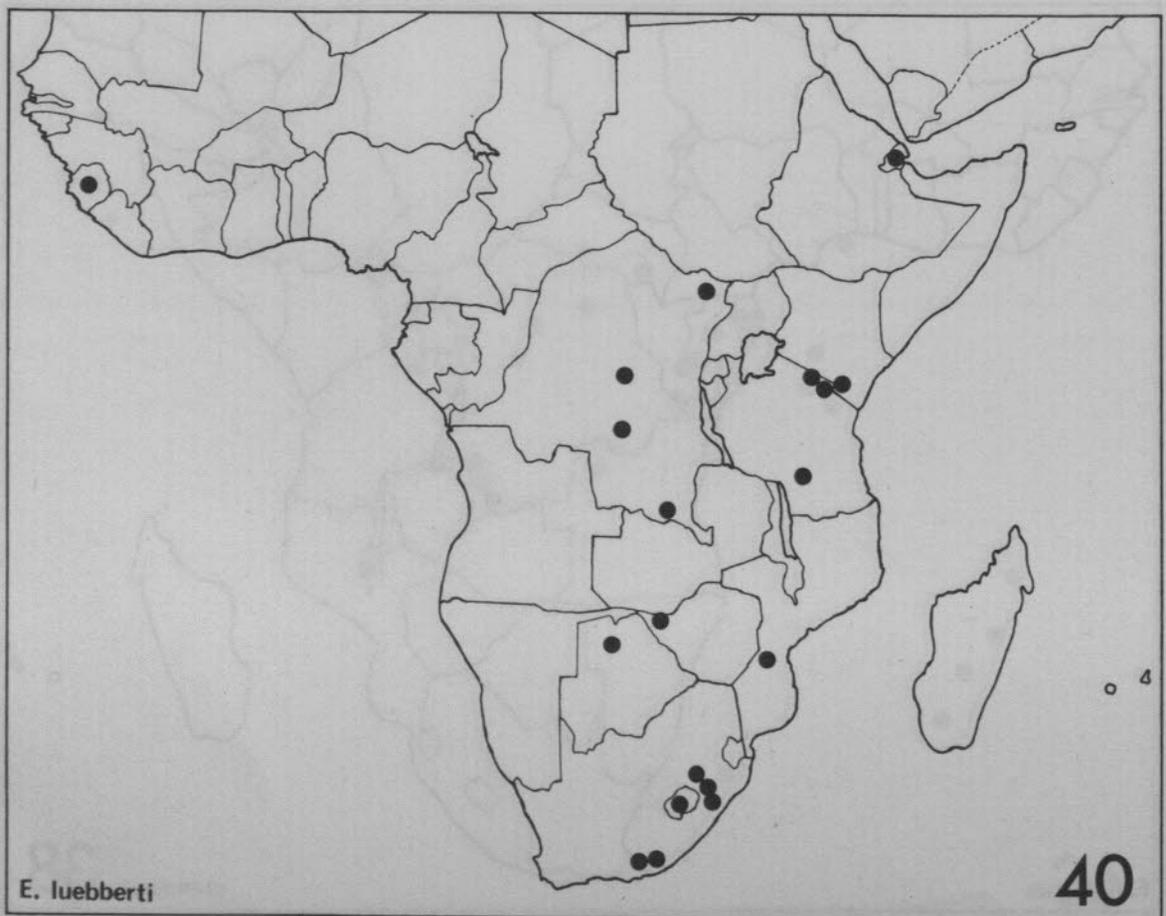
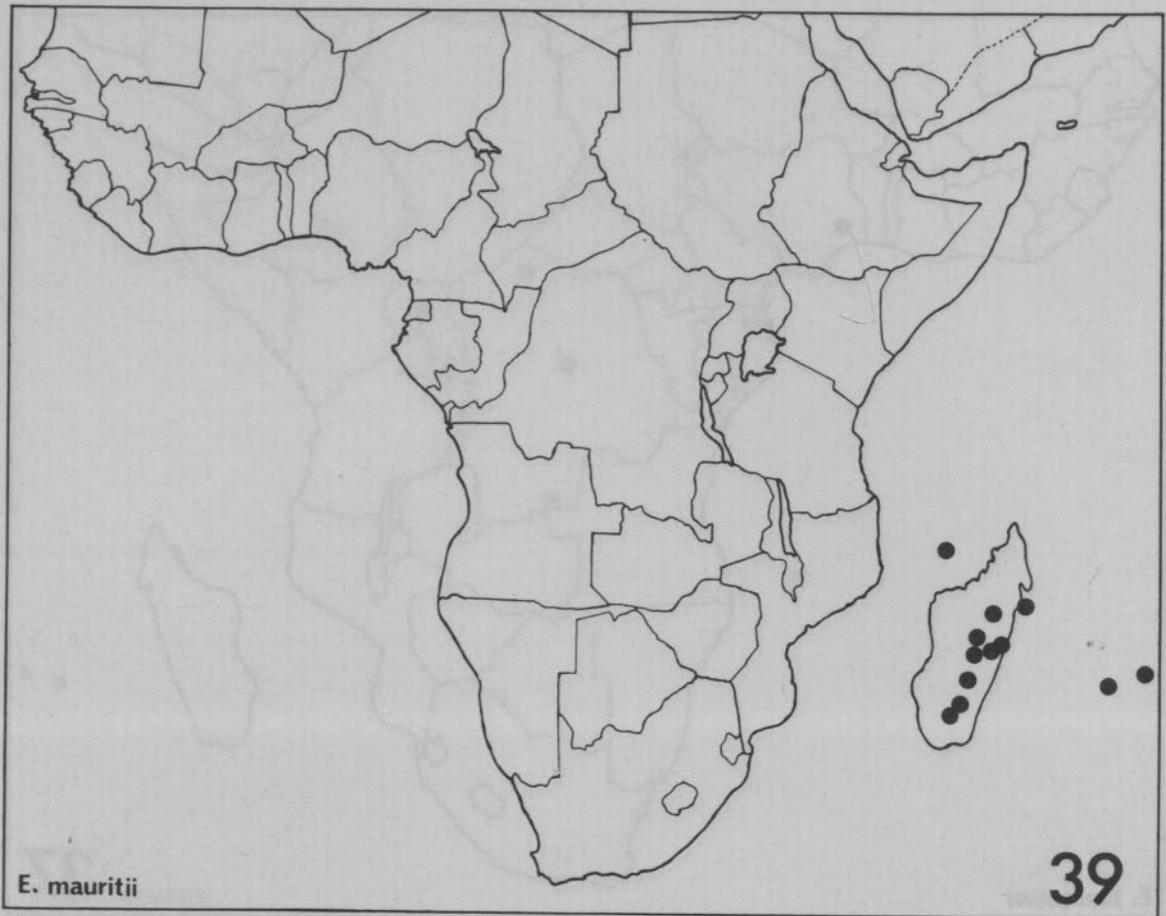


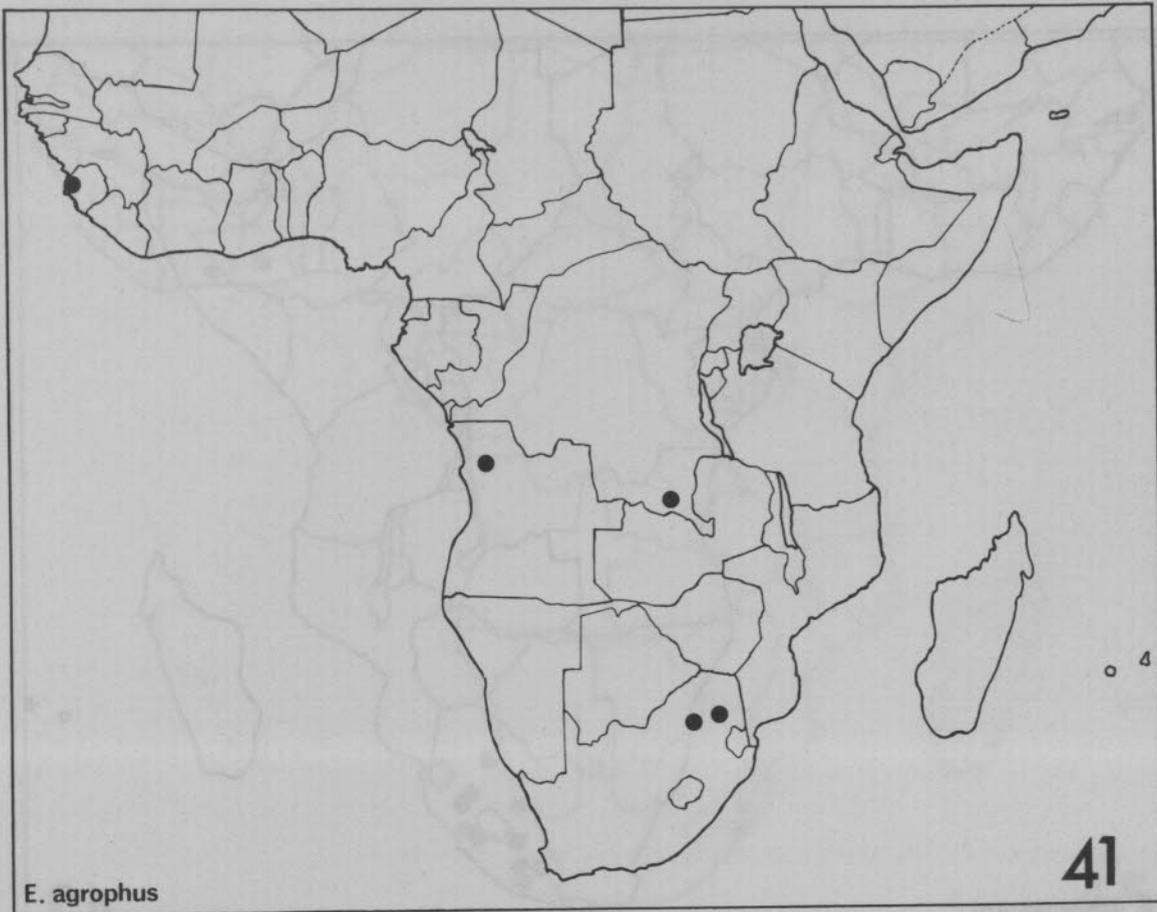




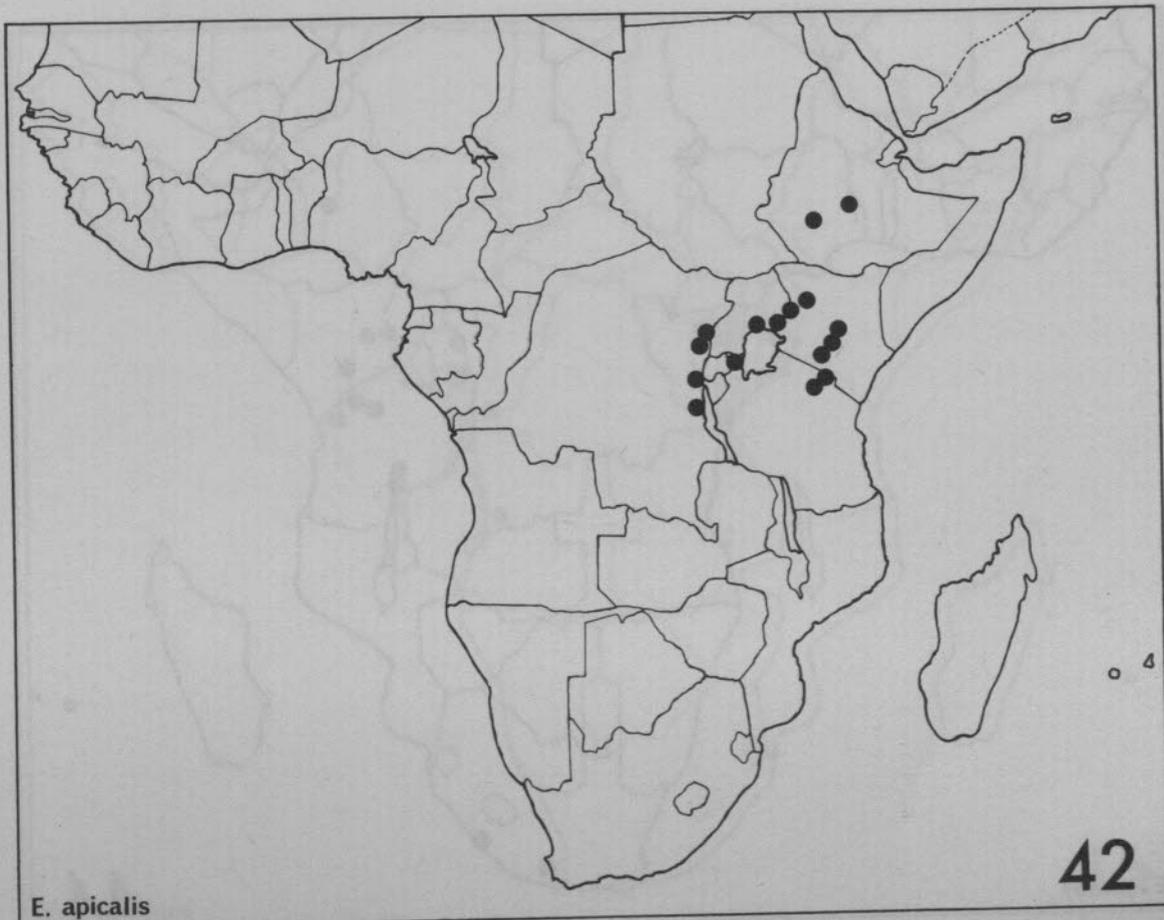




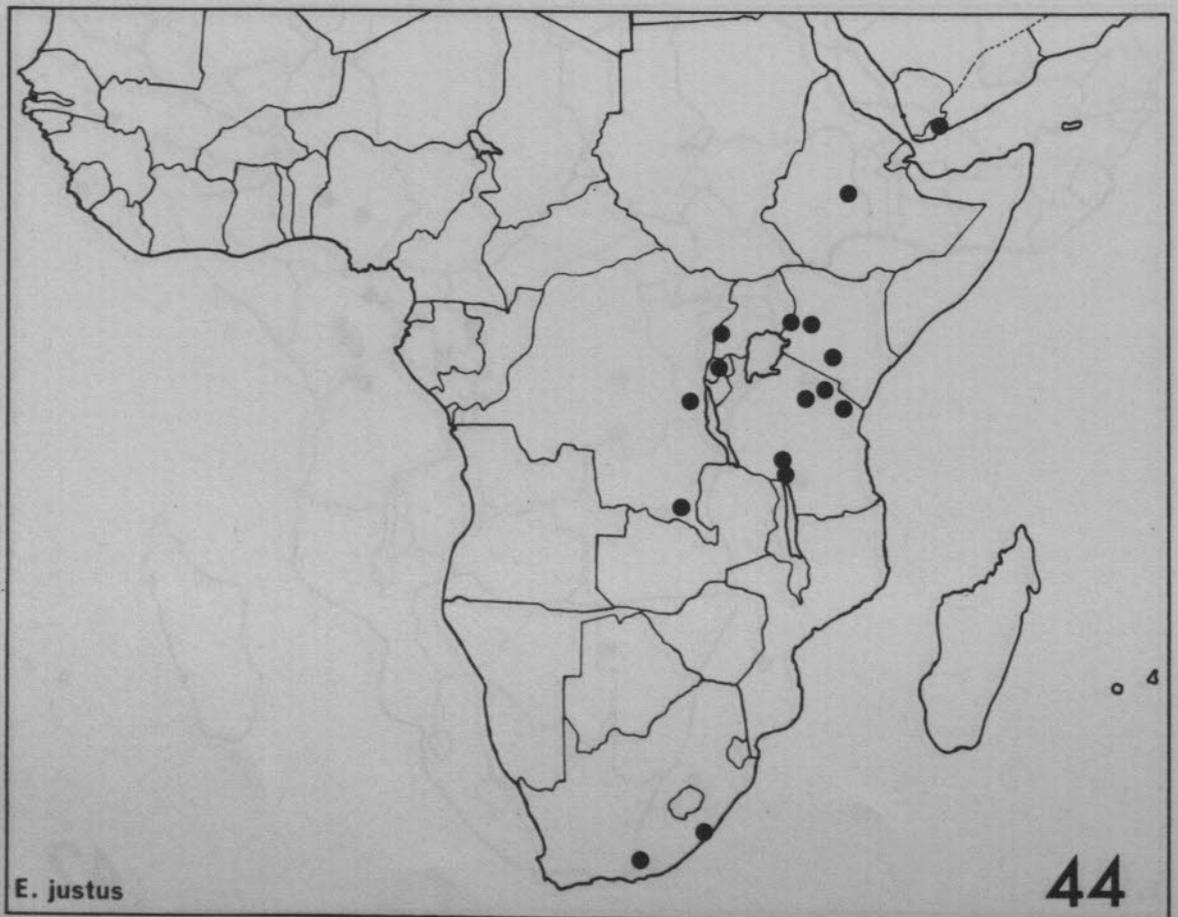
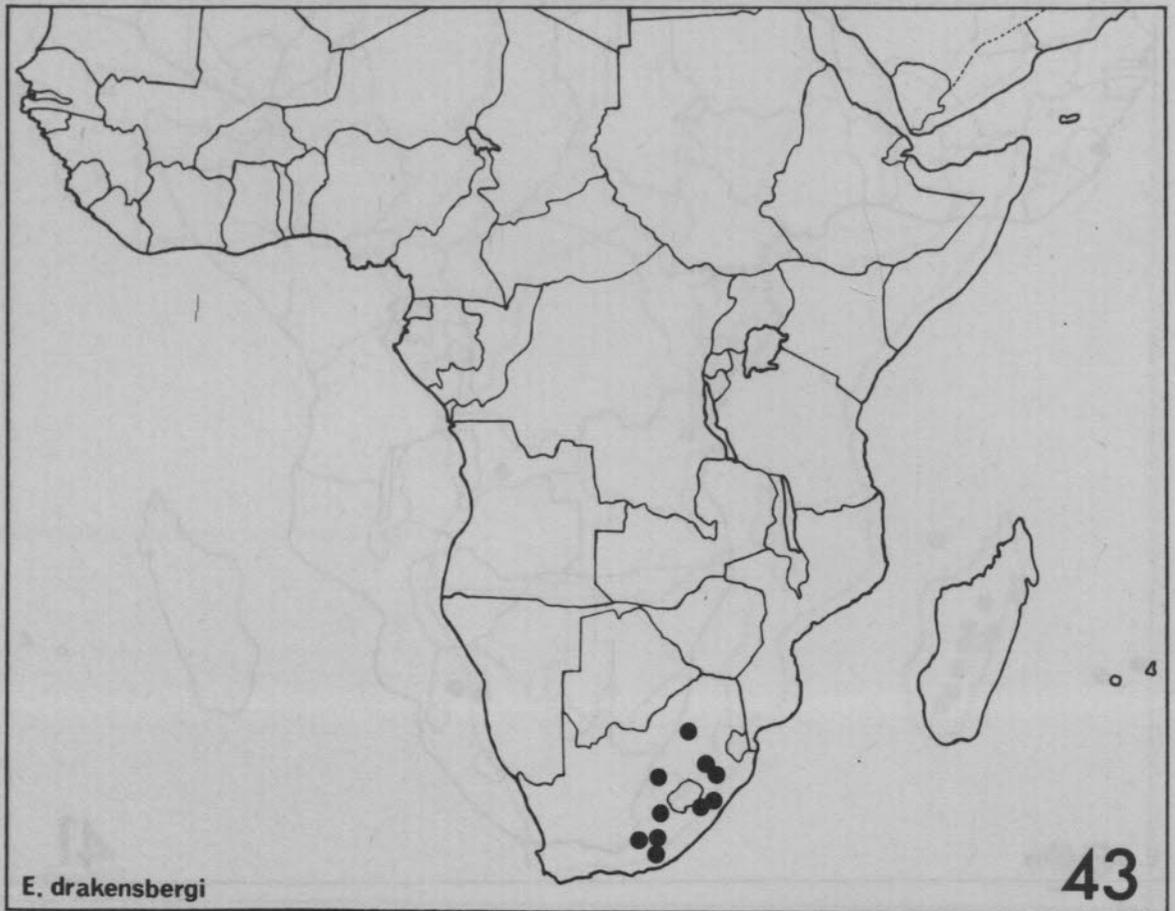


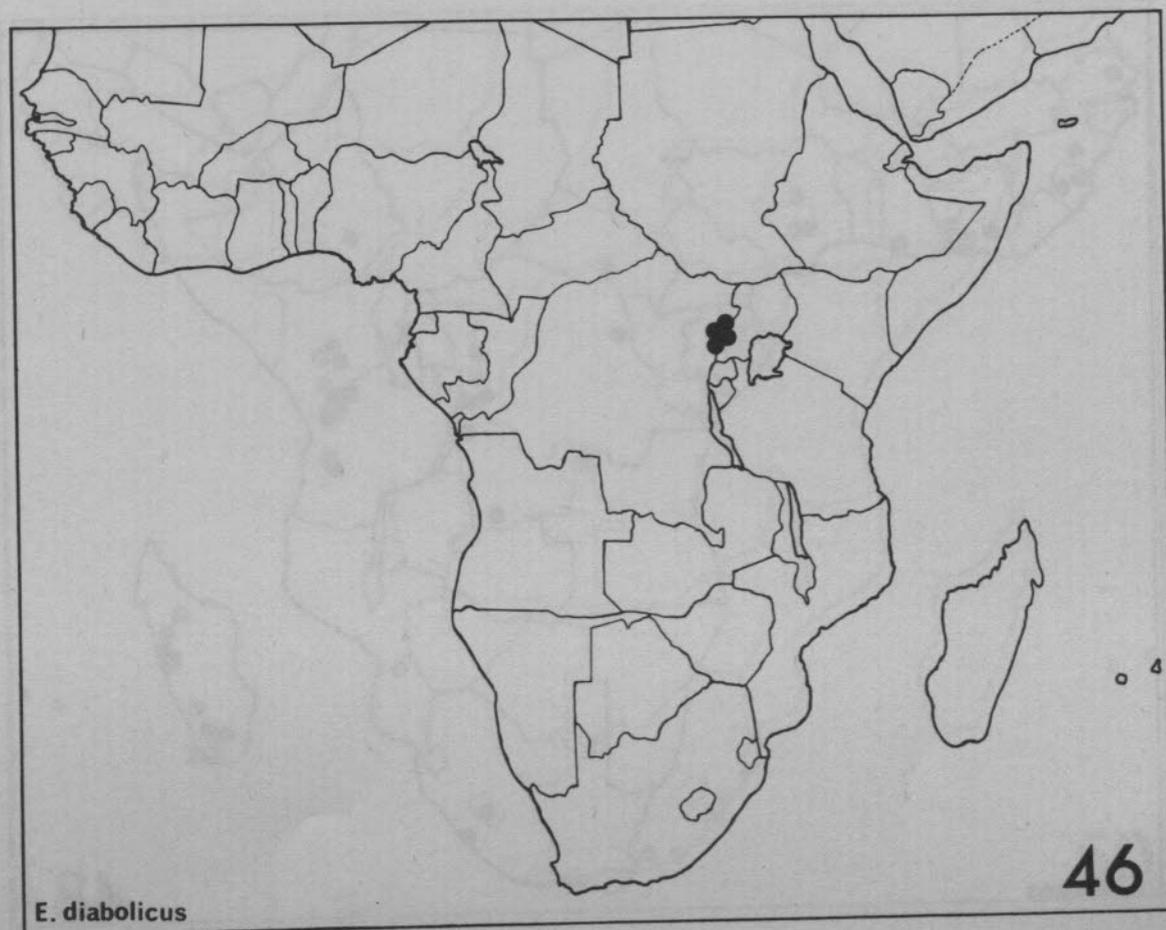
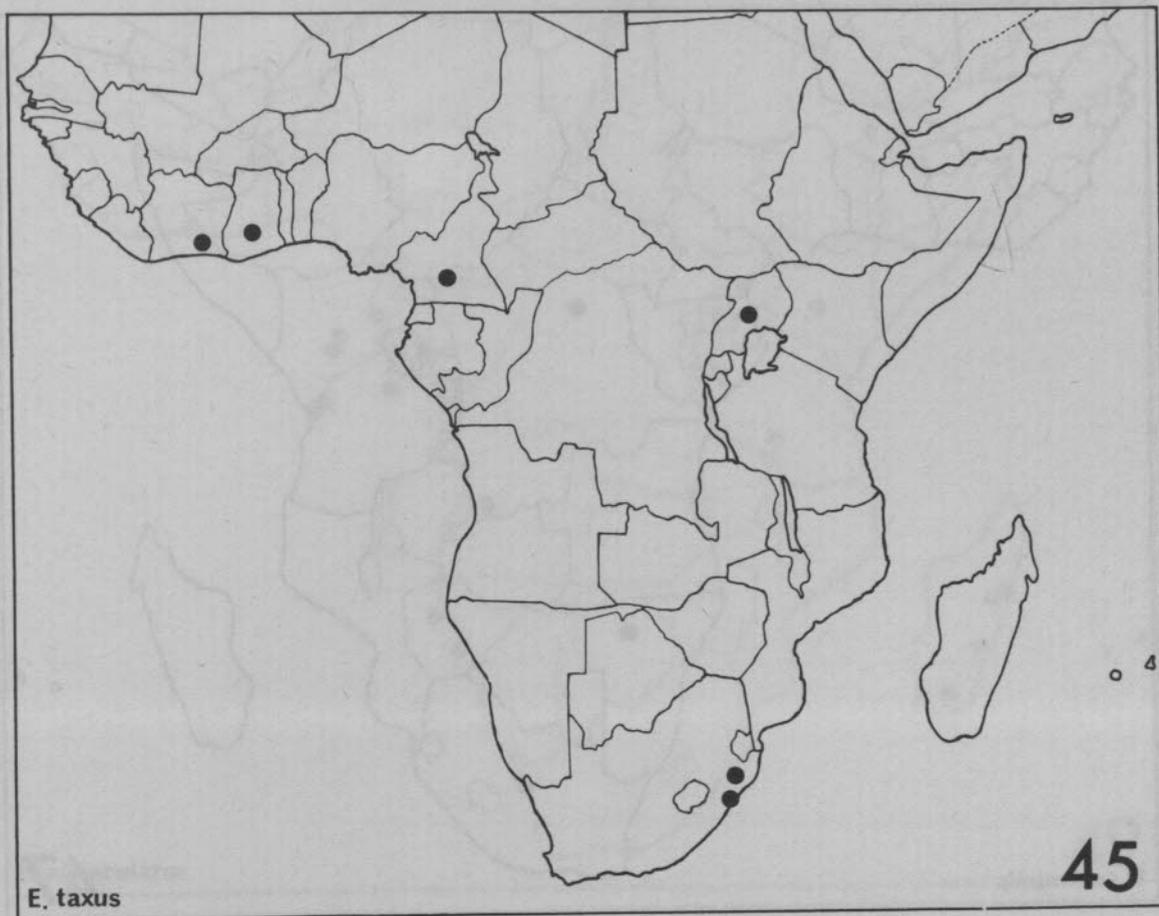


