PARC NATIONAL DE LA GARAMBA. — MISSION H. DE SAEGER

en collaboration avec

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Fascicule 53 (2)

DERMAPTERA

BY

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Although the Dermaptera of Africa have been studied for some considerable time, our knowledge of the order in the Ethiopian Region is still very inadequate. This is partly due to the general lack of interest in the order and partly due to the difficulty of collecting specimens. The Dermaptera form a relatively small order, and specimens are not collected in any numbers unless particular attention is given to them, since most methods of general collecting are not suitable for their capture.

The surveys which have been undertaken in the National Parks of Africa by the Institut des Parcs Nationaux of Brussels, are therefore particularly interesting in the large numbers of Dermaptera included, and the study of these collections is most useful in adding much needed information regarding the African fauna. A recent opportunity has been given to the author, by courtesy of Professor Dr. W. ROBYNS, to examine a large collection of Dermaptera obtained by M. H. DE SAEGER during his recent collecting expedition in the Garamba National Park. This collection contains nearly one thousand specimens and includes twenty species.

The collection consists of species typical of savanna or forest areas at low or moderate altitudes, none of the species characteristic of the high mountains of Africa are represented. The most common species in the collection is *Forficula brolemanni* BORELLI, which accounts for about half the total specimens. This species is not particularly well represented in either the Manchester Museum or the British Museum (Natural History), and due to the large number of specimens available, some estimation can now be made of the intraspecific variation. The ubiquitous *Diaperasticus erythrocephalus* (OLIVIER) is also well represented, and includes both normal specimens and specimens in which the elytra are reduced and the wings absent or concealed.

Two species are new, and are described in the present paper, one belonging to the genus *Nala* (*Labiduridae*) and the other to the genus *Labia* (*Labiidae*). The specimens of the latter species are all females, but a male of this species has been found in undetermined material in the Manchester Museum.

The examination of the collection has also led to clarification of the status of *Apachys reichardi* KARSCH and of *Cordax formosus* BURR, details of which are included in the appropriate places. In consequence of the confusion regarding the latter species an opportunity has been taken to include a key to the African species of the subfamily *Opisthocosmiinae* (*Forficulidae*) in which the status of *Cordax formosus* is defined.

I wish to express my gratitude to Professor Dr. W. ROBYNS, President of the Institut des Parcs Nationaux, for the opportunity to examine the collection, a study which has been especially useful in the features mentioned above.

MANCHESTER MUSEUM.

DIPLATYIDAE

Diplatys macrocephala (BEAUVOIS).

5 ♂, 9 ♀. The male specimens include both macrolabic and microlabic forms. The occurrence of these forms is well known in many species of *Diplatys*, where some males tend to have the posterior segments of the abdomen greatly widened, and the forceps are large and strongly curved. These macrolabic forms may sometimes be associated with a larger size. In the microlabic forms the abdomen is parallel-sided, whilst the forceps are straight and resemble those of the females. Intermediate forms, or mesolabic, are also known. These different forms are not necessarily correlated with different colouration, but in the present specimens the colour does differ.

Only one male is of the microlabic form, and this specimen is of an uniformly brown colouration, whilst the other macrolabic males are dark greyish-brown. The genitalia of both types have been examined and they appear to the identical. Since the only certain taxonomic character to separate the species of this genus consists of the male genitalia, females can only be named by association with the males. One female of the present material is also uniformly brown; two are dark brown with reddish pronota; whilst one female is entirely dark brown.

Widely distributed in Central Africa.

KARSCHIELLIDAE

Bormansia africana VERHOEFF.

5 ♂, 7 ♀. A fine series of this large and characteristic species. Little variation, apart from size, has been noted.

Central and East Africa.

PYGIDICRANIDAE

ECHINOSOMATINAE.

Echinosoma wahlbergi DOHRN.

6 ♂, 4 ♀, 6 nymphs. The dark spot on the yellow wings in these specimens varies in extent and prominence; in some specimens the wings are almost entirely dark brown but the distinctive features given by

HINCKS (1959, pp. 119 and 120) are well shown in both sexes. These consist of the truncate pygidium of the female, and the lateral ridges on the sixth and seventh tergites of the male.

Widely distributed in Central Africa.

E. fuscum BORELLI.

15 ♀ and nymphs. These are referred to this species on account of the narrow and sharply pointed pygidium of the female, which is a characteristic feature of this species according to HINCKS (1959, p. 120). No males have been found amongst the material in the collection.

Widely distributed in Central Africa.

CARCINOPHORIDAE

CARCINOPHORINAE.

Euborellia annulipes (LUCAS).

2 ♂, 6 ♀, 2 nymphs. Common and widely distributed in subtropical and tropical regions.

E. compressa (BORELLI).

3 ♂, 10 ♀, 3 nymphs. These specimens are provisionally referred to this species pending a revision of the *Carcinophoridae*. The present specimens agree in almost all characters, including the male genitalia, with specimens in the Hincks Collection (Manchester Museum), but they are larger in size. There is some variation in size in the specimens from the Garamba National Park, the body length varying from 10-13 mm in the adults, a size which is rather large for *compressa*.

East and Central Africa.

LABIDURIDAE

LABIDURINAE.

Labidura riparia (PALLAS).

1 ♂, 4 ♀, 2 nymphs. The specimens include some of the dark form, in which the insect is almost entirely blackish or dark reddish-brown, and some in which the ultimate tergite and forceps are yellow, with the wings and elytral suture also yellowish.

Almost cosmopolitan in distribution.

Forcipula gariazzi (BORELLI).

2 ♂, 6 ♀, 4 nymphs. A fine series of this large insect, the males varying in body length from 15-18 mm, with the length of the forceps varying from 8-12 mm. There is little variation in colour, most being blackish-brown, but some specimens have the humeral part of the elytra lighter in colour. The forceps of the males are mainly reddish, whilst those of the females are black.

Central African in distribution.

Nala saegeri n. sp.

Shining black or dark brown, lateral margins of pronotum yellow; femora with broad blackish bands, otherwise yellowish.

Male : head tumid, black, almost impunctate anterior to frontal sutures, punctured posteriorly, margins of sutures rugose. Eyes small, the length less than the length of head behind eyes. Antennae 17-segmented in type, dark brown; first segment shorter than distance between antennal bases; second segment quadrate; third as long as, but narrower than, first; fourth and fifth shorter than third; sixth and succeeding segments more elongate.

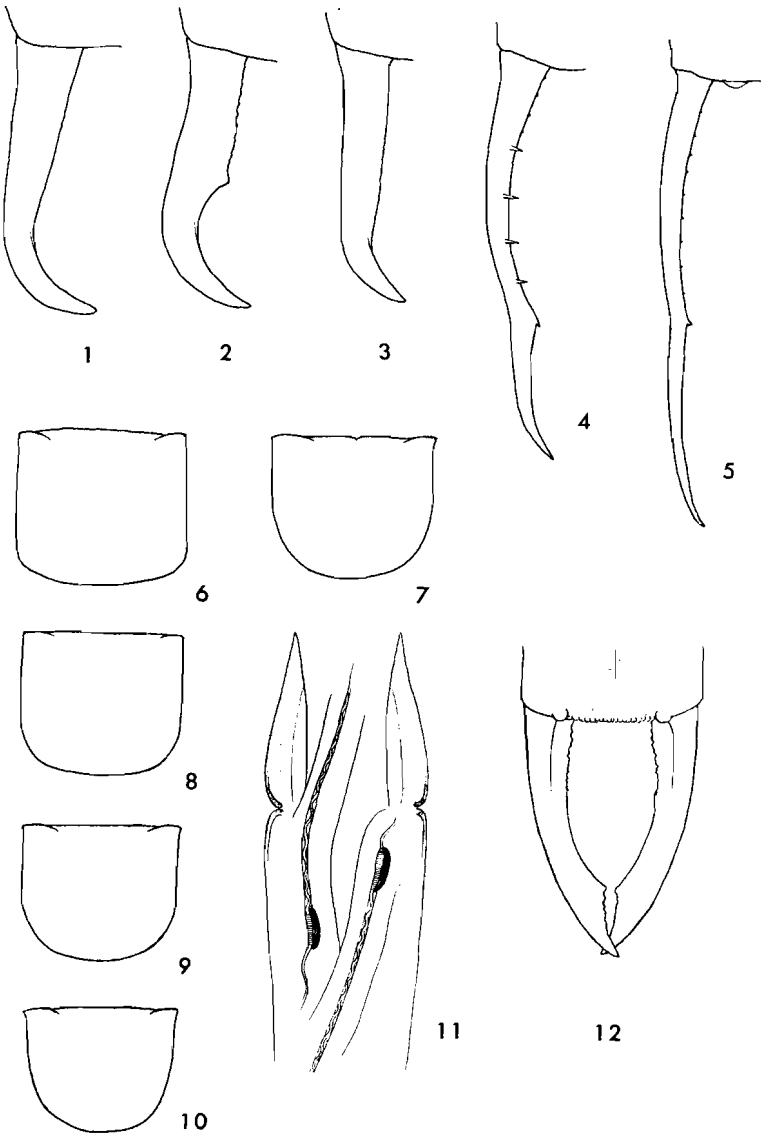
Pronotum blackish, transverse, proportion of width to length about 3 : 2·8 measured near to posterior margin, anterior part of pronotum coriaceous, posterior part rugose. Elytra shining, dark brown or blackish, short, about as long as pronotum; surface of elytra covered with small tubercles, each separated by about its own diameter from adjacent ones, but the distribution of these tubercles is slightly uneven; a very strong lateral longitudinal ridge on each elytron, the ridge curving mesad posteriorly. Wings absent or concealed. Legs short, stout, yellowish, femora with blackish median band.