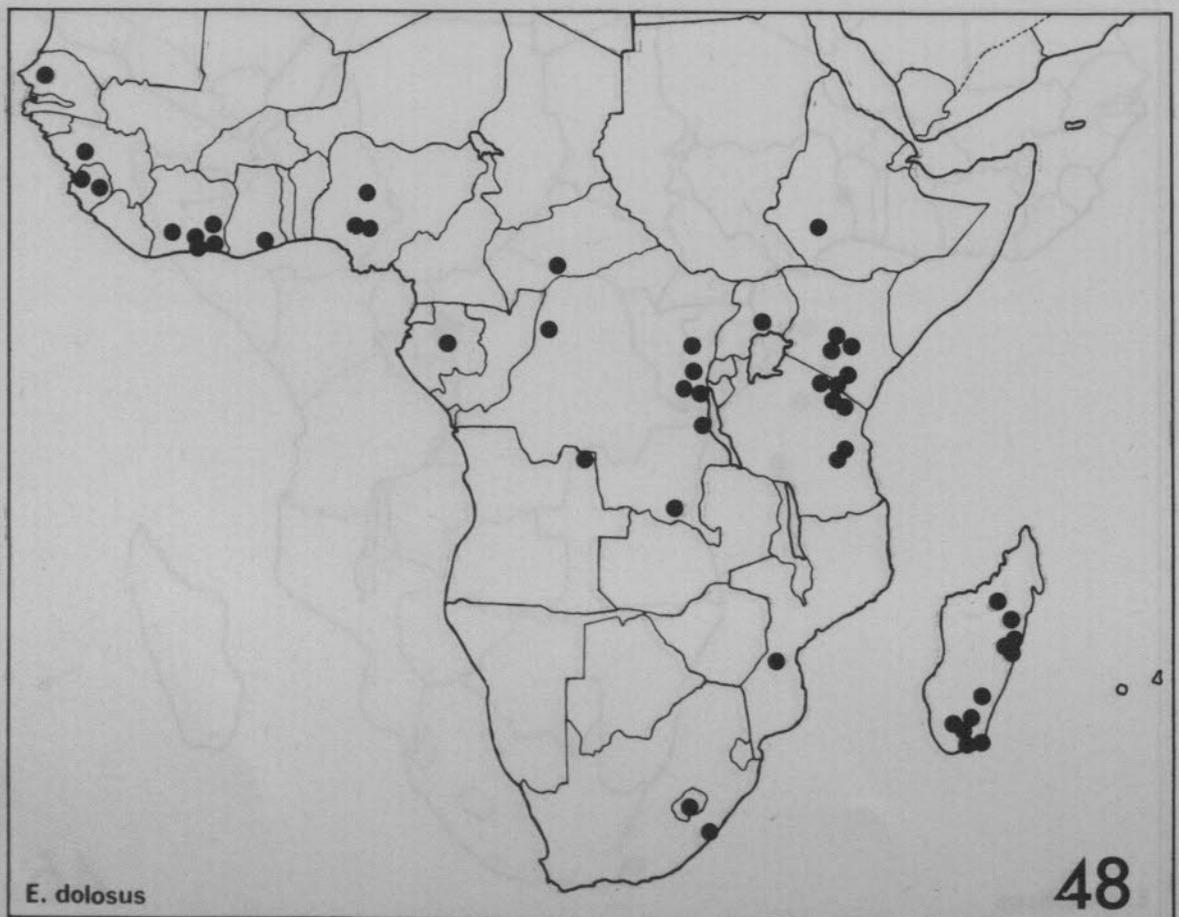
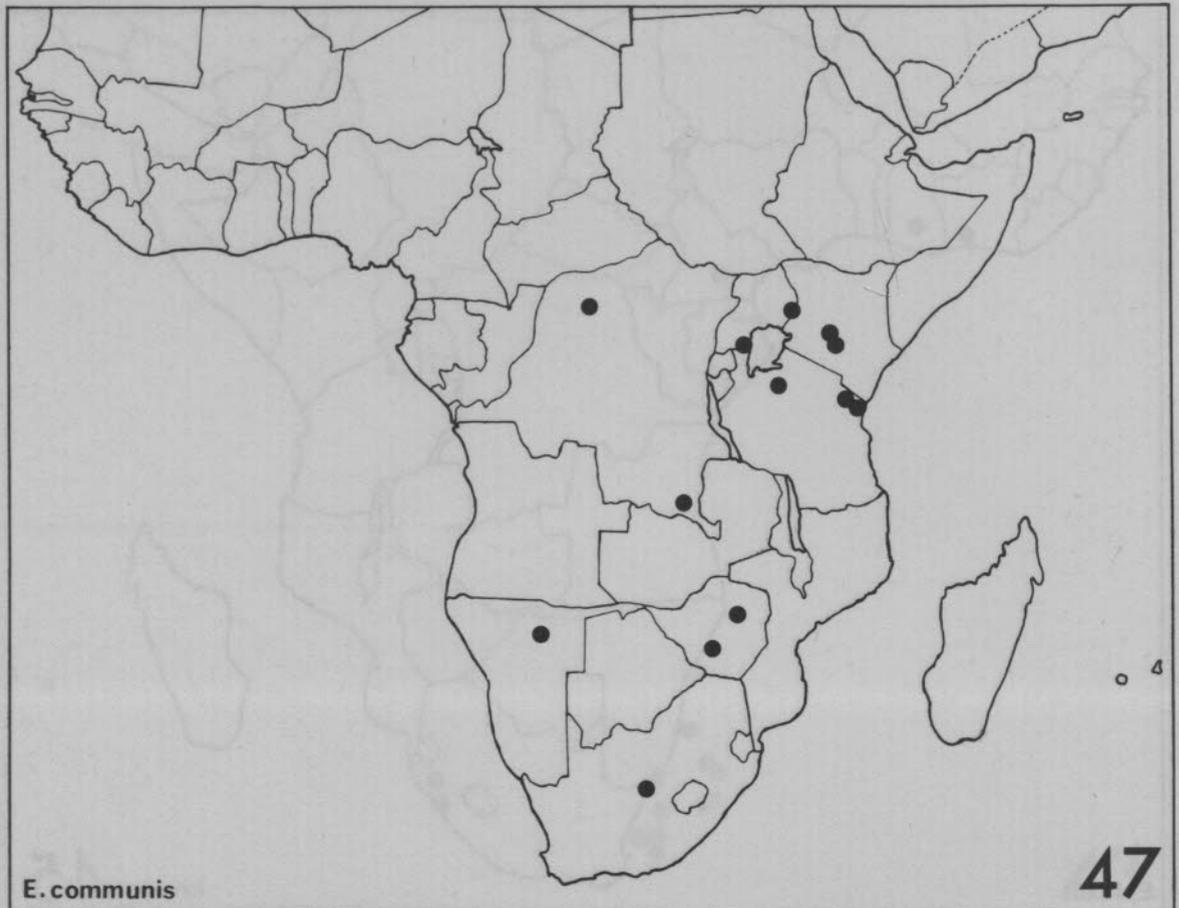
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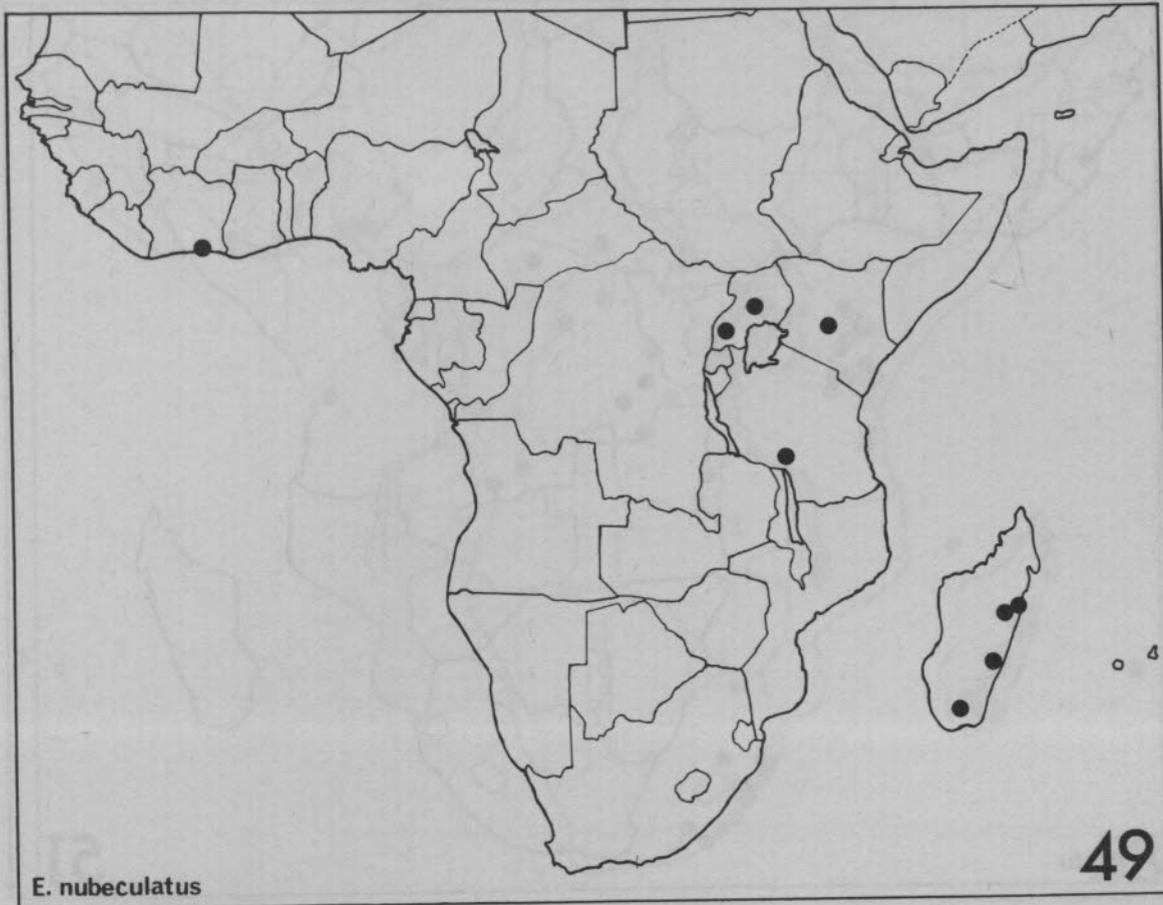


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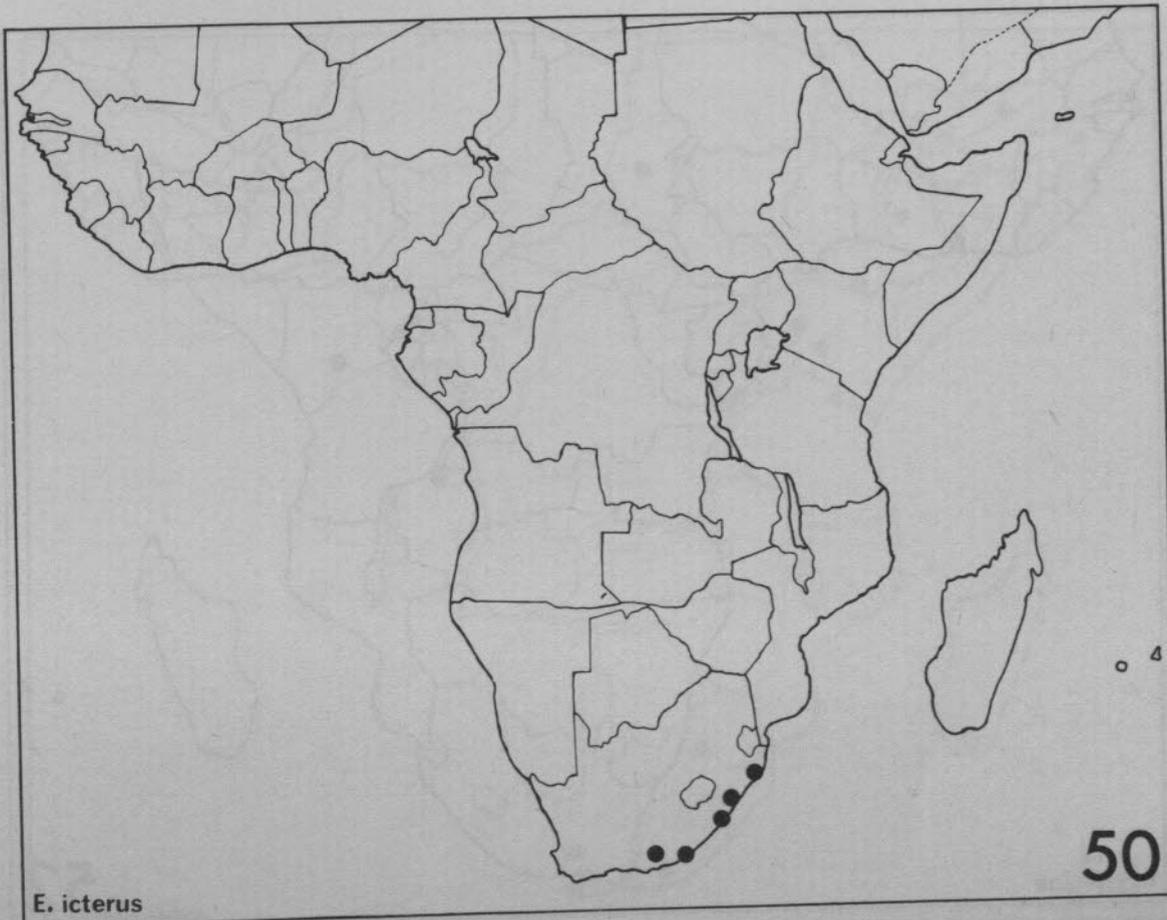




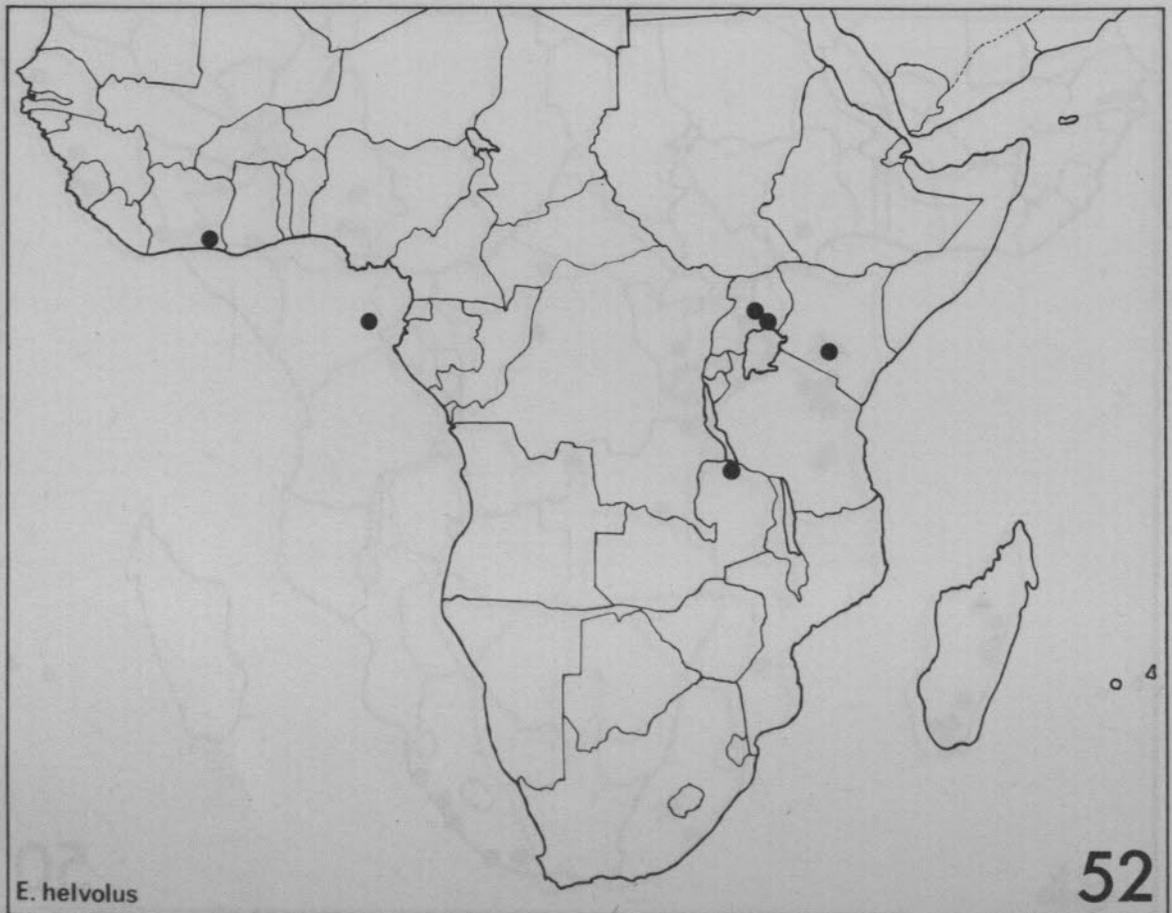
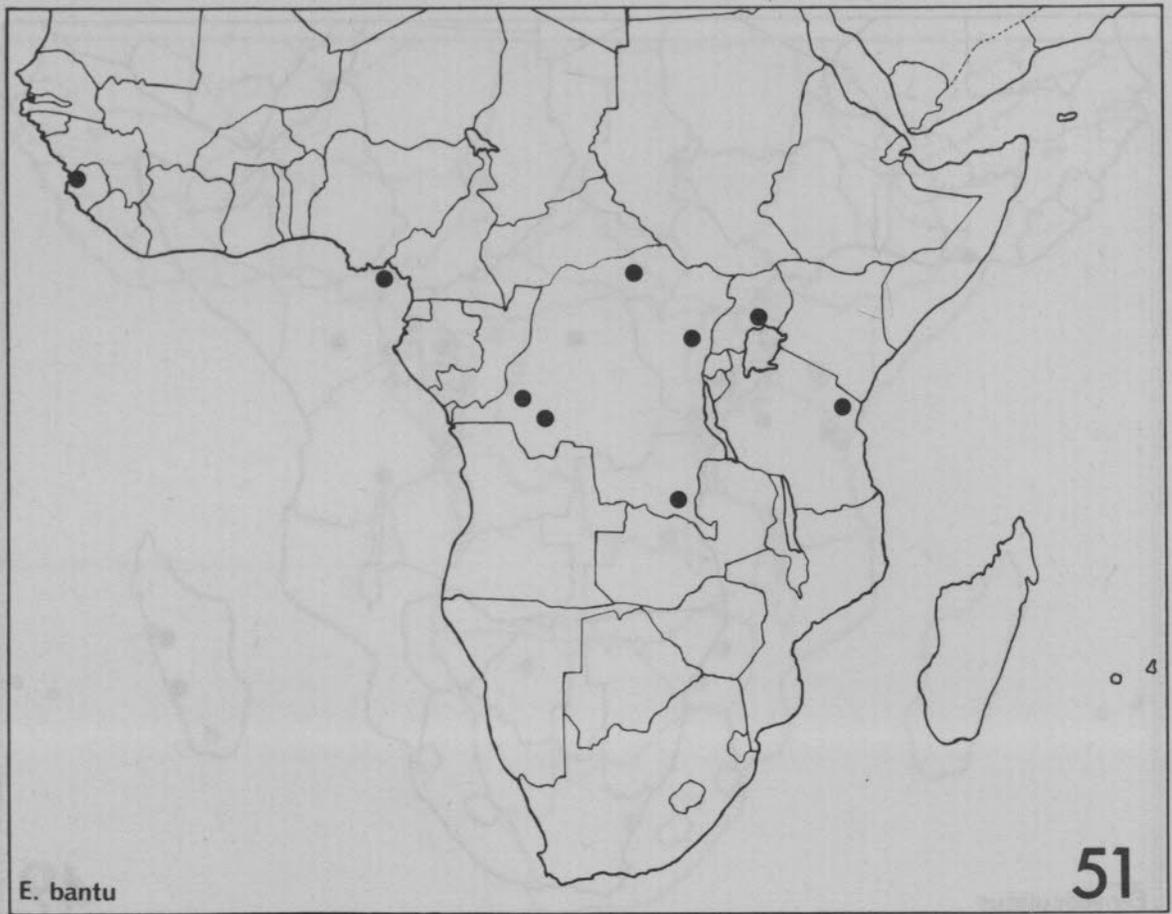


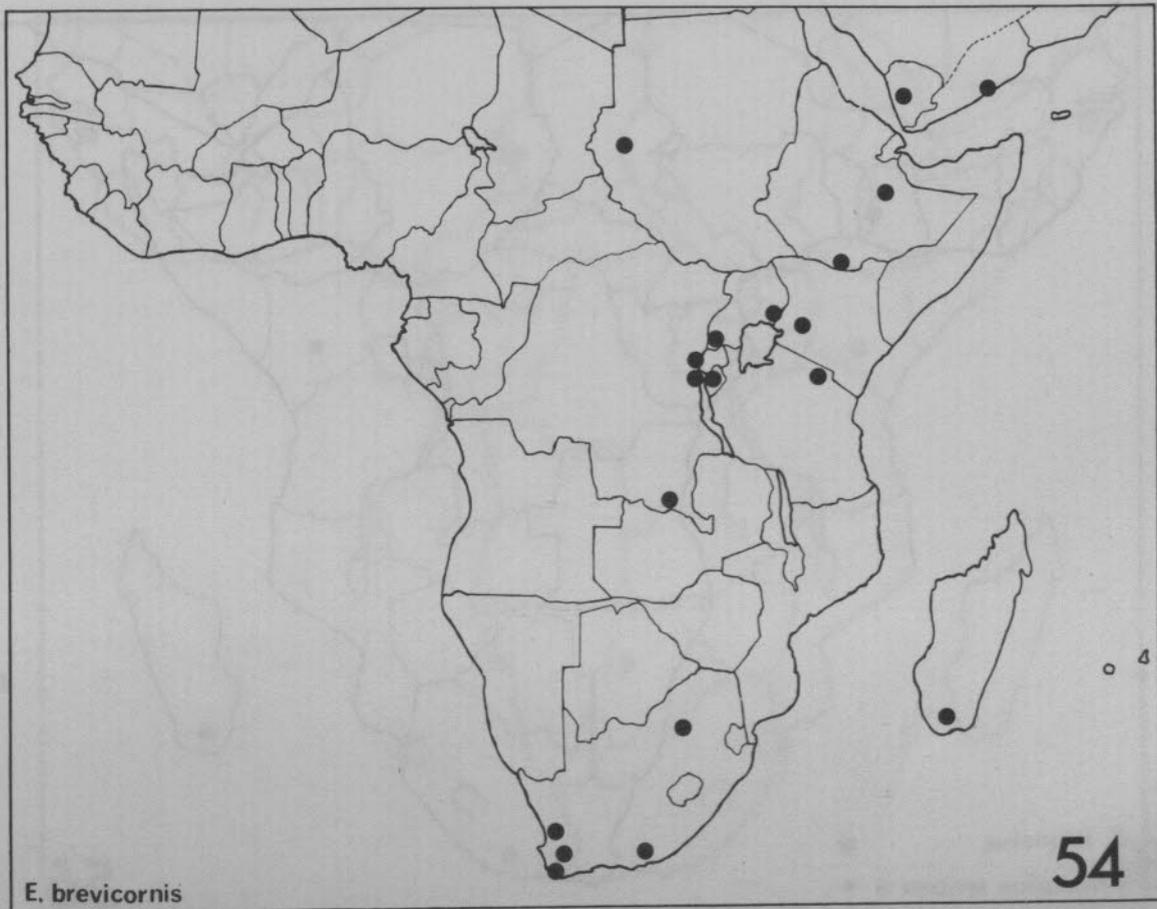
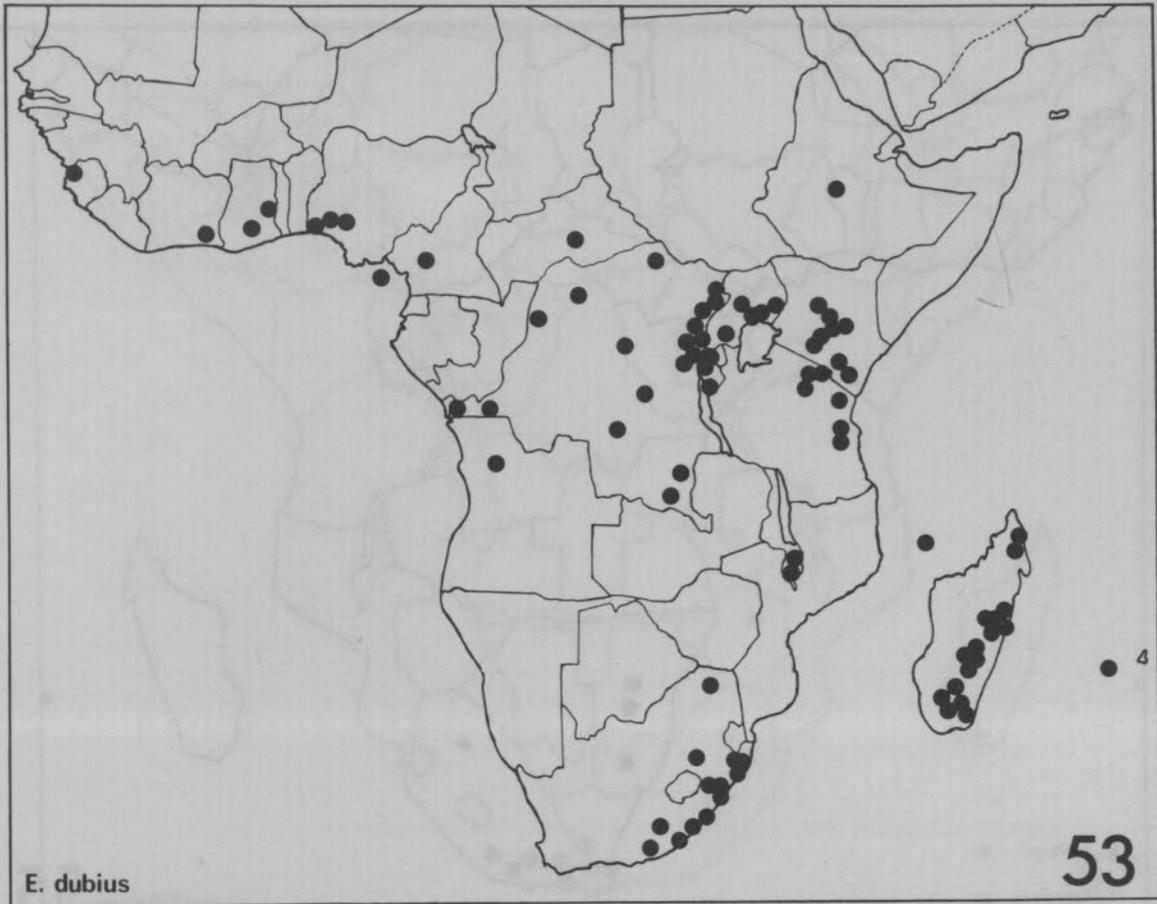