Abdomen coriaceous, more or less parallel-sided; ultimate tergite brightly shining, punctured anteriorly but smooth posteriorly, with a strong median longitudinal furrow; posterior margin emarginate, margin between bases of forceps rugose. Forceps (fig. 12) shining black or dark red, triangular in cross section basally, with a prominent dorsal ridge; circular in cross section distally; inner margins with small teeth but without a large basal tooth. Genitalia fig. 11.

Length : body 6-9 mm, forceps 1·75 mm.

Female : as male but with short contiguous forceps, which are broad at the base; each branch tapering distallly.

Length : body 7-9 mm, forceps 1·5-1·75 mm.



FIGS. 1-5 : Left branch of male forceps of *Thalperus micheli*, *T. hova*, *T. poecilocera*, *Afrocosmia denticulata* and *Cordax formosus*. — FIGS. 6-10 : Pronota of *Archidux adolfi*, *Afrocosmia denticulata*, *Thalperus micheli*, *T. hova*, *T. poecilocera*. — FIG. 11 : Male genitalia of *Nala saegeri*. — FIG. 12 : Male forceps of *Nala Saegeri*.

Material examined: Congo Belge, P.N.G., Miss. H. DE SAEGER, K. 17, 18.IV.1950, Rec. H DE SAEGER, 432 (♂ holotype, ♀ allotype, 3 ♂, 5 ♀, paratypes); same data, 10.V.1950, 505 (1 ♂ paratype), 504 (2 ♂, 1 ♀ paratypes), 506 (1 ♂, 1 ♀ paratypes).

All types in the Institut des Parcs Nationaux, except for two male and two female paratypes, one pair of which will be retained in the Manchester Museum, and one pair placed in the British Museum (Natural History).

I have much pleasure in naming this species after M. H. DE SAEGER, in recognition of the value of the numerous specimens collected in the Garamba National Park.

N. saegeri is closely related to *N. figinii*, but is distinct by its transverse pronotum, and by the absence of the large basal teeth on the male forceps. The male forceps of *N. figinii*, in addition to the large basal teeth, are longer and straighter than those of *saegeri* (cf. figs. 12 and 16). The genitalia of both these species are similar but the parameres of *saegeri* are shorter than those of *figinii*.

The species of this genus found in Africa may be separated as follows :

1. Abdomen dull black or almost so, elytra and wings dull brown; male forceps gentry arcuate without a basal tooth ..... *lividipes* (DUFOUR).