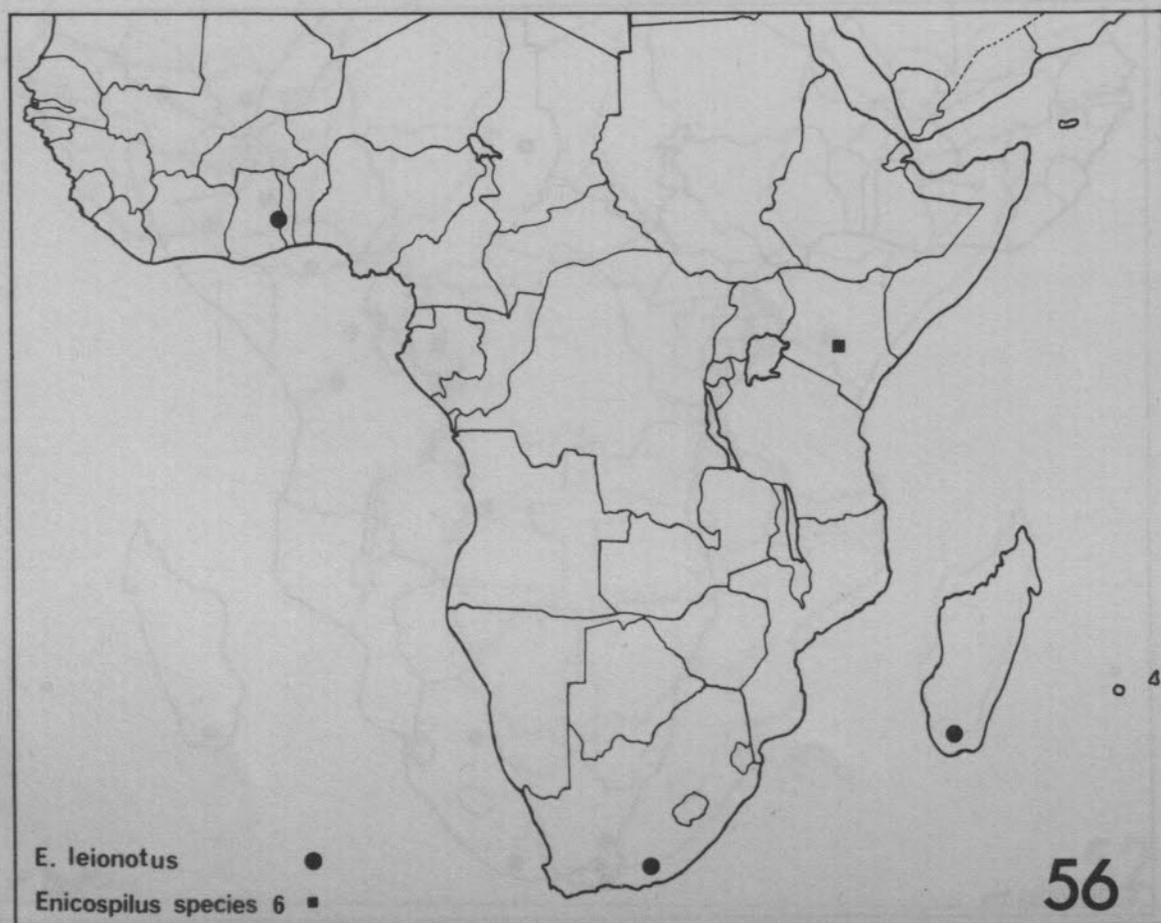
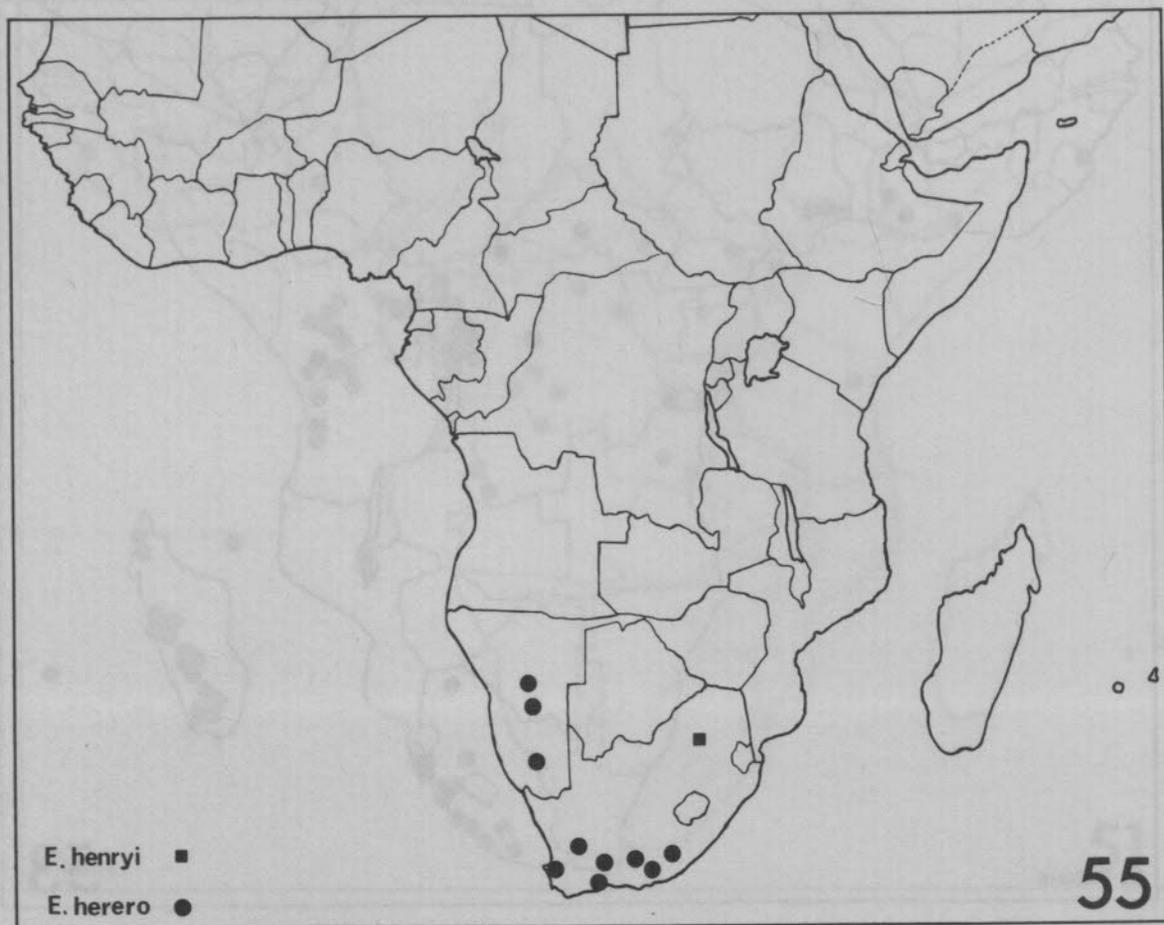
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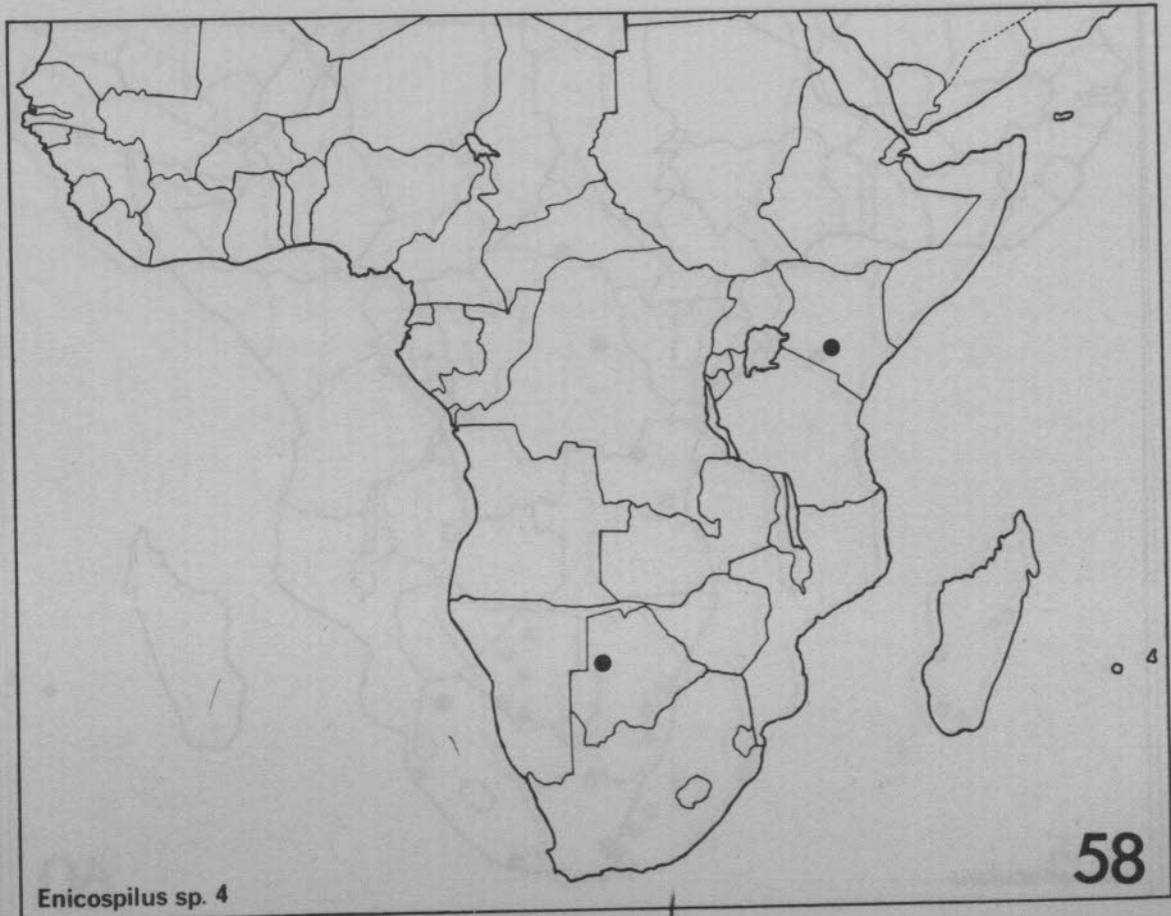
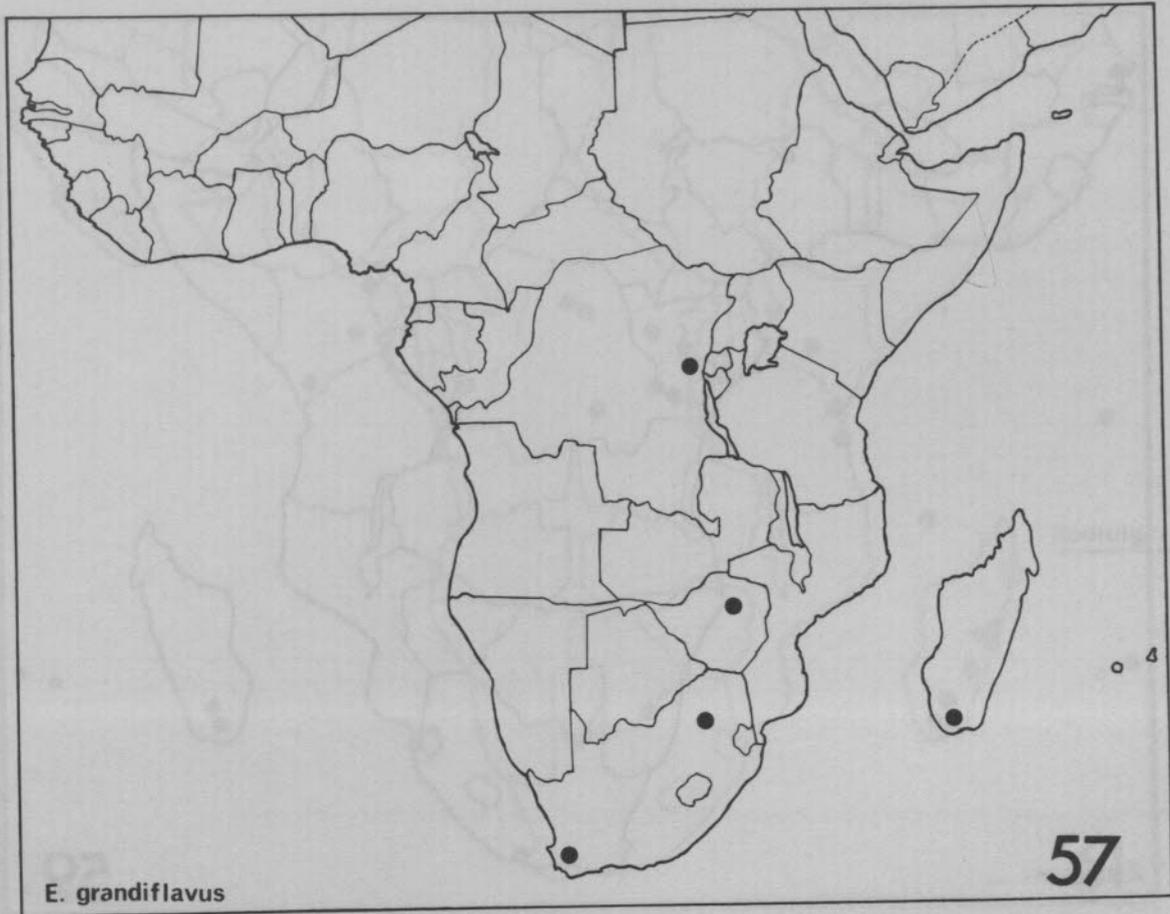


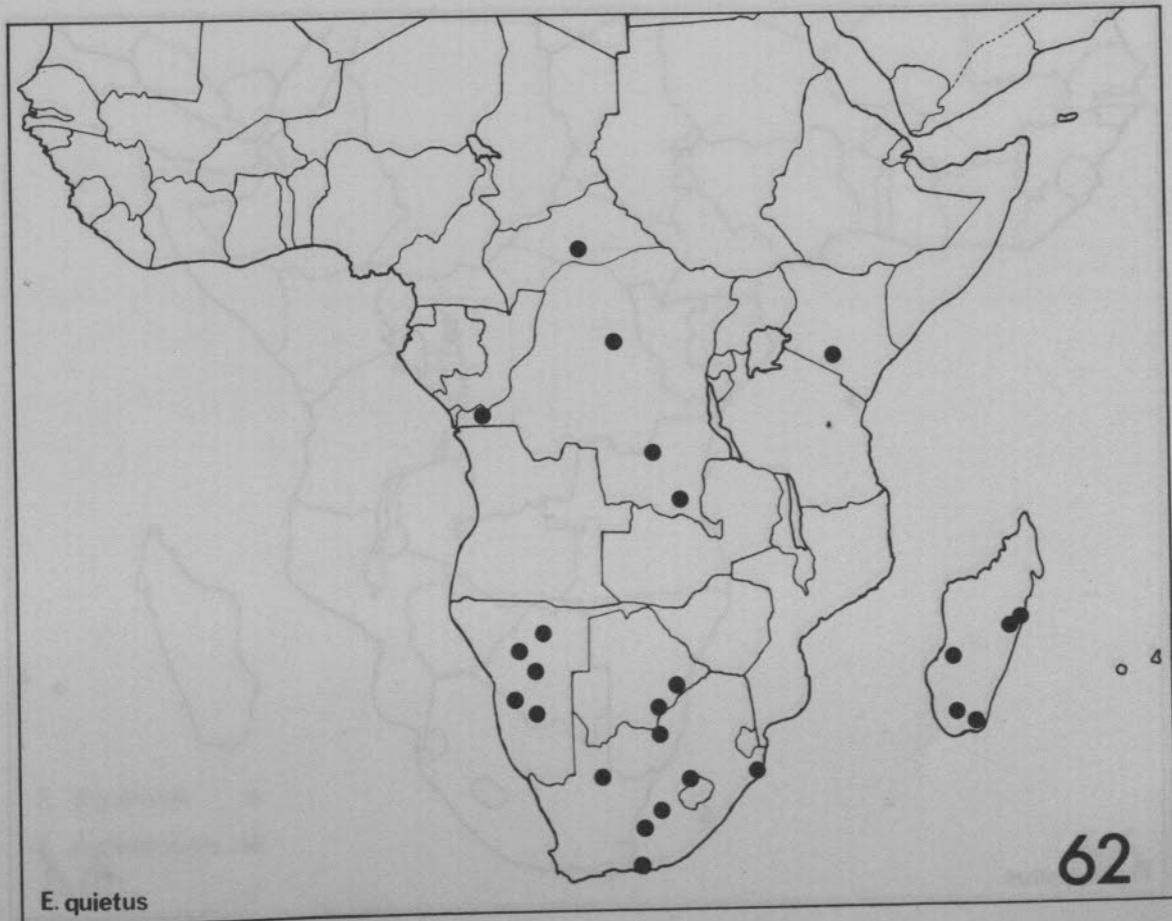
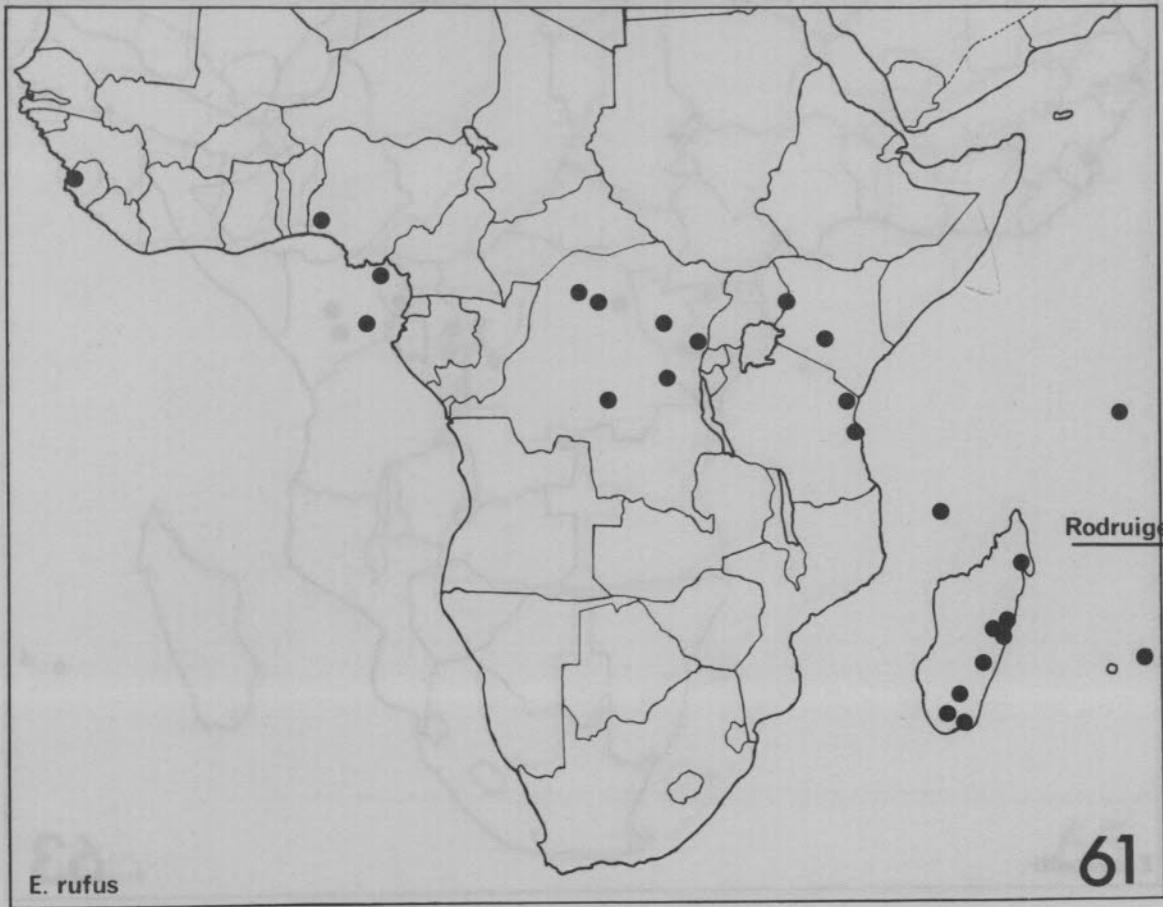
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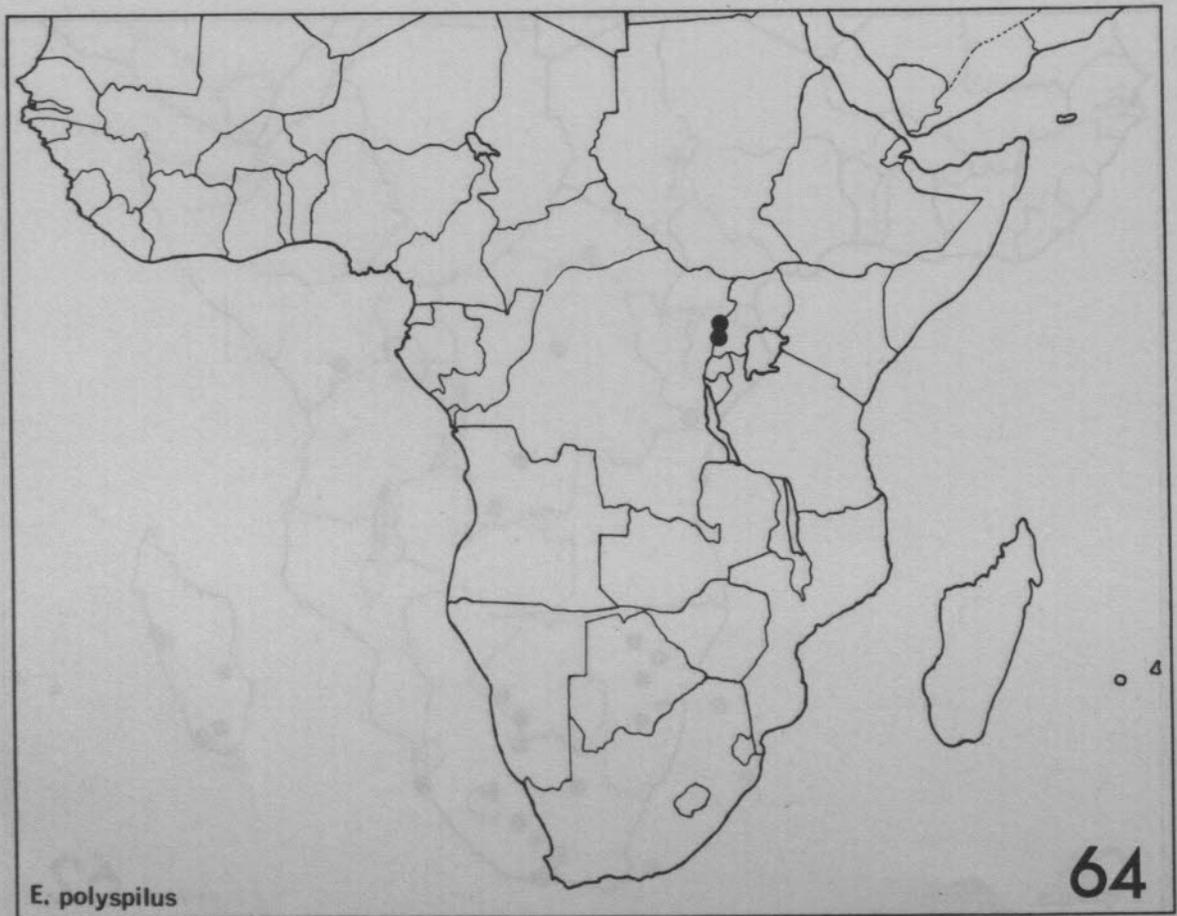
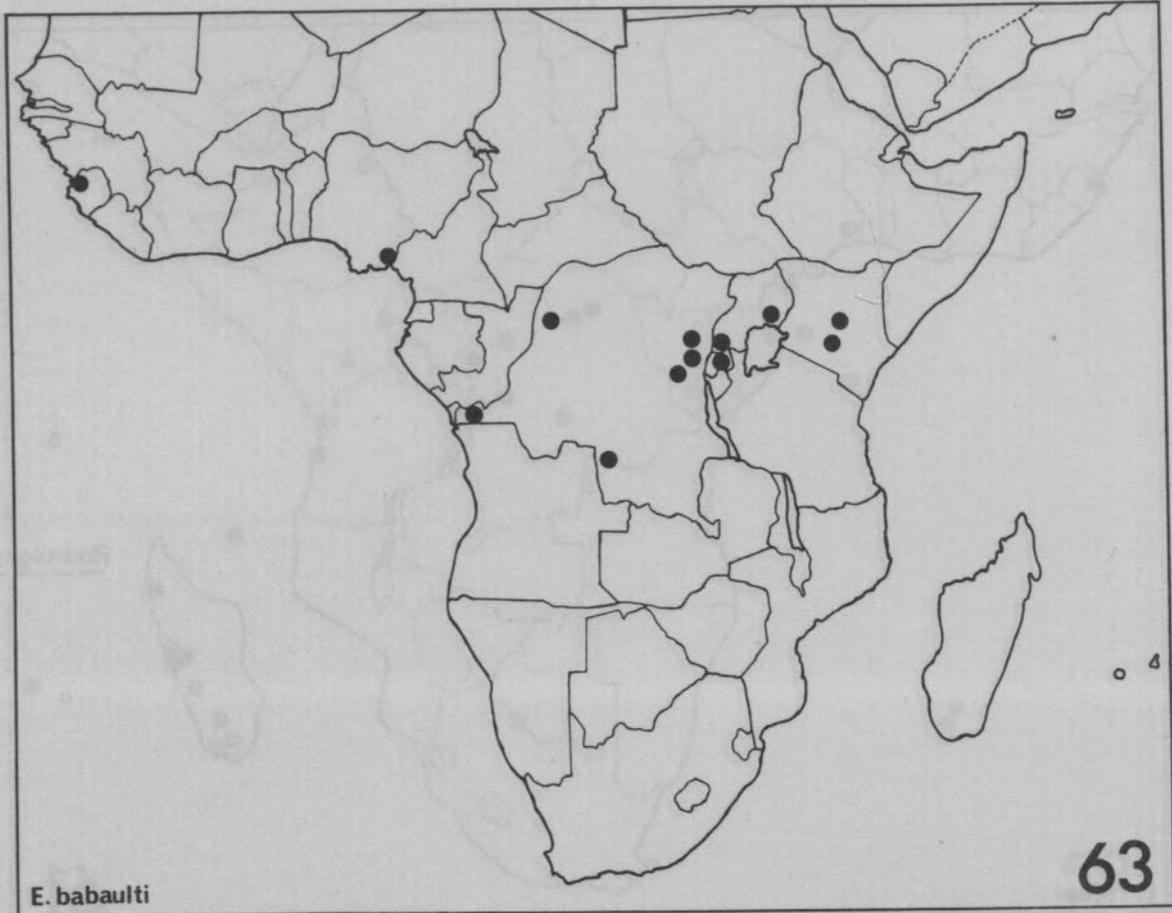


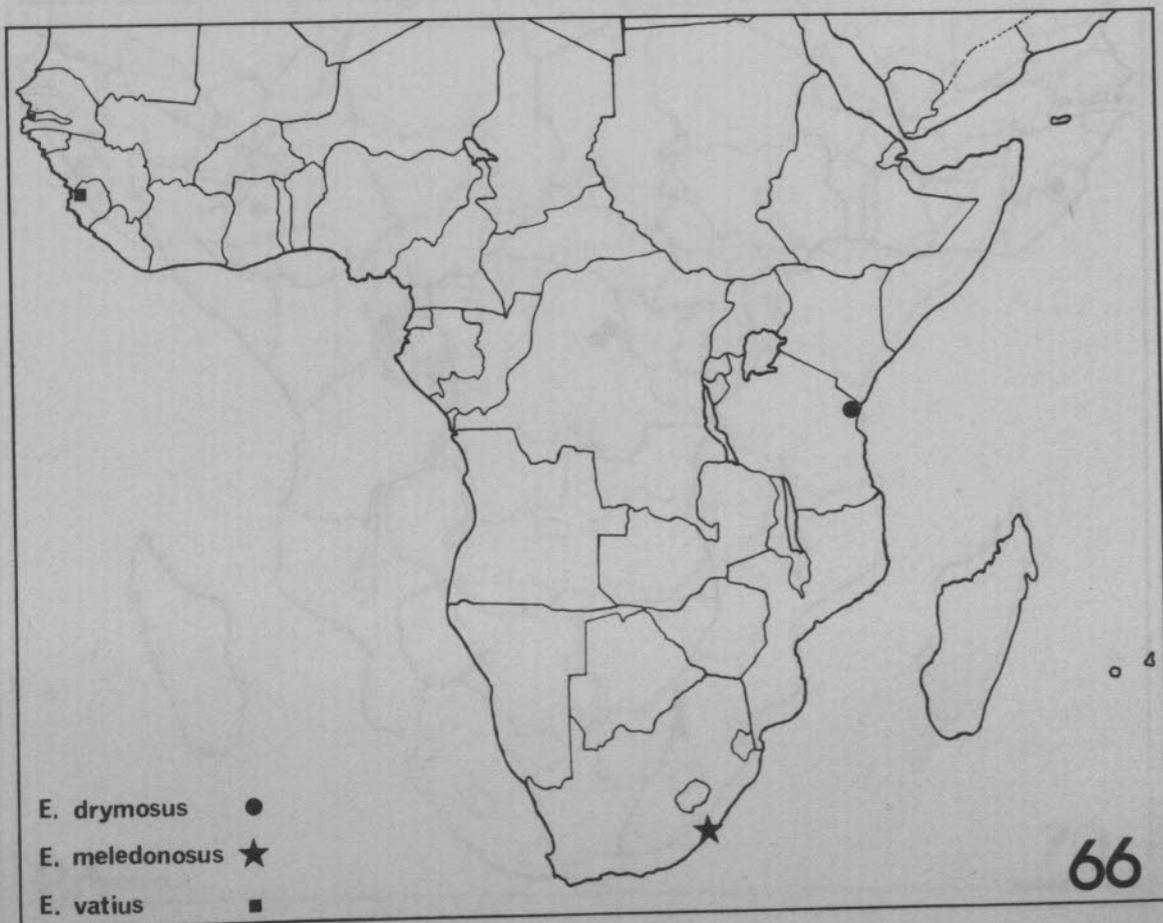
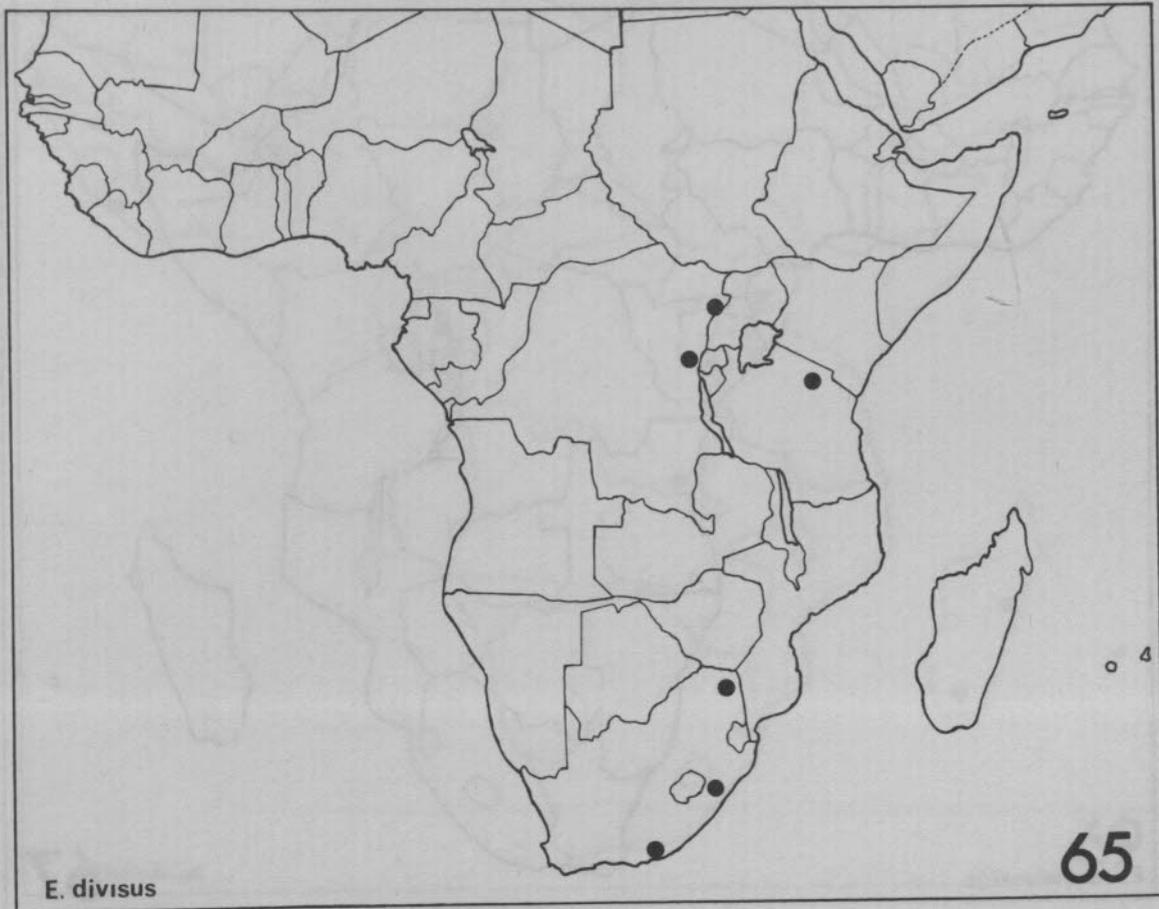


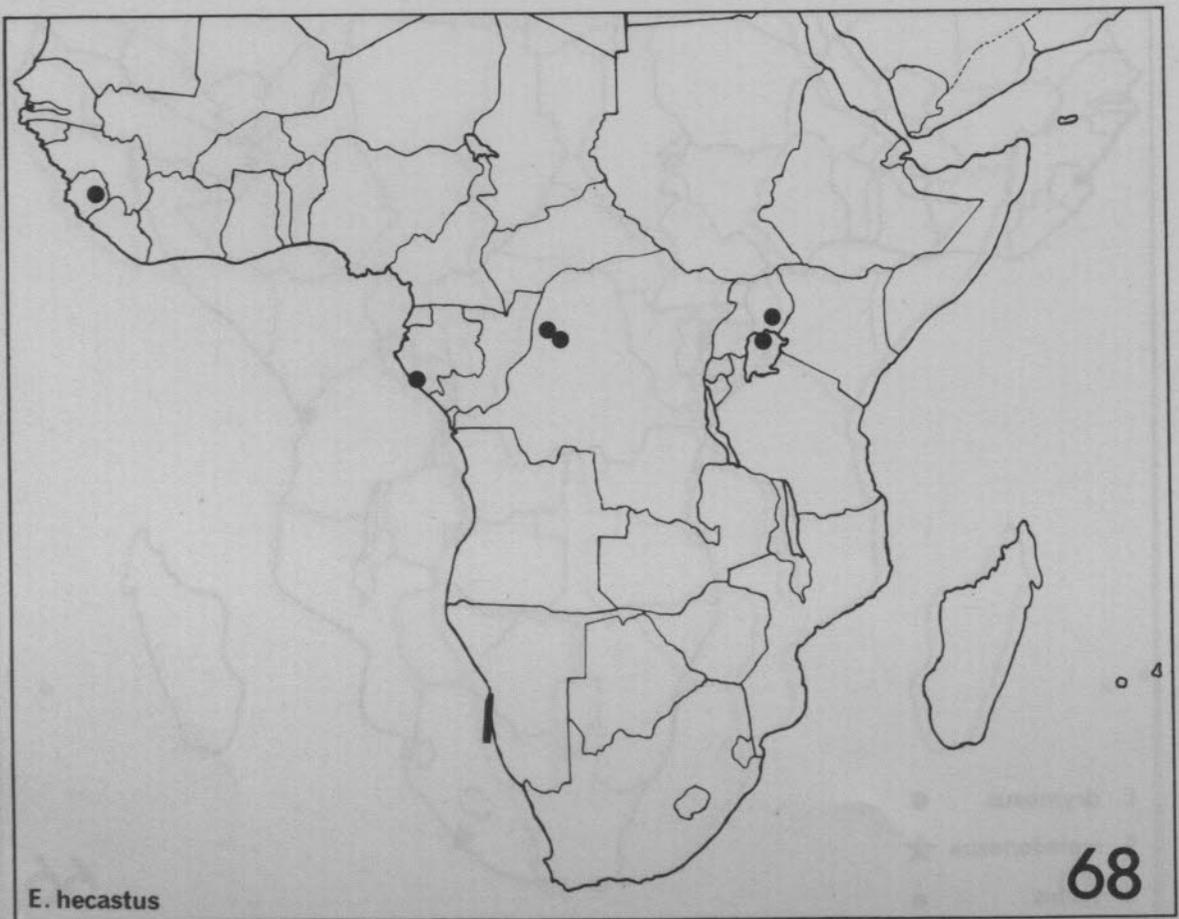
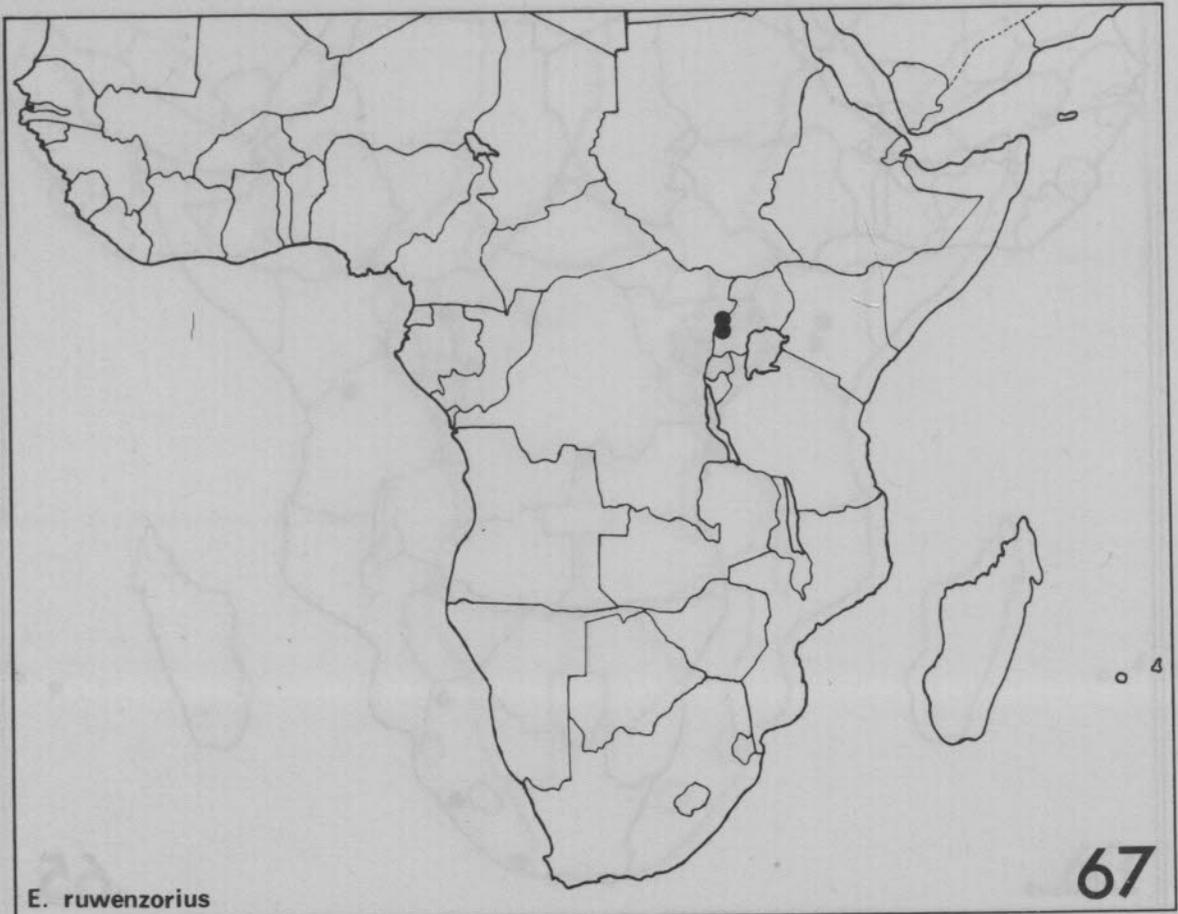


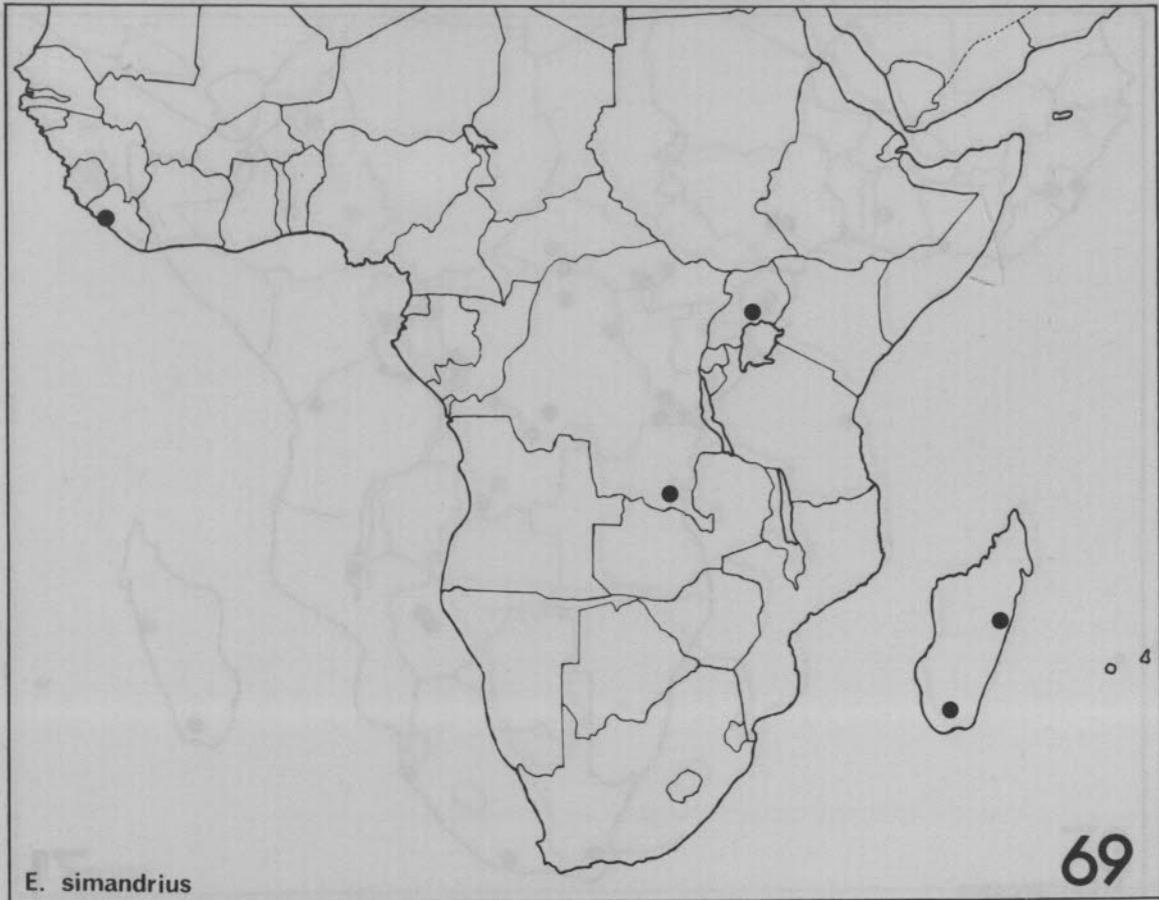




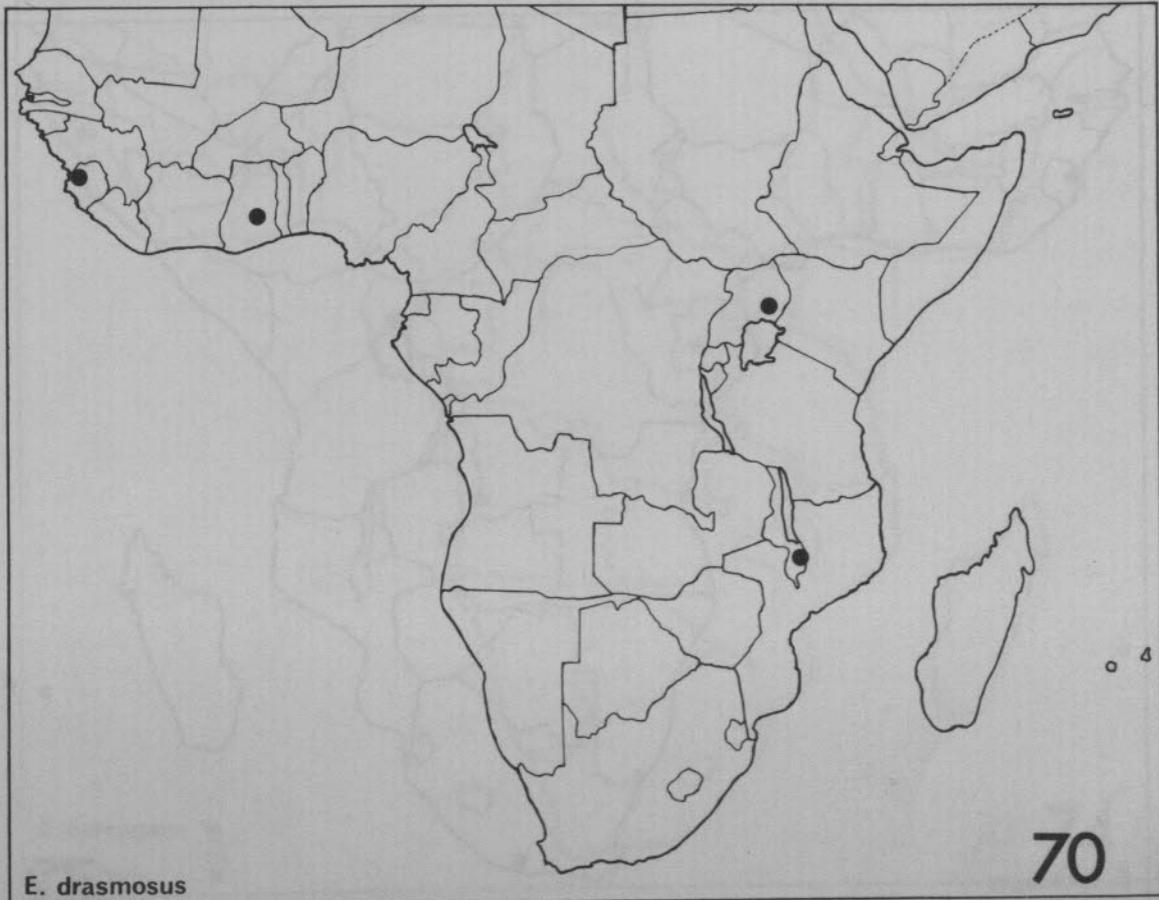




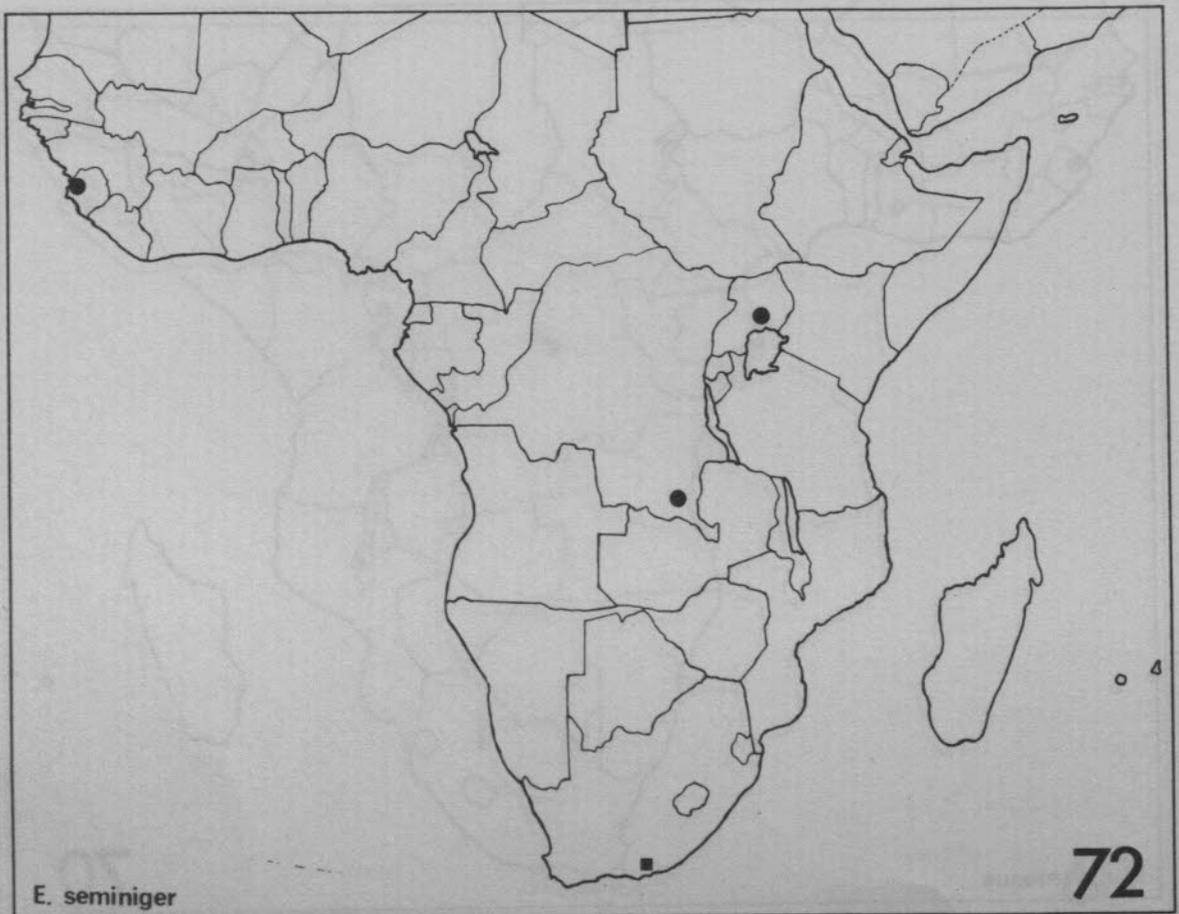
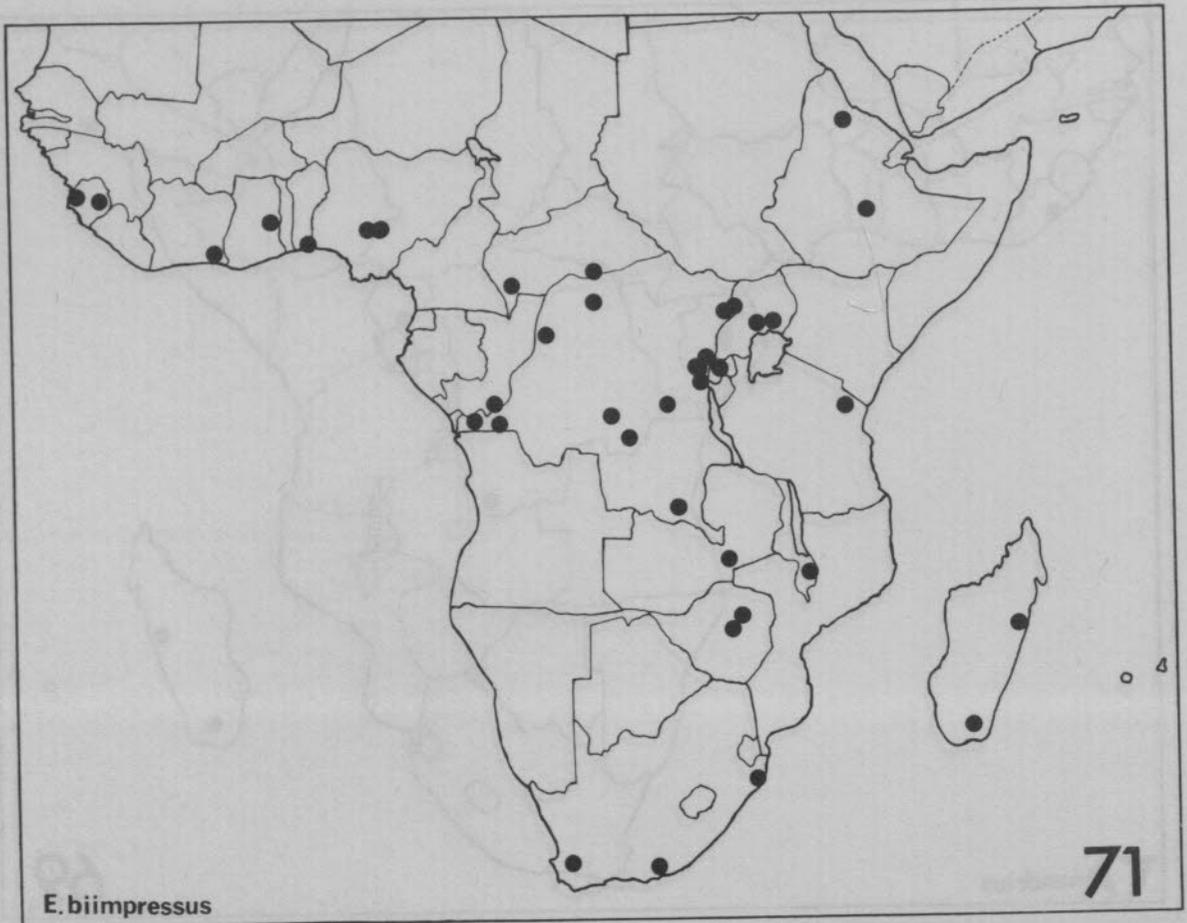