— Abdomen coloured similarly to the elytra and wings 2

2. Body length 6 mm; reddish or yellowish-brown; elytra and wings well developed; male forceps with a basal tooth ..... *caprea* MENOZZI.

— Body length 8 mm or longer; dark reddish-brown or blackish; wings absent or concealed 3

3. Pronotum quadrate; dark reddish brown; male forceps without a basal tooth ..... *intermedia* MENOZZI.

— Pronotum transverse or longer than broad; dark brown or blackish. 4

4. Pronotum transverse; male forceps without a basal tooth, short; darker species ..... *saegeri* n. sp.

— Pronotum longer than broad; male forceps with a basal tooth, long; lighter species ..... *figinii* BURR.

Apachys reichardi KARSCH.

16 ♂, 25 ♀. All the specimens are very dark brown, almost blackish, and were determined as *A. depressus* of which species *reichardi* was considered to be a synonym (REHN, 1924). The specimens were returned to the Institut des Parcs Nationaux so determined, but doubts as to the correctness of this synonymy resulted in a revision of the entire genus.

This has recently been published (BRINDLE, 1966*a*) and in this revision *reichardi* is given specific status, on the basis of the shape of the parameres of the male genitalia.

The specimens in the collection from the Garamba National Park are all referable to *reichardi*. This species is very dark, much darker than the true *depressus*, and is usually larger.

LABIIDAE

LABIINAE.

Labia minor (LINNAEUS).

9 ♂, 9 ♀. Some of the specimens are labelled as having been taken at light. This species is known to fly readily under certain conditions.

Almost cosmopolitan in distribution.

Labia marginalis (THUNBERG) (**ochropus** STÅL).

4 ♂, 5 ♀, 1 nymph. These specimens agree exactly with specimens in the Manchester Museum under the name of *ochropus* STÅL. *L. marginalis* THUNBERG, however, is a prior synonym of *ochropus*, according to BURR (1911, p. 56), and this synonymy was accepted by the late Dr. W. D. HINCKS, according to his preliminary list of World Dermaptera. The species is similar in colouration to *L. oweni* BURR, but is distinguished by its yellow legs and the absence of the short black setae which are characteristic of *oweni*.

Central Africa.

Labia africana n. sp.

A small yellow, and dark brown species, with black head and blackish ultimate tergite.

Male : (fig. 13) head large, almost quadrate, tumid, shining black, surface coriaceous; posterior margin straight, posterior angles rounded. Eyes small, less than length of head behind eyes. Antennae 12-segmented in type, dark brown; first segment shorter than distance between antennal bases; second segment transverse; third nearly 1 ½ times as long as broad; fourth almost quadrate; fifth equal in length to third, but broader; sixth and succeeding segments broader and more elongate; segments 8-10 broader than the rest, and moniliform.

Pronotum quadrate, narrower than head, yellowish-brown, lateral margins rather convex, posterior margin well rounded, and with an