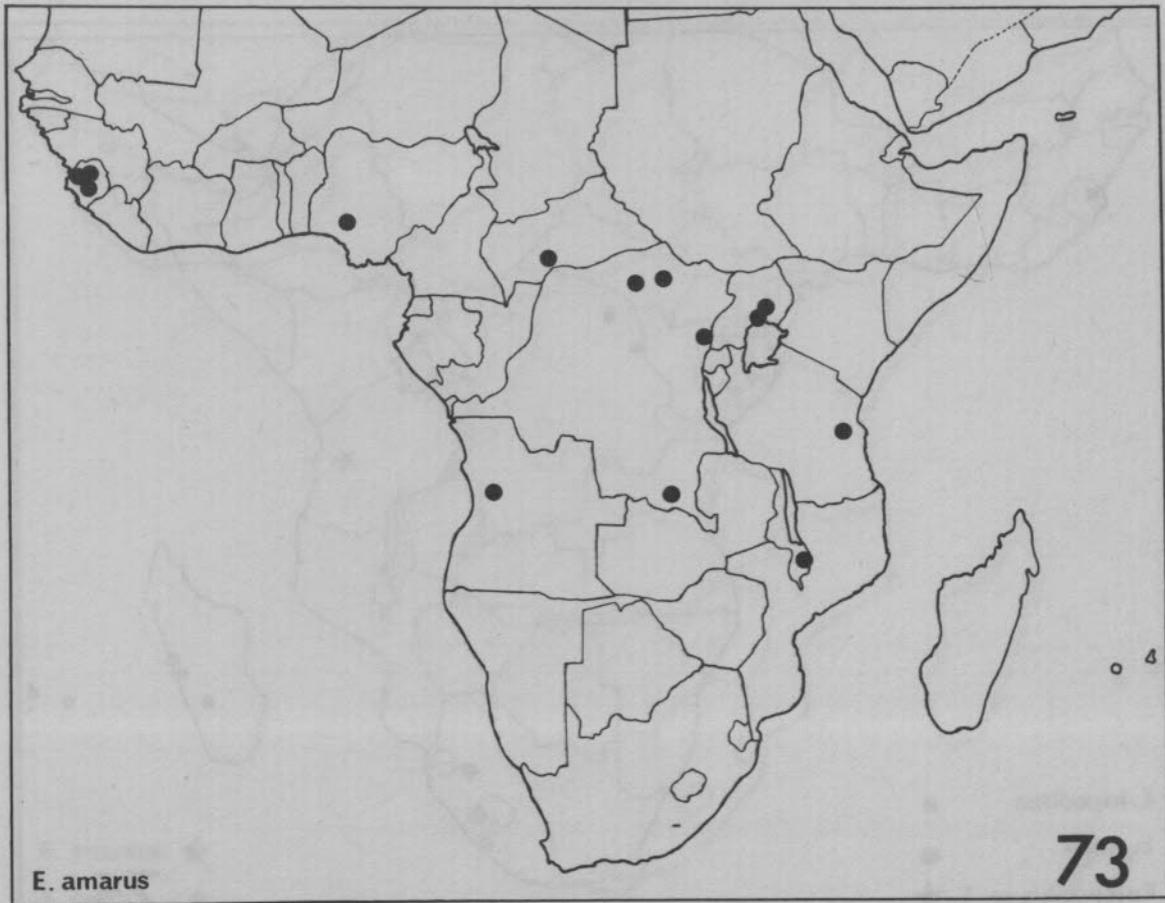


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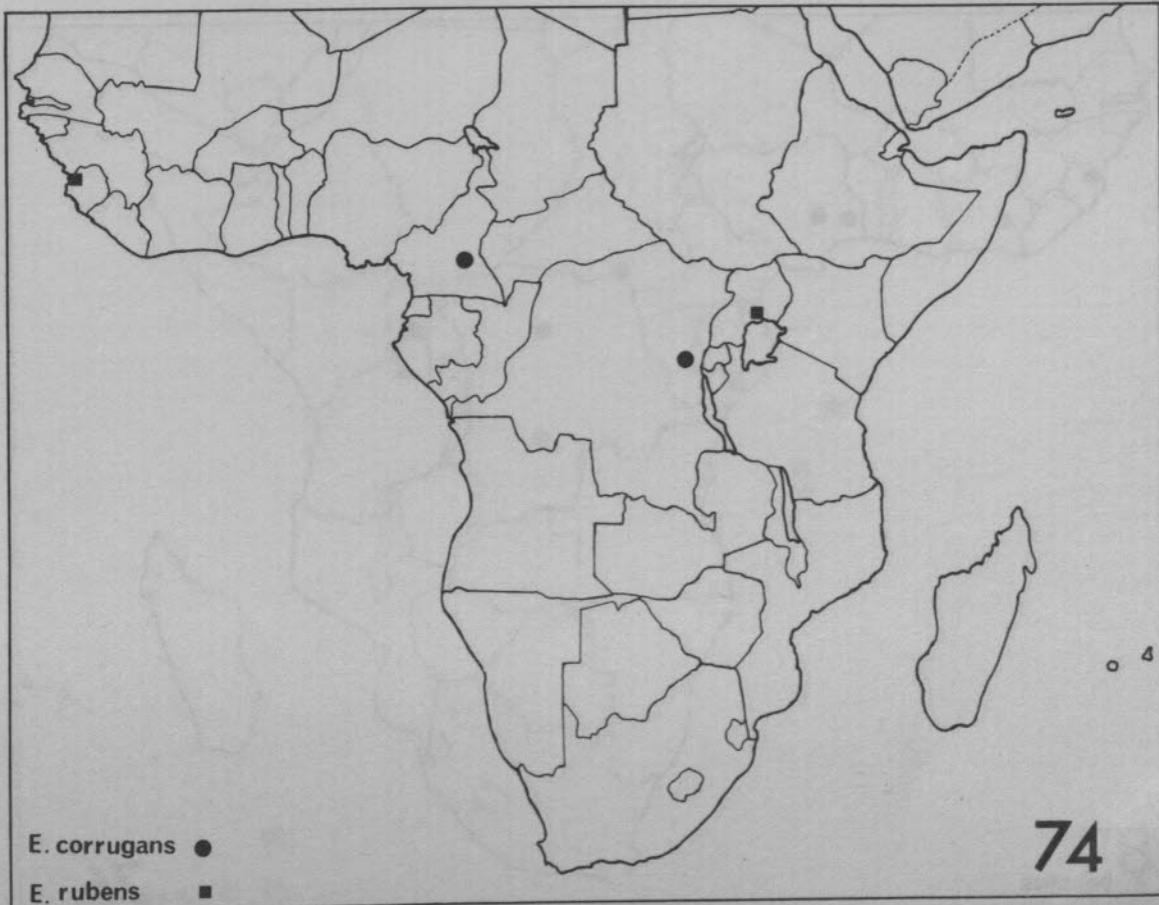
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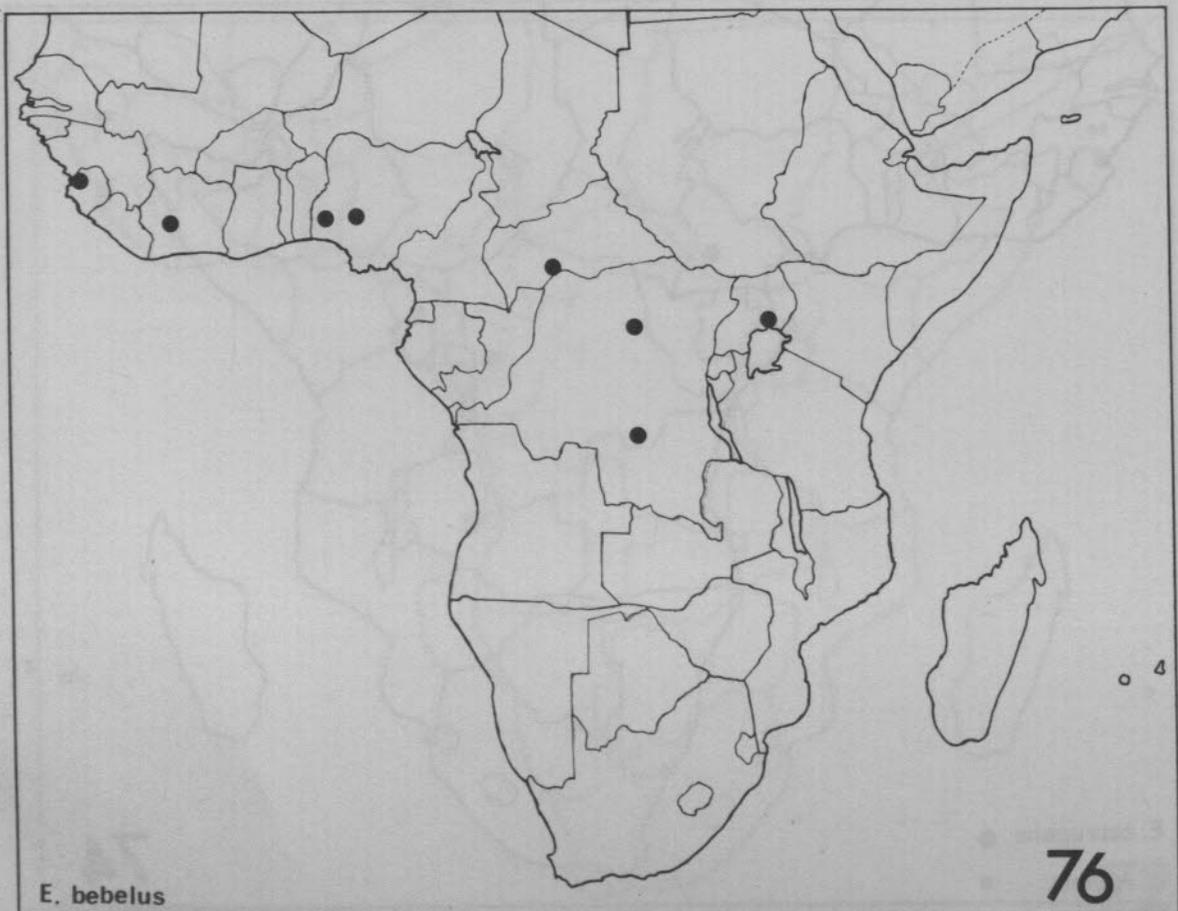
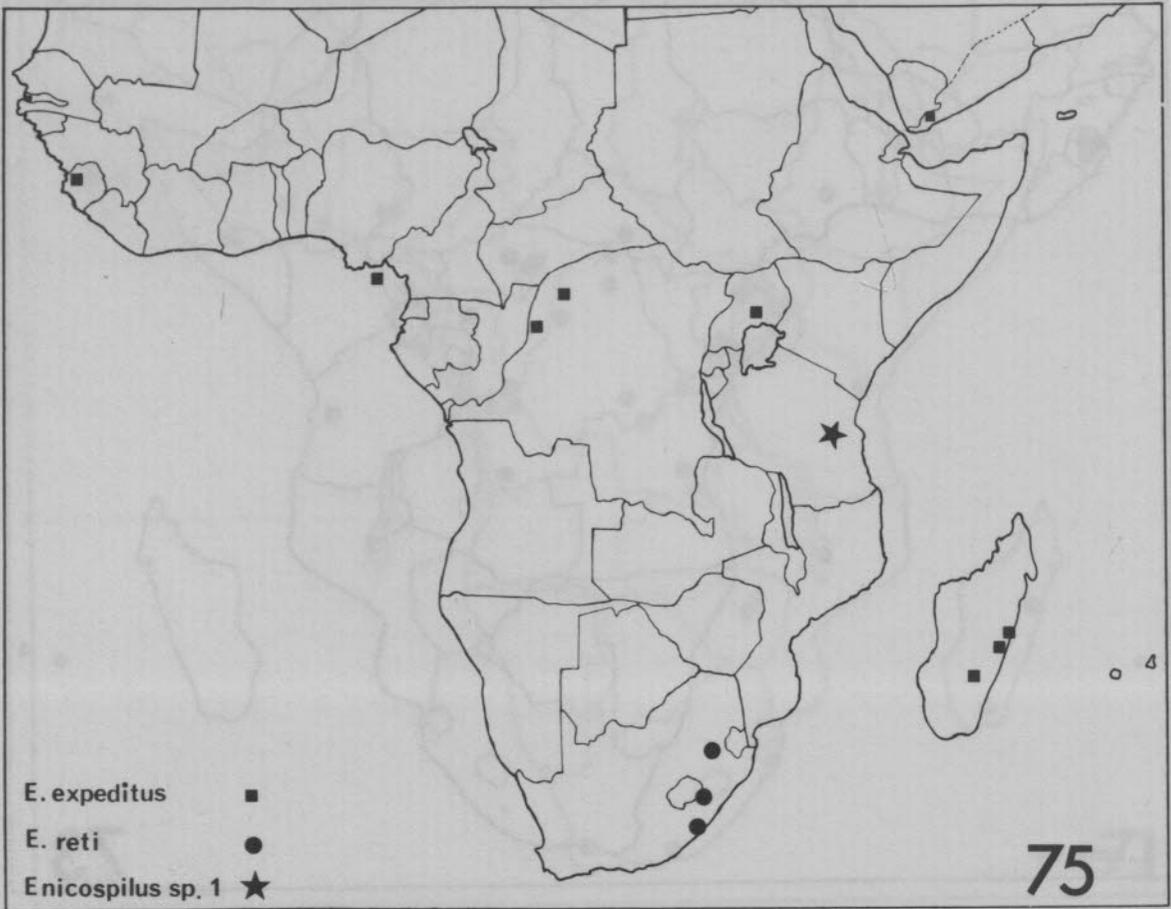
E. amarus

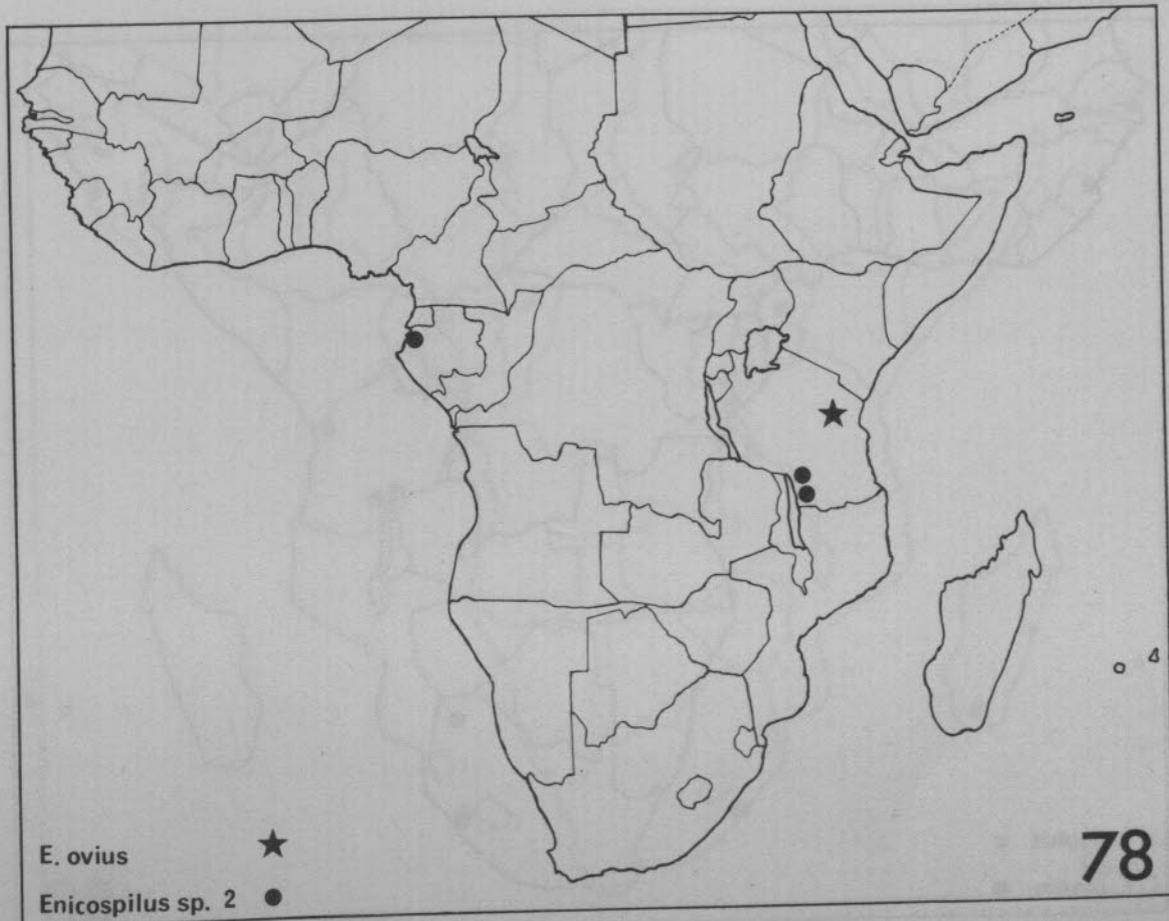
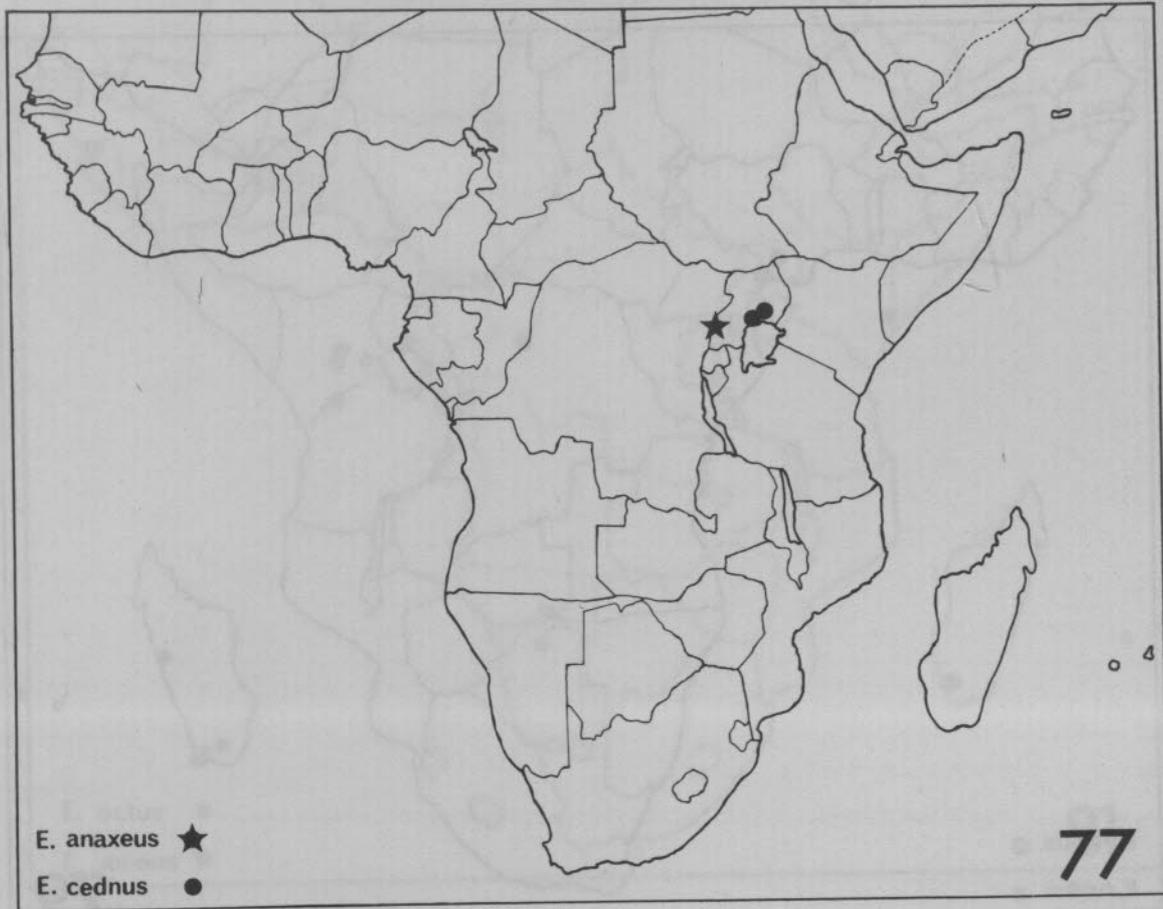
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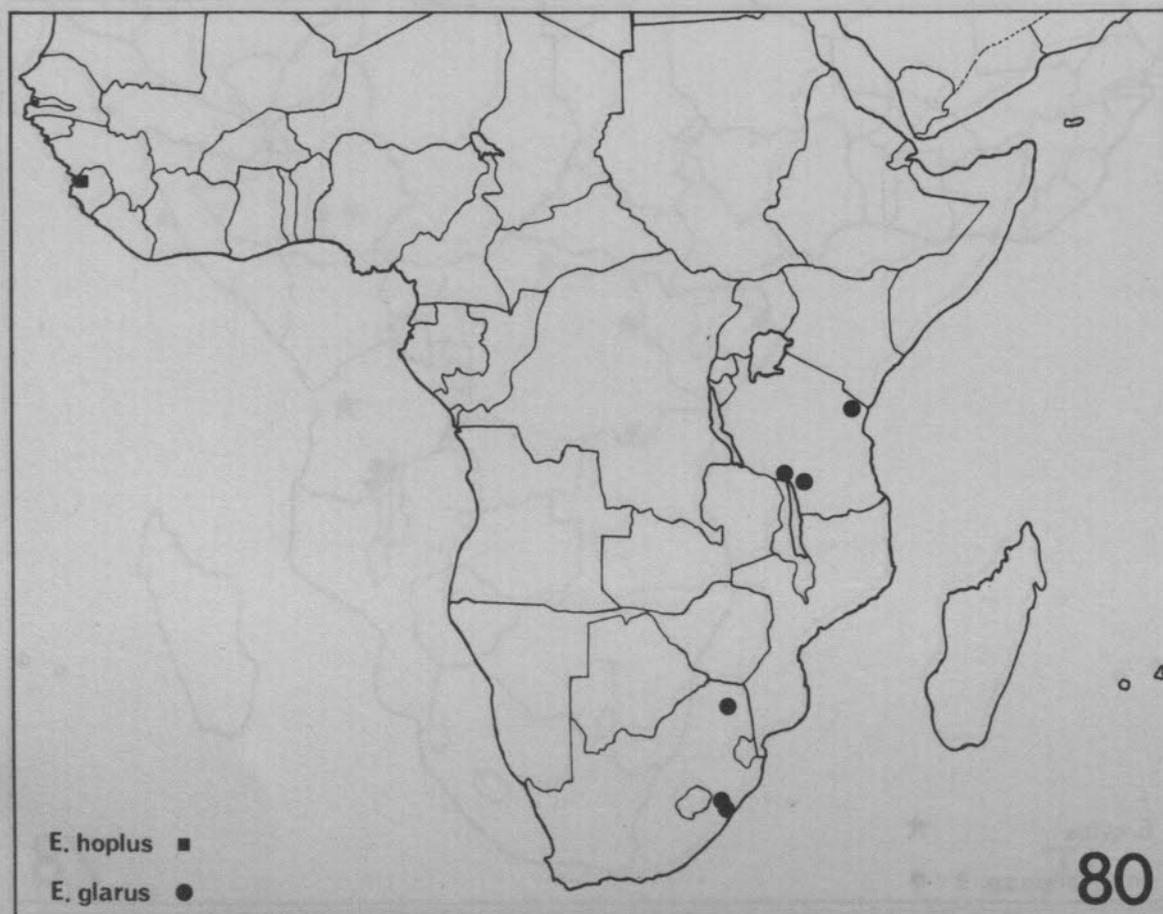
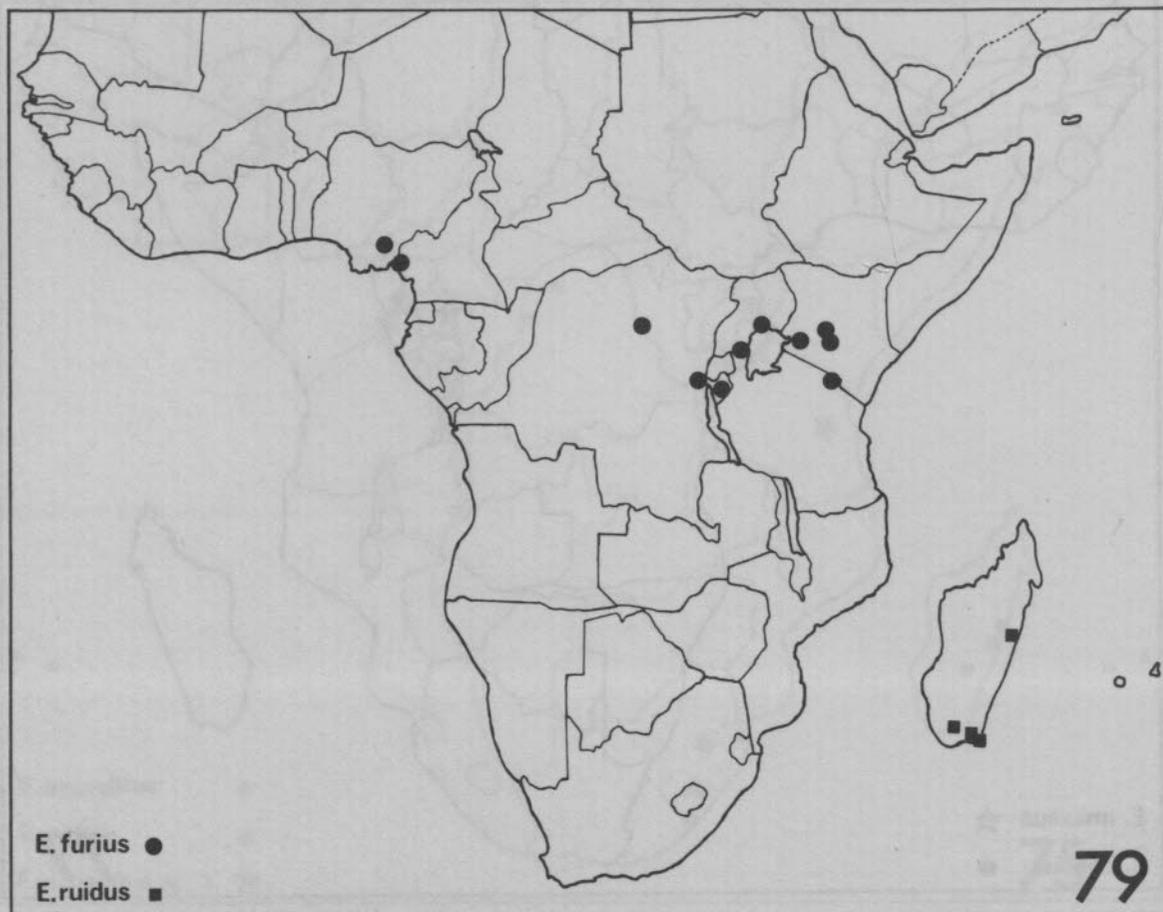