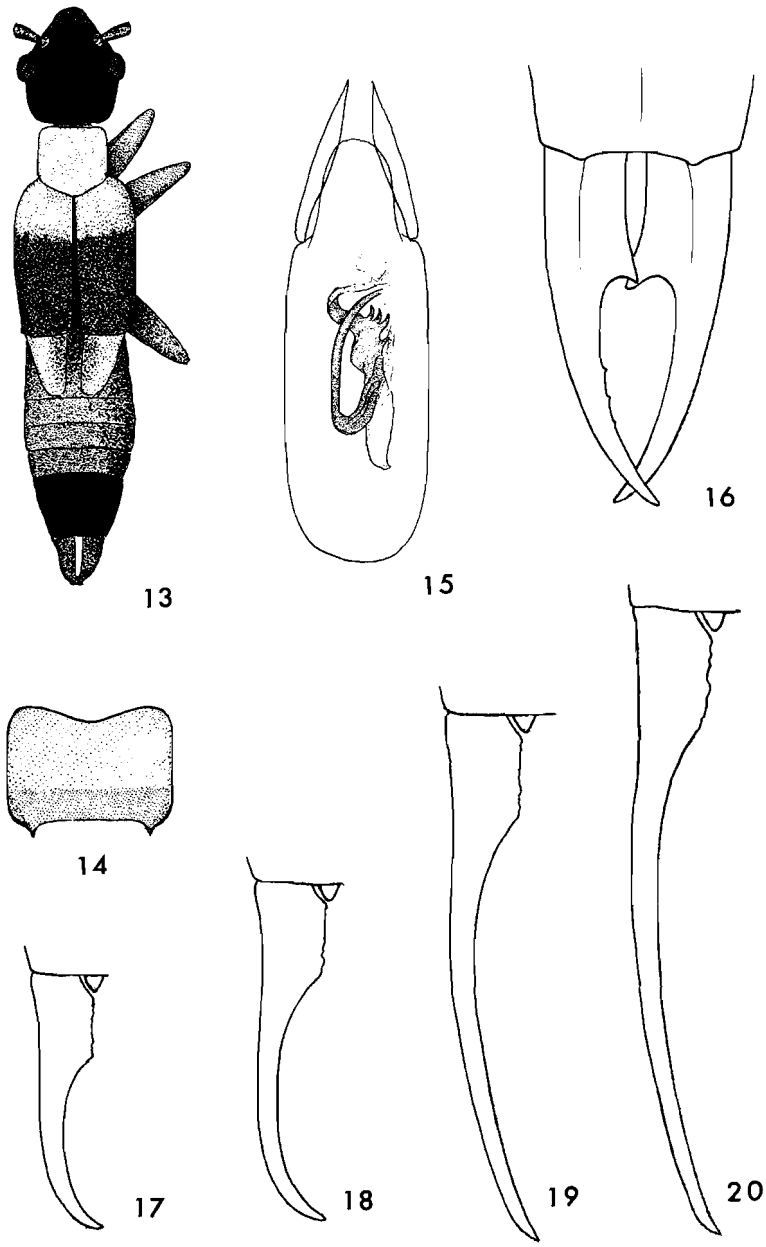


FIG. 13 : *Labia africana*, male, dorsal. — FIG. 14 : *Labia africana*, penultimate sternite of male. — FIG. 15 : *Labia africana*, male genitalia. — FIG. 16 : *Nala figinii*, male forceps. — FIGS. 17-20 : *Forficula brolemanni*, male forceps (only left branch shown).

indication of an apex posteriorly. Elytra long, over twice as long as pronotum, yellowish-brown on anterior third, blackish or dark brown posteriorly; surface rather rugose, and with numerous long yellow hairs. Wings long, about as long as pronotum, yellowish, rugose and dull as elytra, slightly darkened along sutural margins, surface with numerous long yellow hairs. Legs yellow, femora broad, typical of genus.

Abdomen brown, coriaceous, shining, surface with numerous long yellow hairs; ultimate tergite blackish, smooth and shining, quadrate, narrowed posteriorly, posterior margin truncate and with a small tubercle above the base of each branch of the forceps. Penultimate sternite (fig. 14) with posterior margin strongly emarginate, yellow with basal third brown, smooth. Forceps reddish-brown, small, evenly curved. Genitalia fig. 15.

Length : body 4 mm, forceps ·5 mm.

Females : similar to male, but pronotum with posterior margin rounded without an indication of an apex, ultimate tergite narrower, forceps less broad at base; segments of antennae as male but a little variation has been noted amongst the four specimens with regard to the breadth of segments 8-10; one female has these broadened as the male, whilst the other specimens do not show this.

Length : body 3·5 mm, forceps ·5 mm.

Material examined : Nigeria, Banchi Province, Gadan, 25.VI.1957, P. Blasdale (♂ holotype, in coll. HINCKS, Manchester Museum).

The four females in the collection of the Garamba National Park are undoubtedly the same species, but it is not feasible to name them as paratypes.

This small species appears to be very distinct from other known African Labiids by its very small size and by its distinctive colouration I can find no species near to this in the available literature, nor in the collections at Manchester or the British Museum (Natural History).

Chaetospania ugandana BORELLI.

1 ♀. Almost blackish in colour, this specimen is small but agrees well with the original description and named specimens.

East Africa.

FORFICULIDAE

FORFICULINAE.