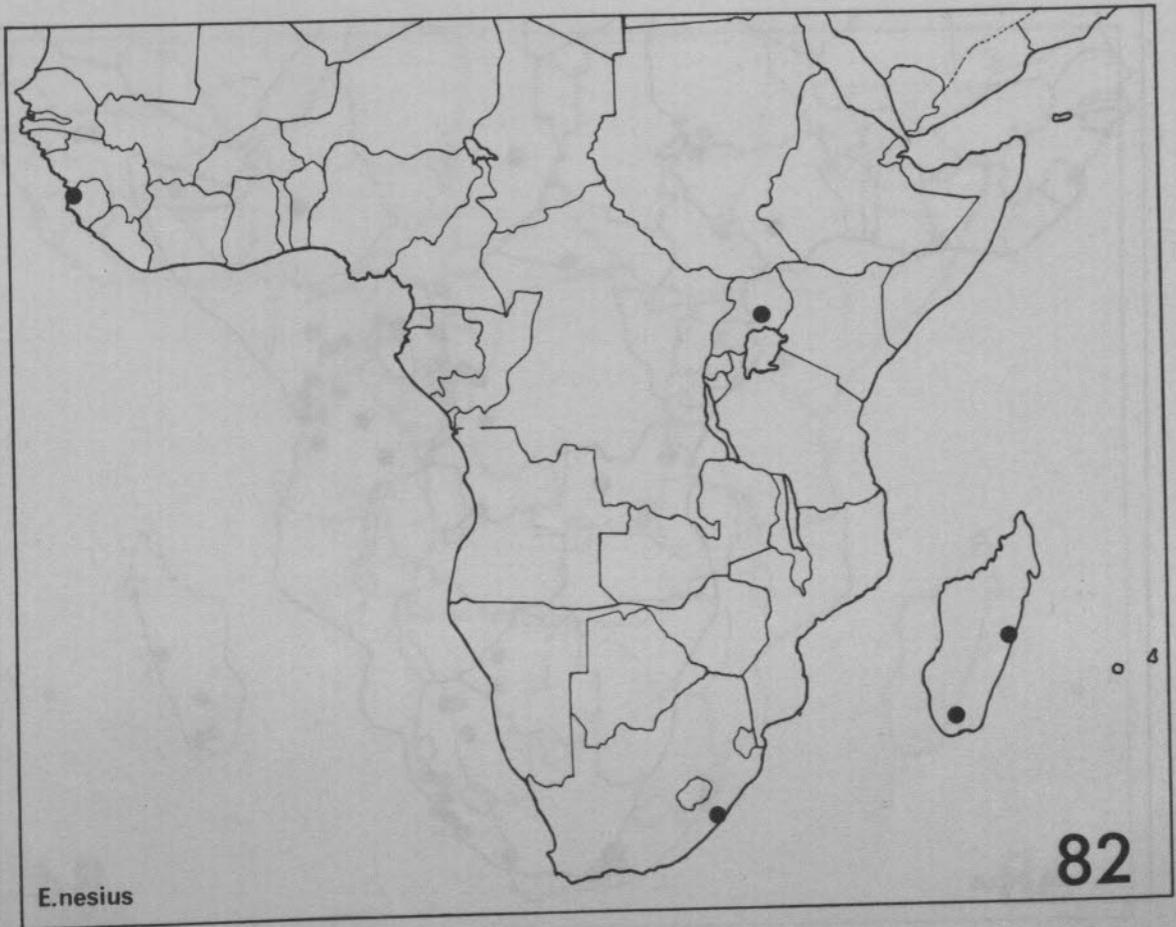
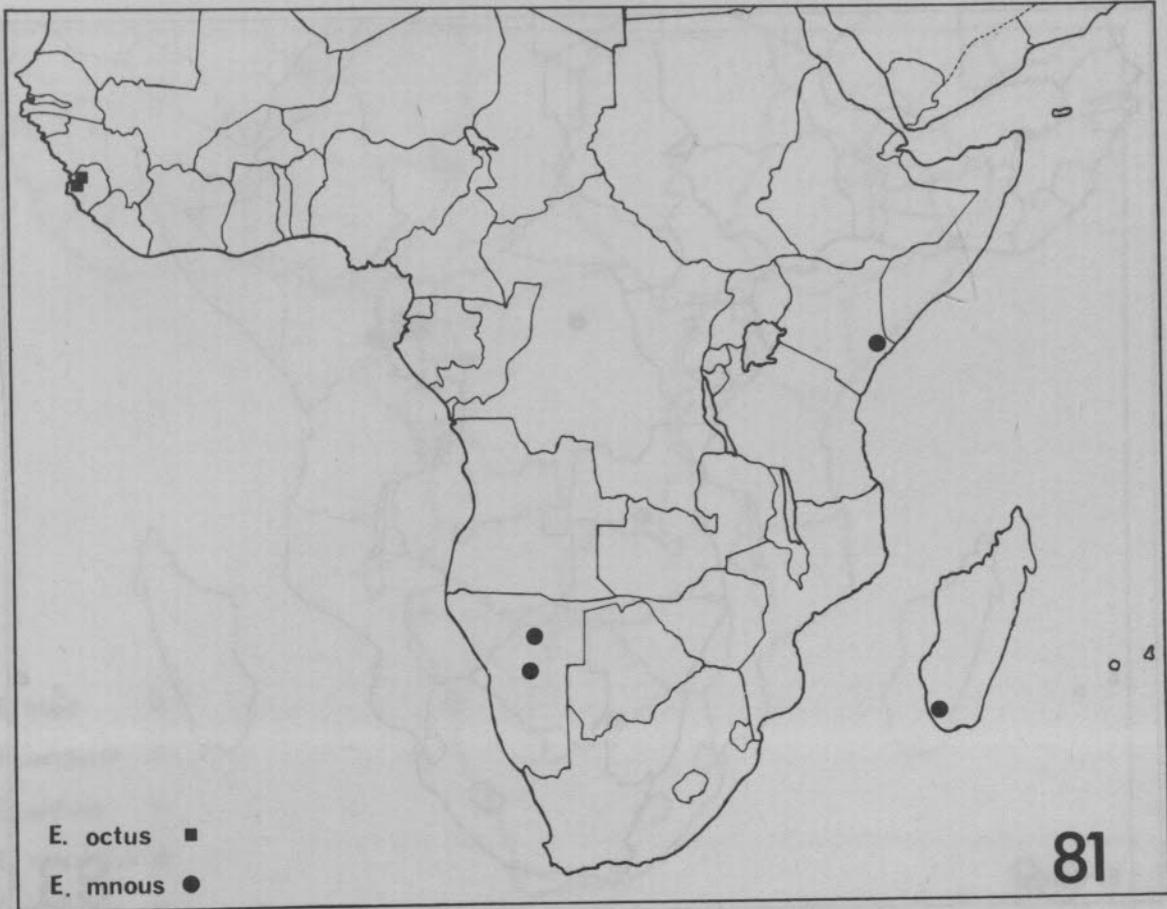
E. corrugans ●
E. rubens ■

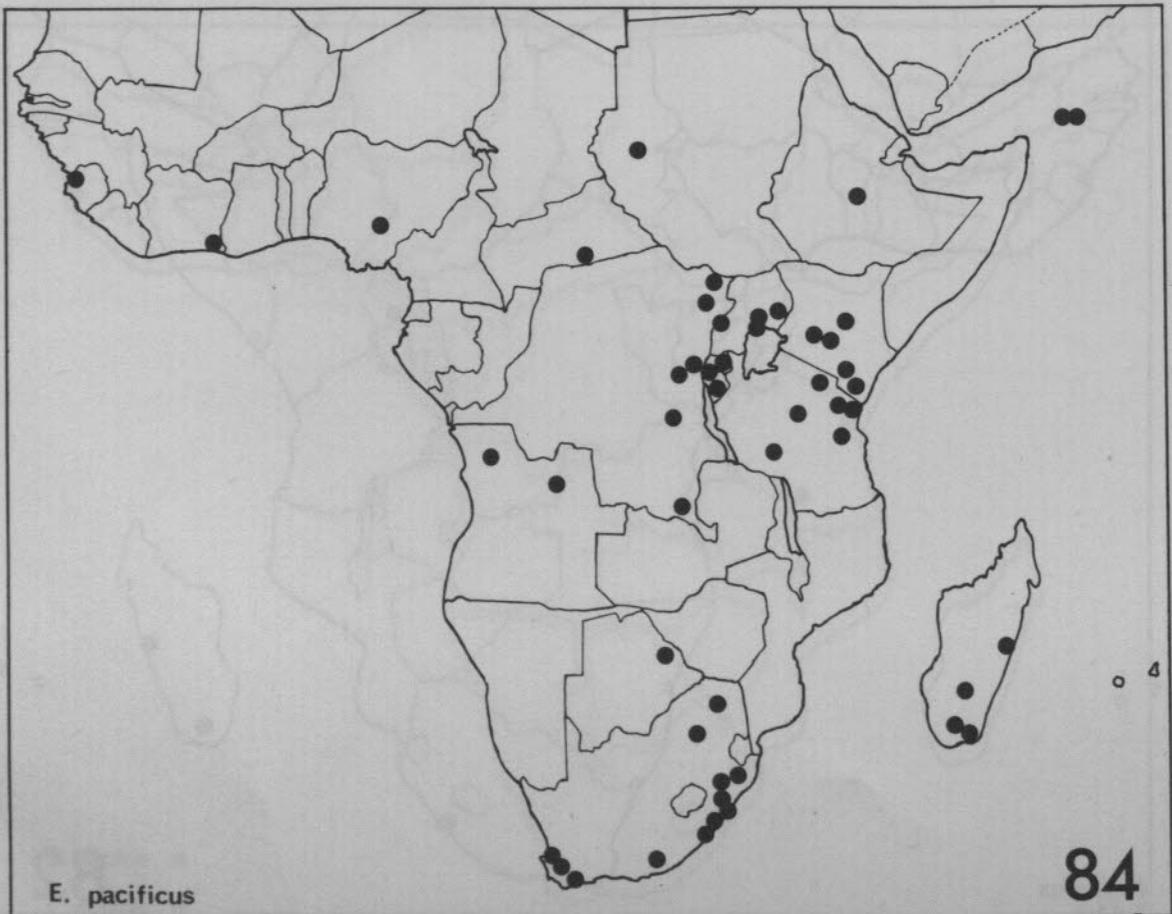
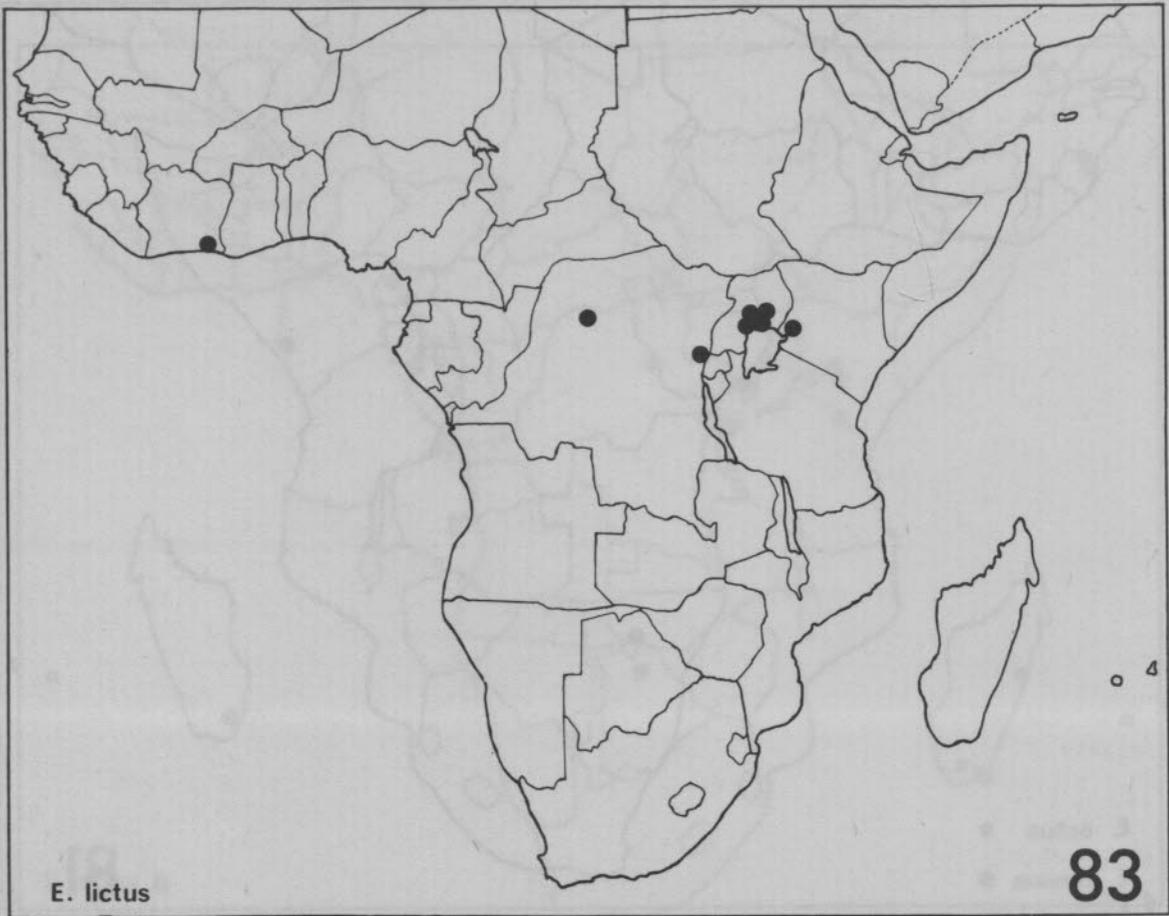
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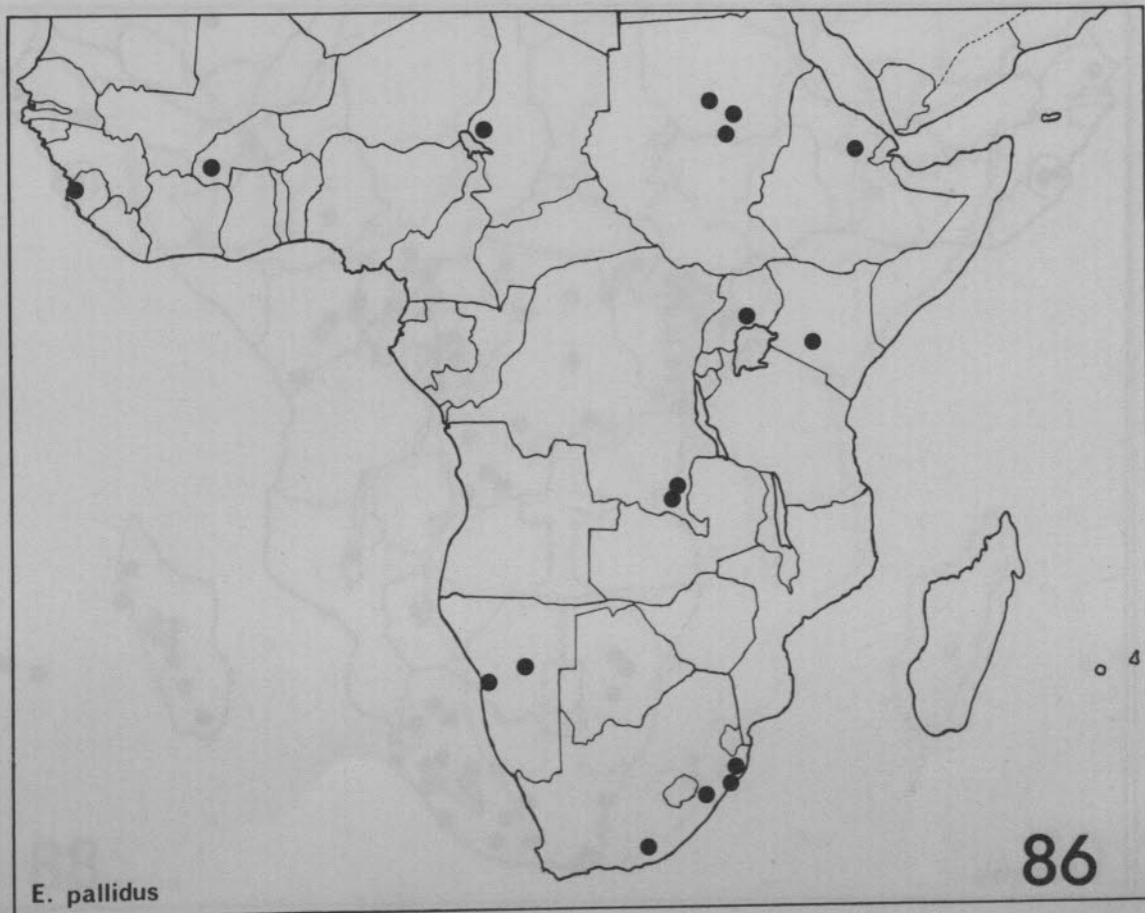
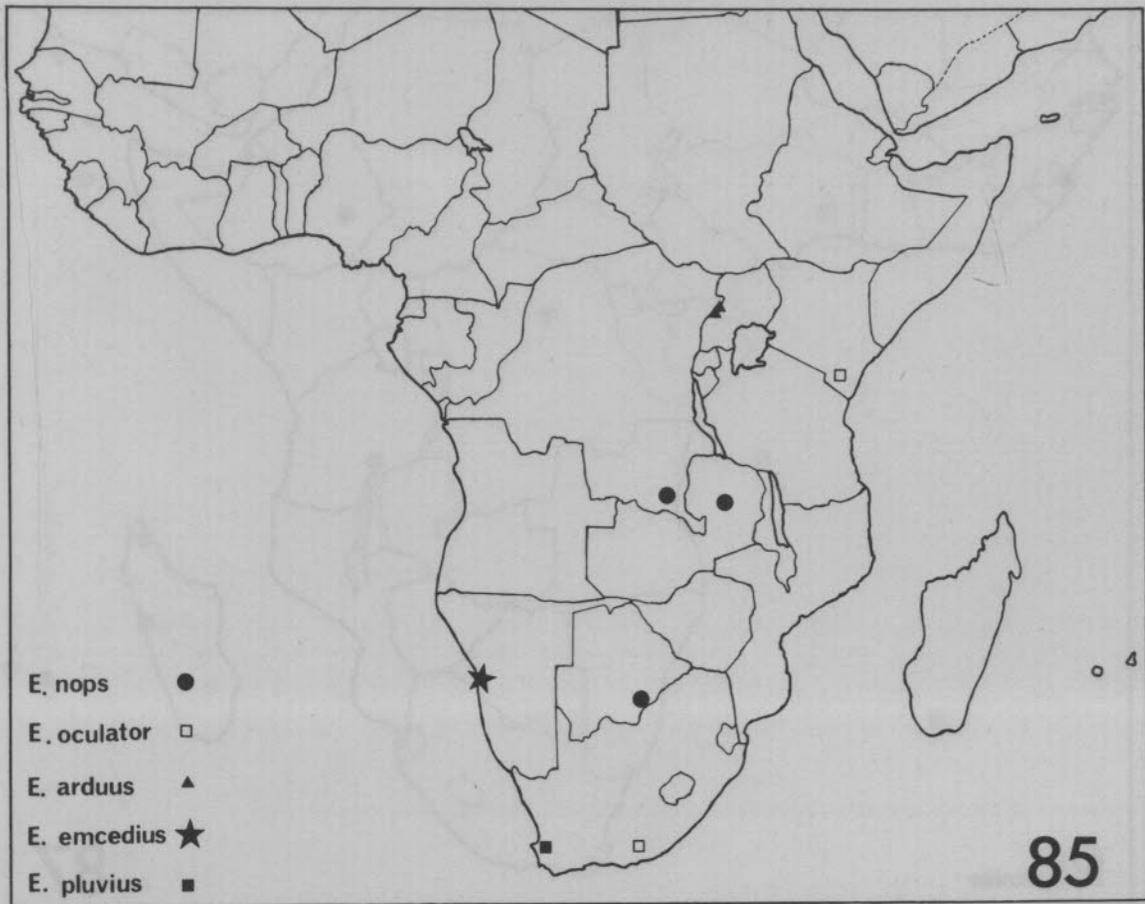


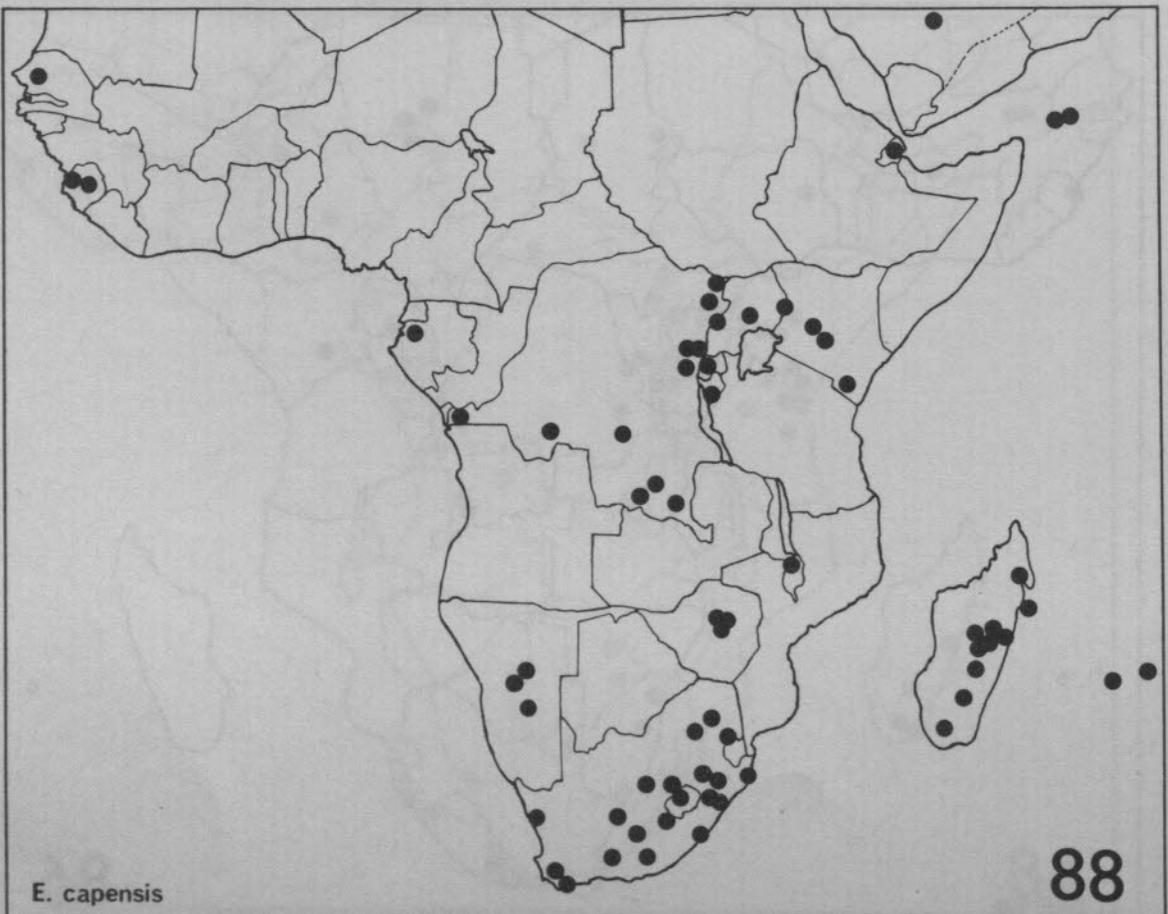
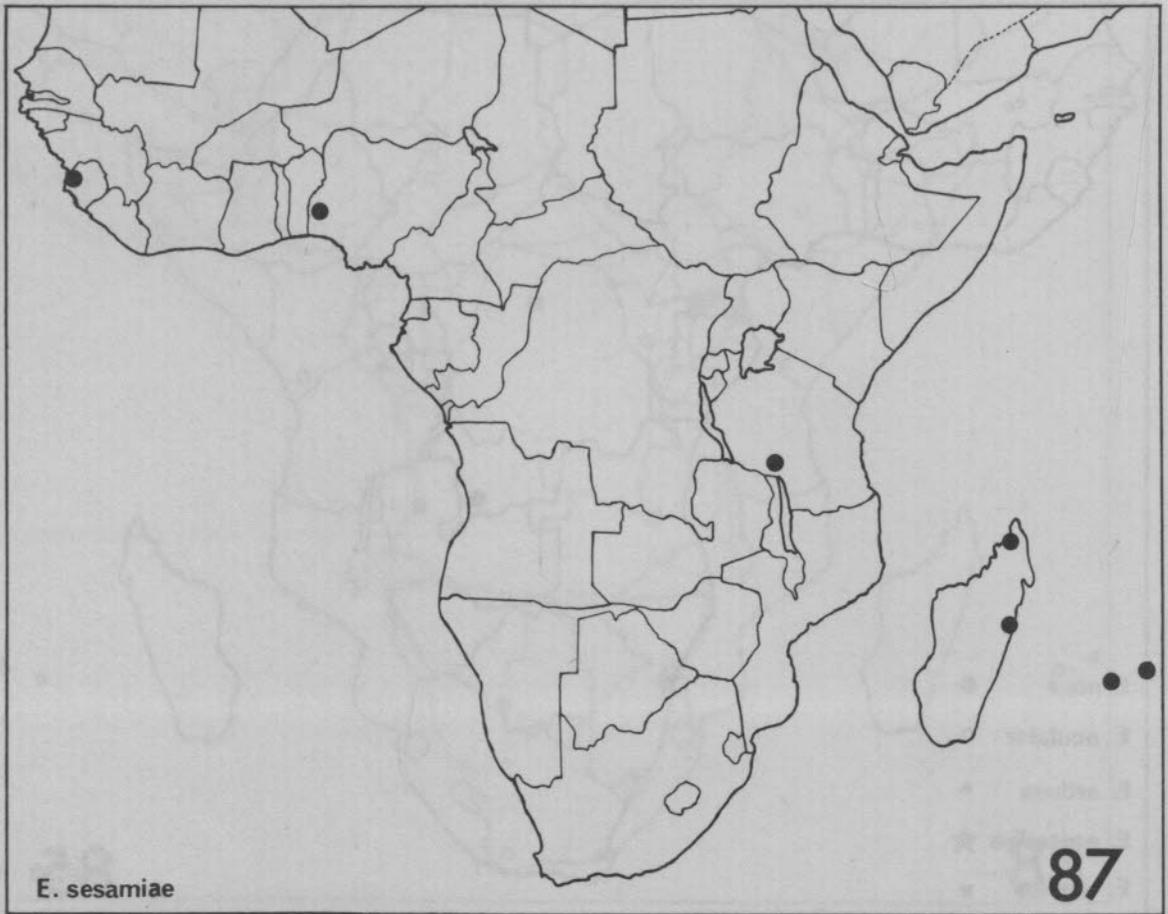


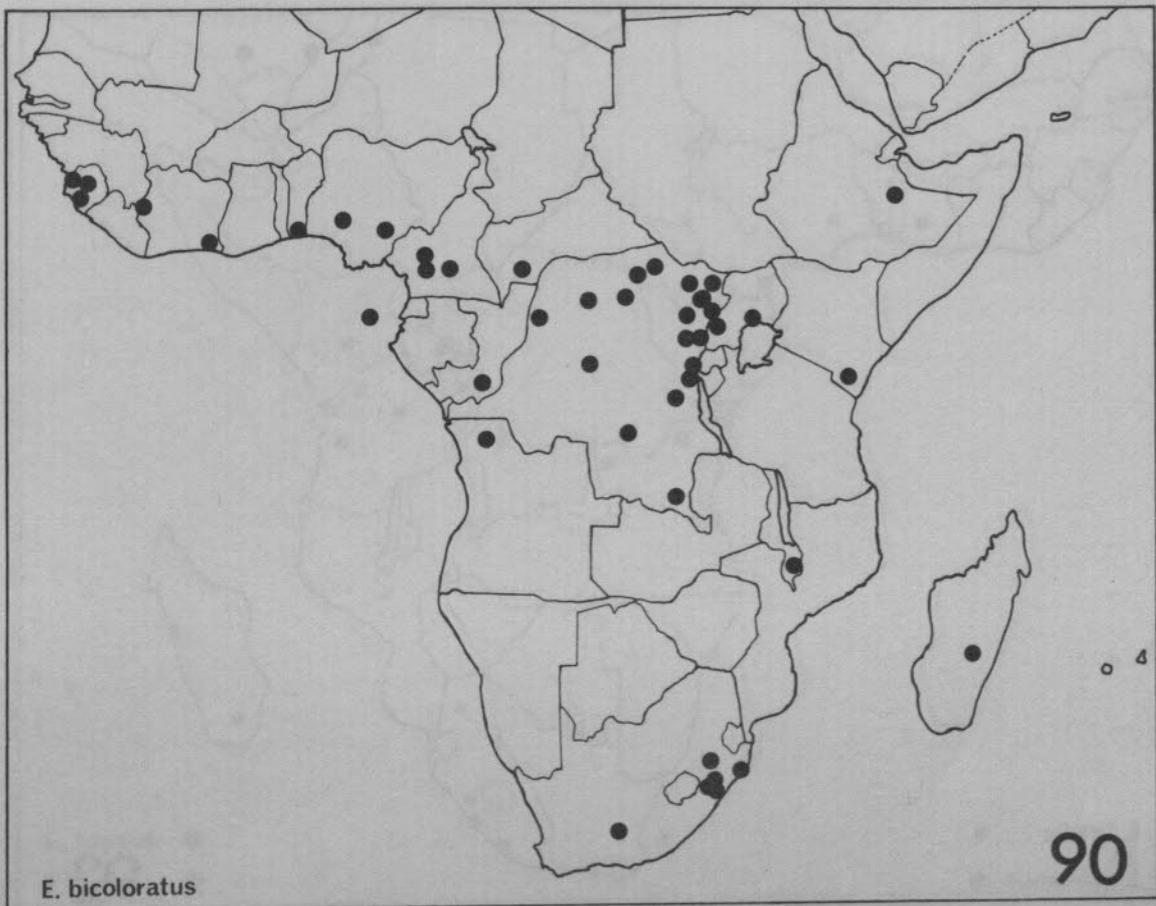
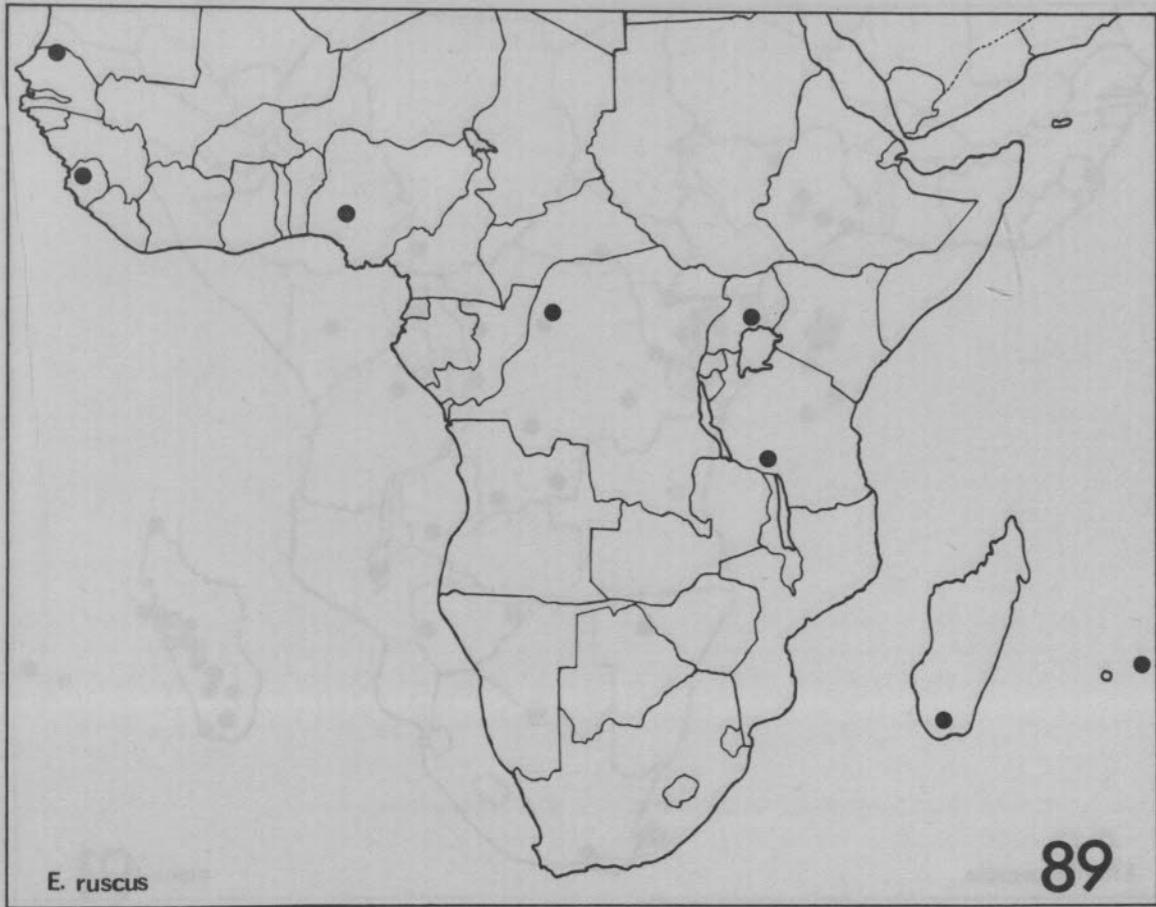


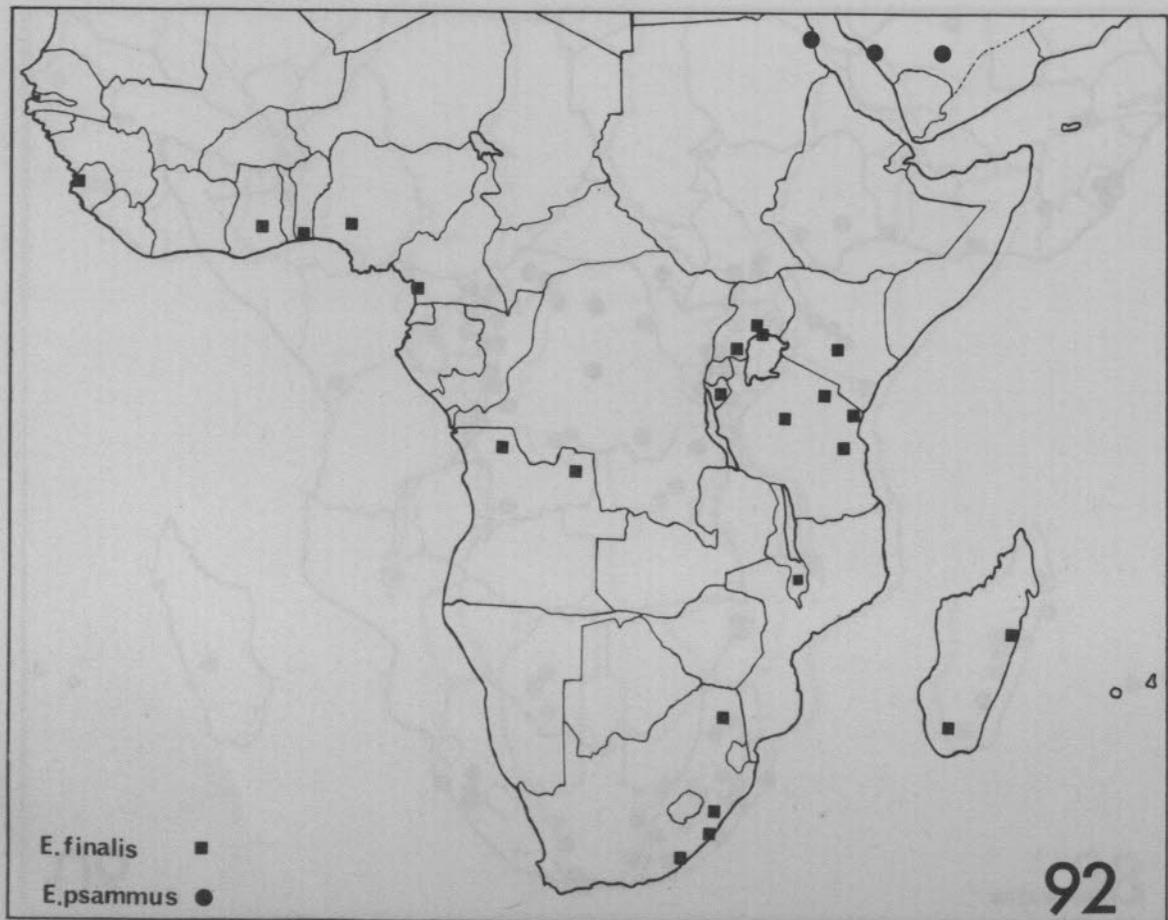
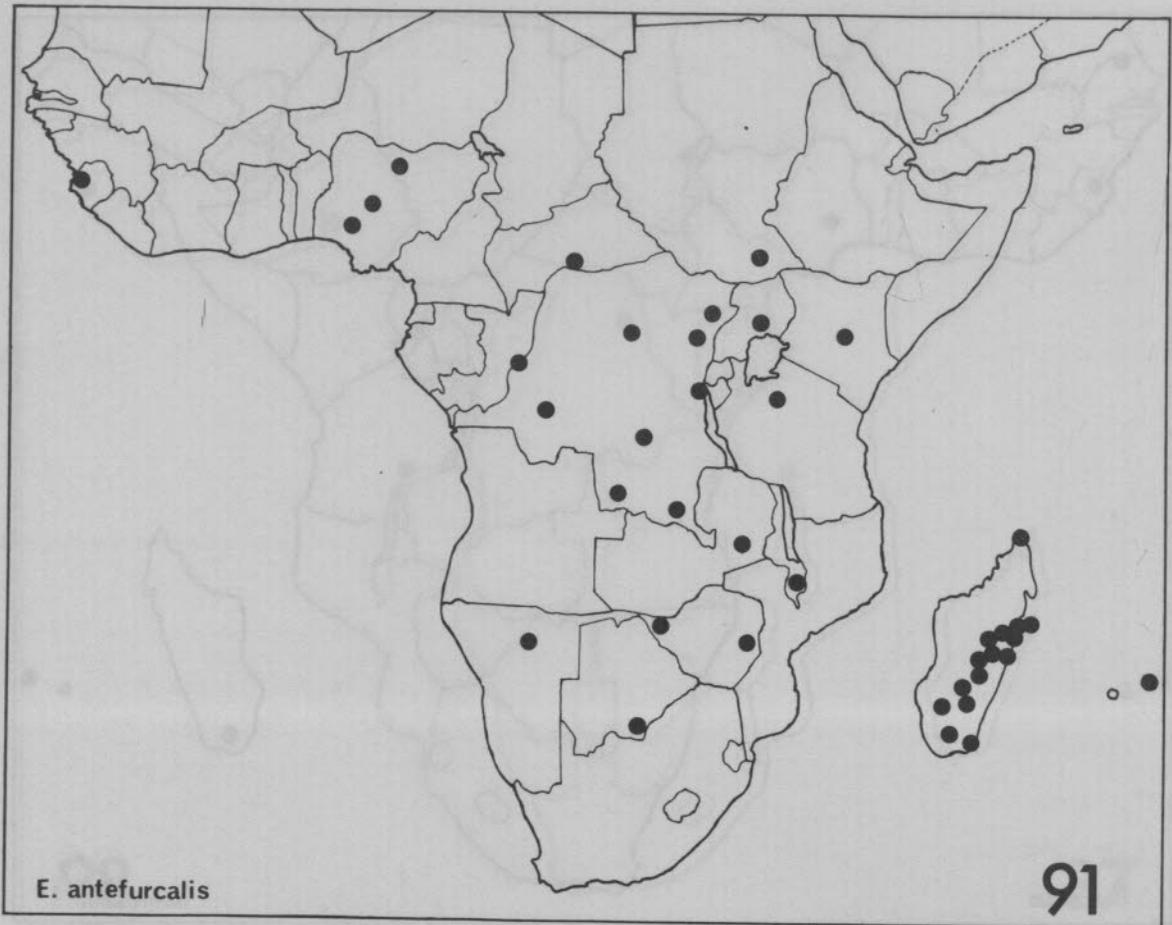


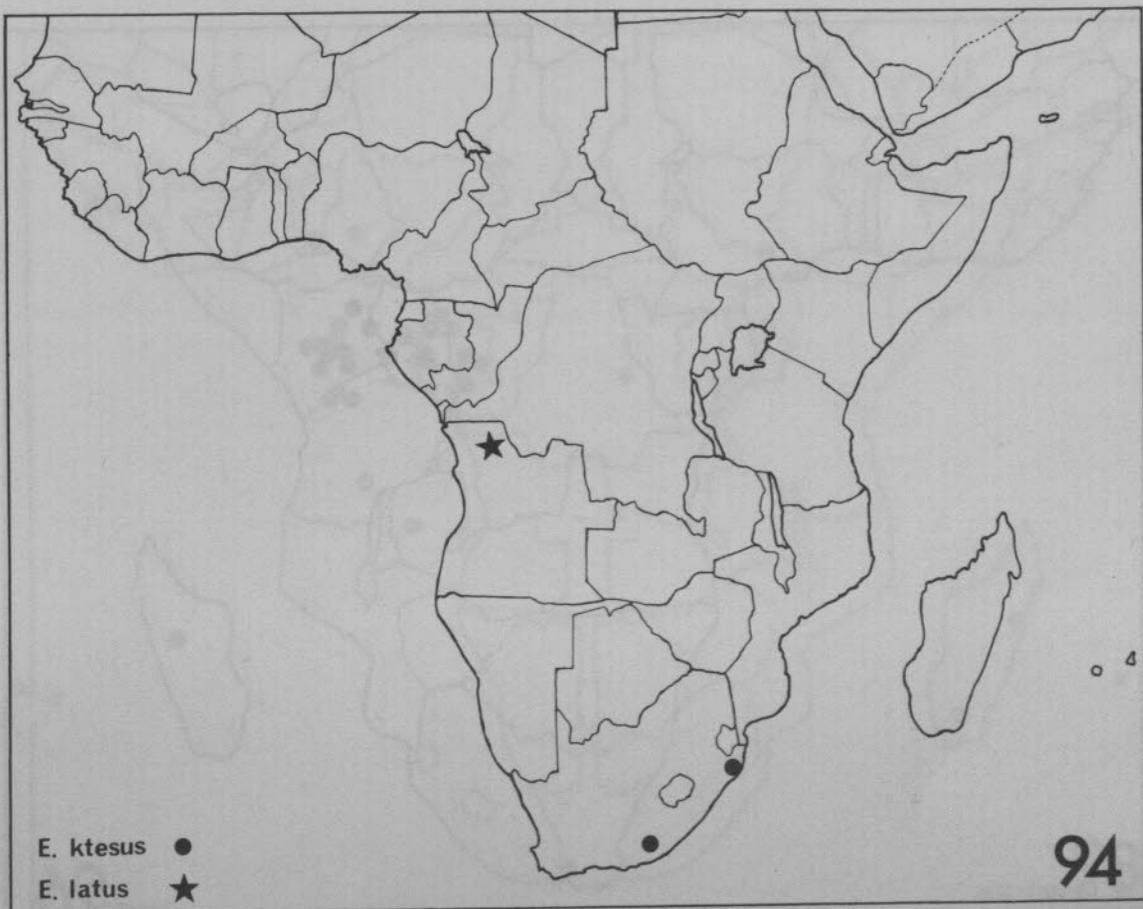
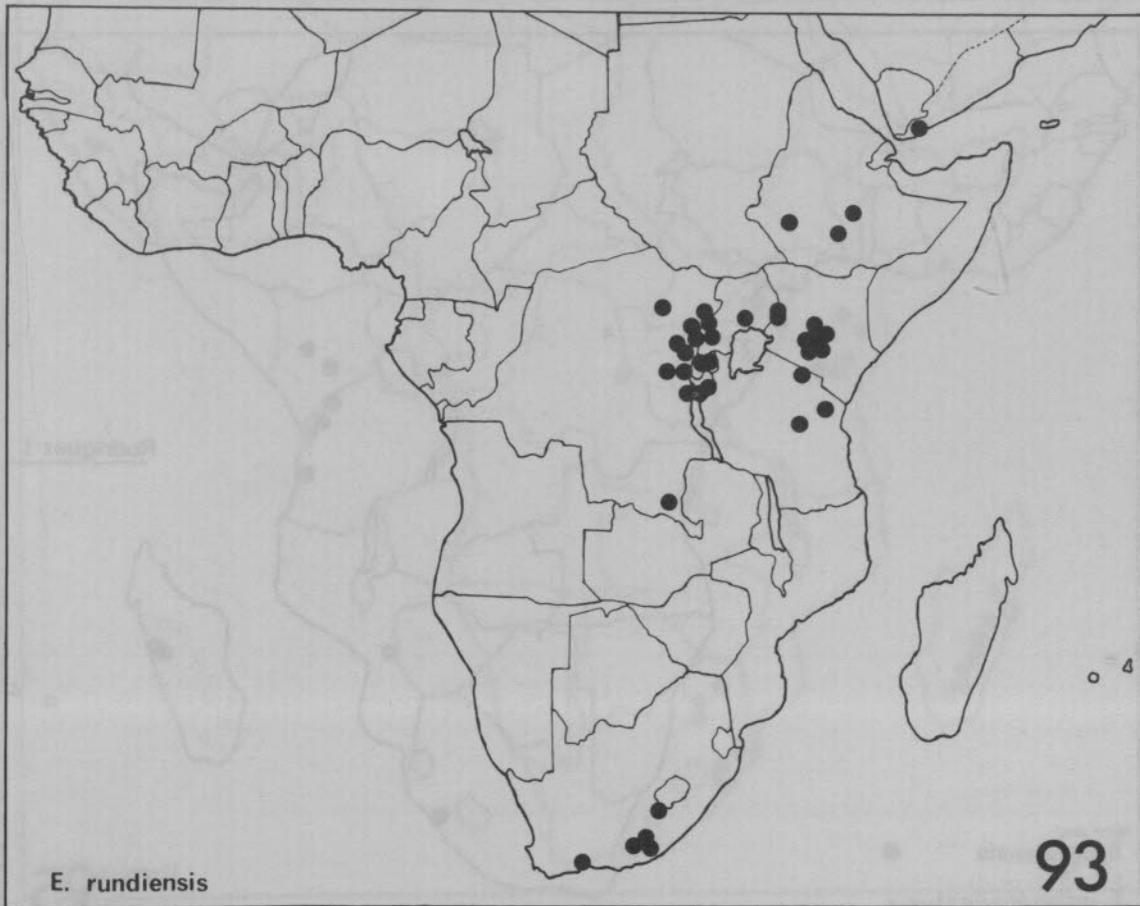


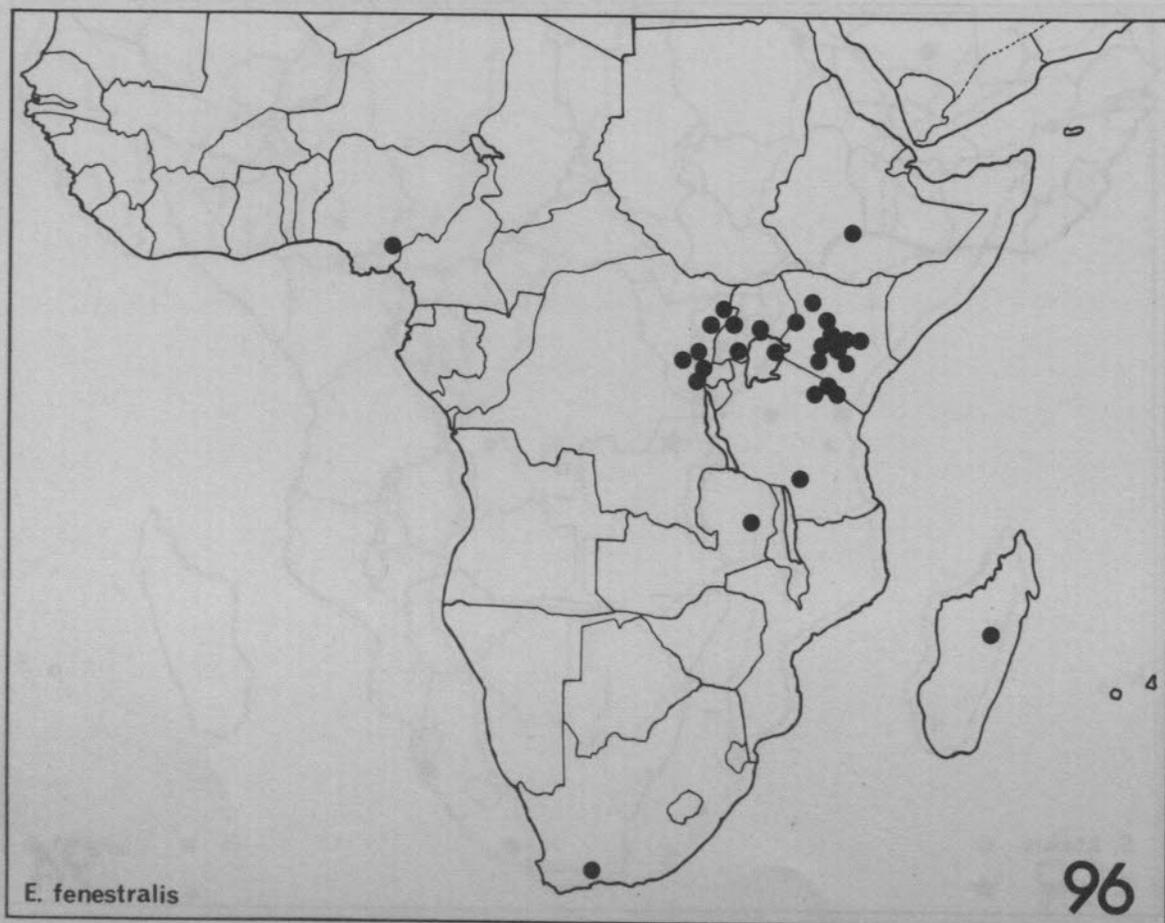
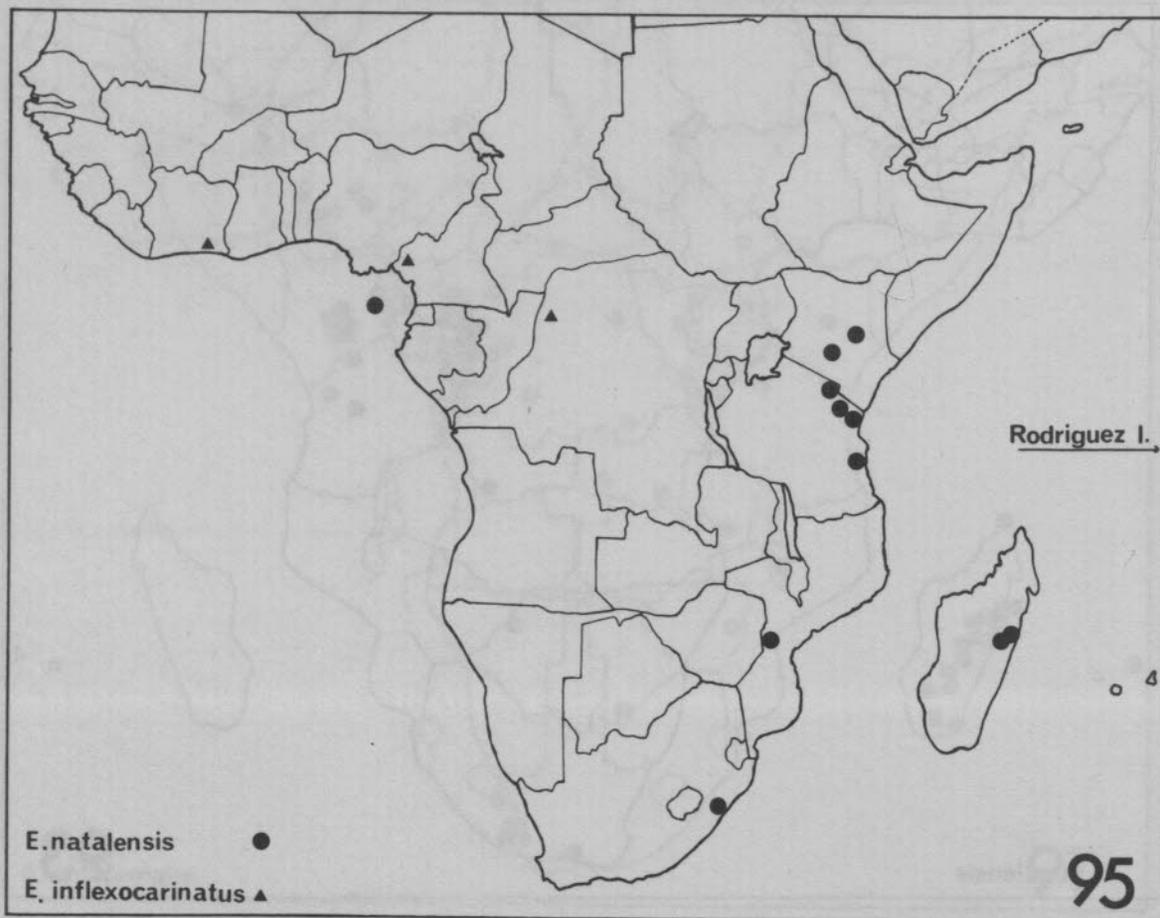


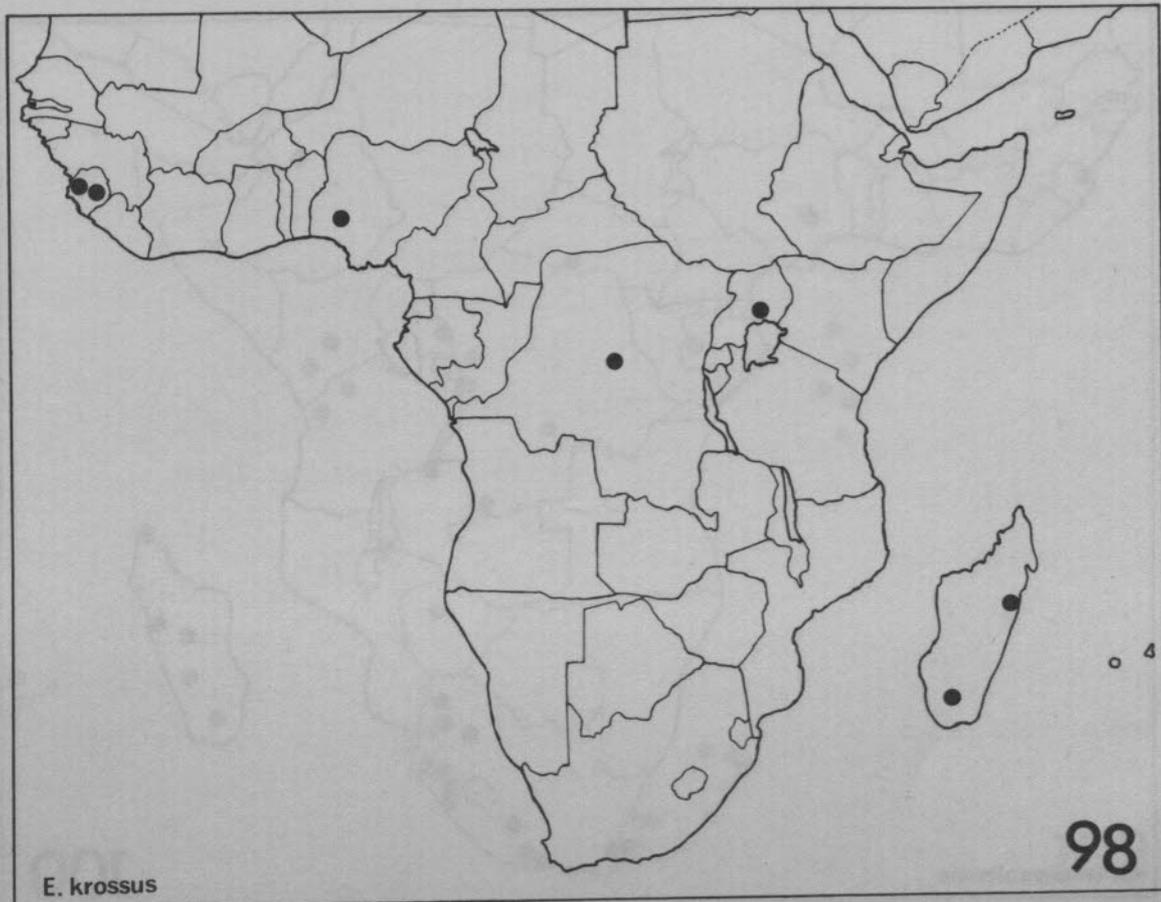
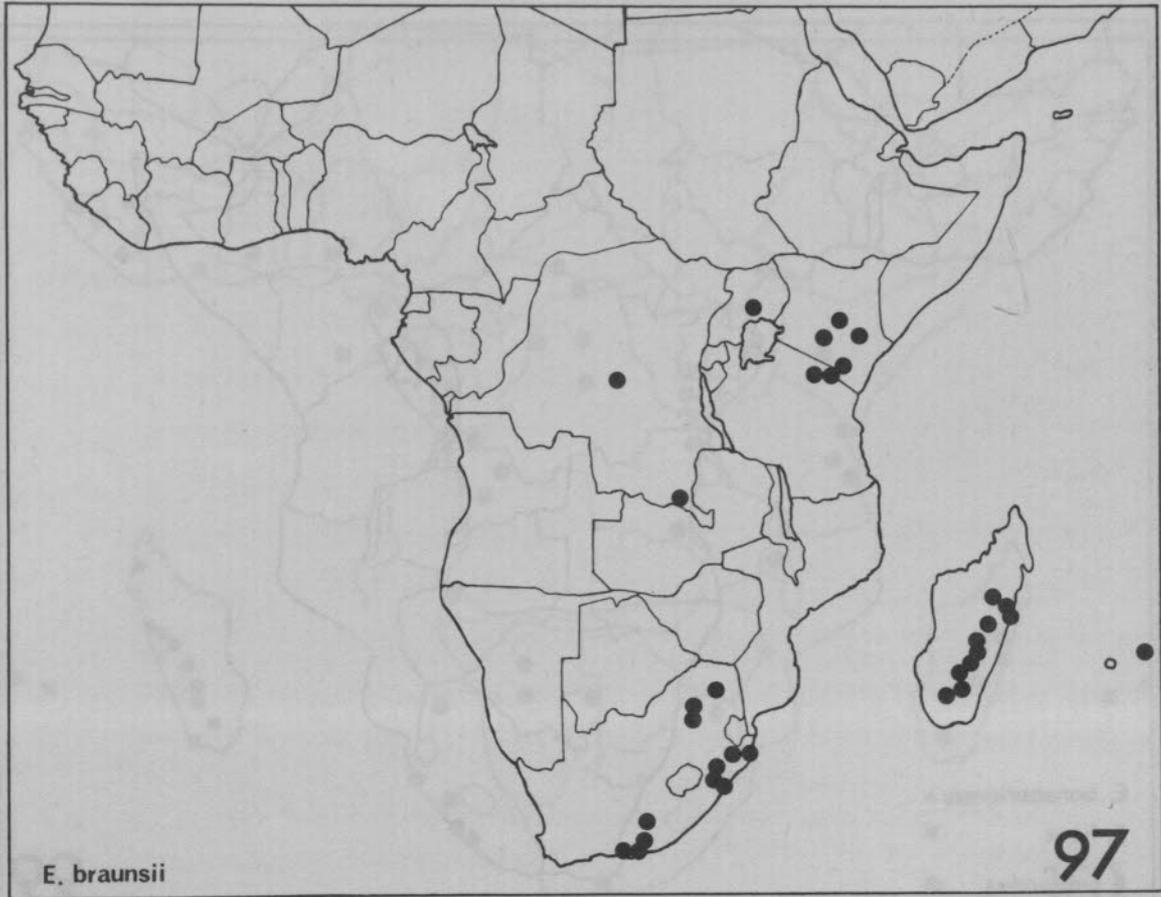


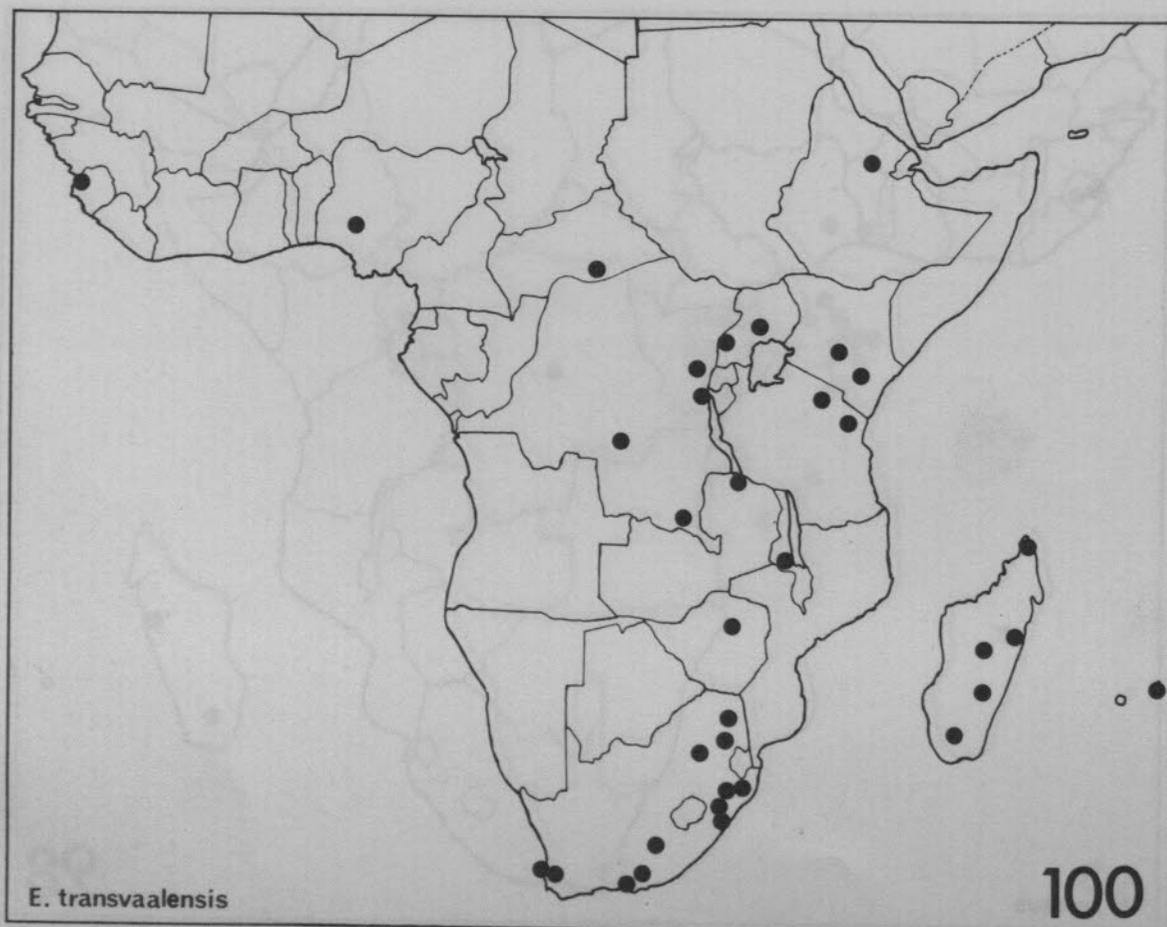
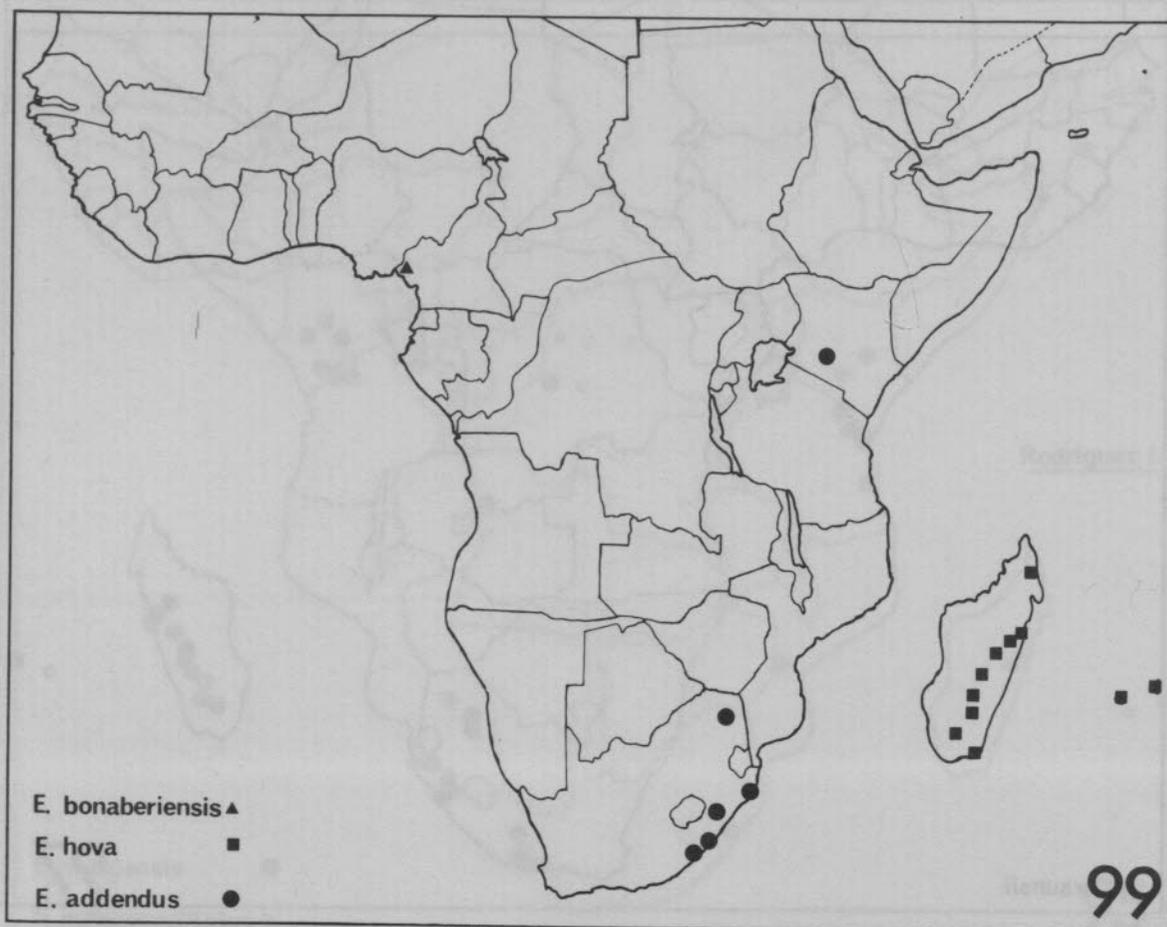


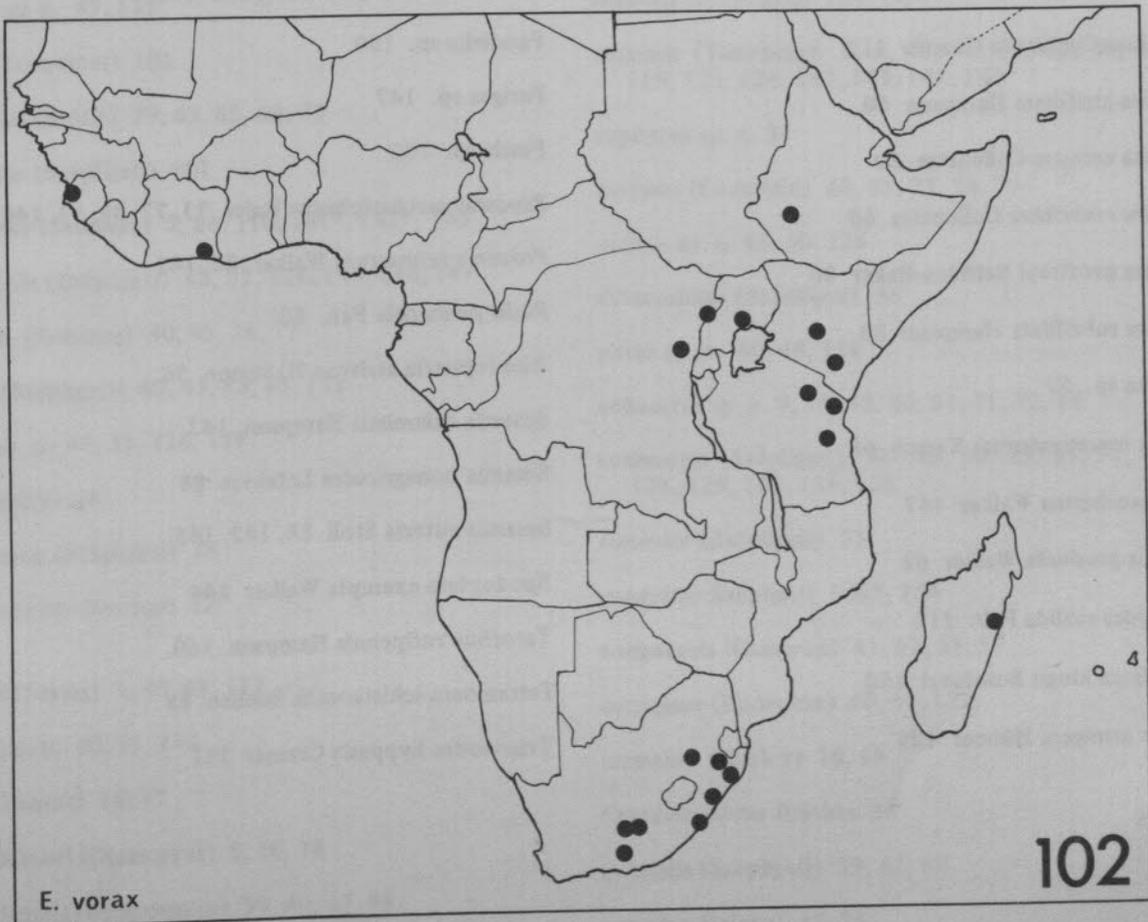
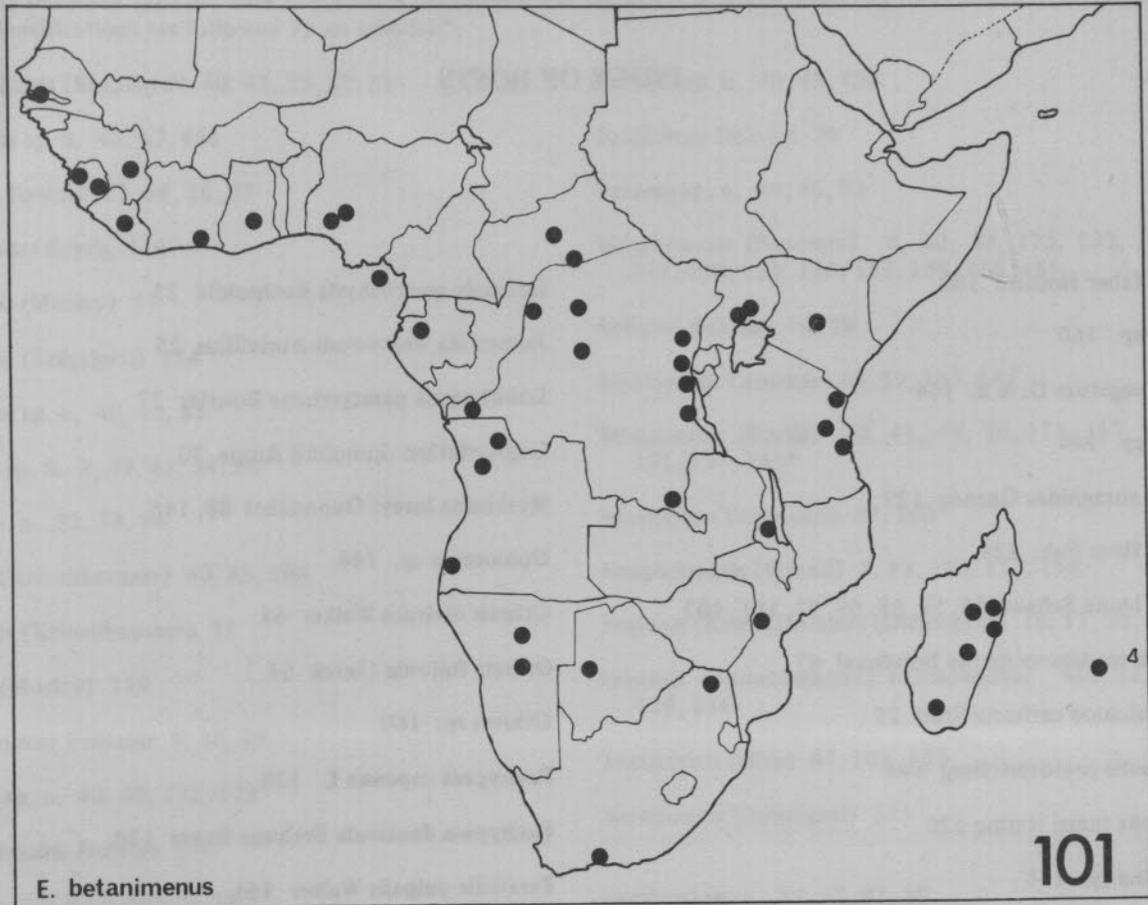












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