Forficula brolemanni BORELLI.

217 ♂, 345 ♀. An interesting series, showing the possible range of variation. The colour ranges from yellowish to blackish-brown. In some specimens the head and pronotum are reddish-brown, the elytra and wings are yellowish, whilst the abdomen is dark brown; in others the head, pronotum, and elytra are dark brown whilst the abdomen is blackish. Some specimens are almost entirely blackish-brown. There is no marked disparity in numbers of the different colour forms, the entirely blackish-brown specimens being the least common, but even these have been estimated as constituting 20 % of the total.

The range in body length of the specimens is from 9-12 mm in the males, and 8-11 mm in the females. The male forceps vary in length from 3·5 mm to 10 mm, whilst those of the females vary from 2-2·75 mm. The males with the longest forceps are the macrolabic forms, which is the form first described by BORELLI (1907). REHN (1924) dealt with the variation in length of the forceps of this species, and his measurements of the length and the length of the forceps of the male agree with those of the present specimens. The range in length of the male forceps is shown in figs. 17-20; although the branches of the forceps show such a wide variation in length, it is notable that the basal dilation remains more constant, only the narrow distal part of the branches being subject to great elongation.

The macrolabic and microlabic forms mentioned do not appear to be geographical races. REHN (l.c.) found that both forms occurred together, and this seems to be the case with the present specimens.

The extent of the basal dilation of the male forceps is used as a taxonomic character in the genus *Forficula*, and the examination of the present material indicates that this character is stable, certainly in *F. brolemanni*.

The species was originally described from the Sudan, but is now known to extend southwards to the Congo.

OPISTHOCOSMIINAE.

This subfamily, as now constituted, is poorly represented in Africa, and consists of ten species included in four genera. There has been some confusion between some of these species, partly due to the close similarity between certain of the species, and partly due to the varying interpretations placed on the original descriptions.

HINCKS (1954) gave a key to the African species of the Opisthocosmiinae, in which four species were included — *Thalperus hova*, *T. micheli*, *T. poecilocera*, and *Cordax formosus*. A number of names included under *Thalperus* were also synonymized. Since that date HINCKS (1960) described a new genus and species, *Afrocosmia denticulata*, which he added to this subfamily, and BRINDLE (1966*b*) transferred the African genus *Archidux* to this subfamily.

The following key contains all the present known African Opisthocosmiinae :

1. Each elytron with a well marked lateral longitudinal ridge 2

— Elytra without such ridges 3

2. Colour yellowish-brown; pronotum strongly rounded posteriorly (fig. 7); male forceps with several prominent teeth on inner margin of each branch (fig. 4) ..... *Afrocosmia denticulata* HINCKS.

— Colour black; pronotum with posterior margin almost straight (fig. 6); male forceps with at most two teeth on inner margin of each branch (for key to species see BRINDLE 1966*b*) ..... *Archidux*.

3. Pronotum narrowed posteriorly (fig. 10); at least middle and posterior femora yellow with brown or black apices 4

— Pronotum with sides more or less parallel (figs. 8 and 9); legs unicolorous brown 5

4. Elytra unicolorous, brown to black; legs shorter; male forceps shorter than abdomen (fig. 3); female forceps simple, short, contiguous ..... *Thalperus poecilocera* (BORG).

— Elytra blackish with yellow humeral spot; legs longer; male forceps almost as long as body (fig. 5); female forceps longer than abdomen; both male and female forceps slender ..... *Cordax formosus* BURR.

5. Pronotum with lateral margins rather convex, posterior margin well rounded (fig. 9); elytra longer and wings visible; male forceps fig. 2 ... *Thalperus hova* (BORMANS).

— Pronotum with lateral margins straight, posterior margin much less rounded (fig. 8); elytra reduced in length, wings absent or concealed . 6

6. Larger, body length 13.5 mm, forceps 3.75 mm (only male holotype known) ..... *Thalperus sanga* REHN.

— Smaller, body length 10 mm or less; forceps 2 mm or shorter; male forceps fig. 1 ..... *Thalperus micheli* (BURR).

Thalperus hova (BORMANS).

10 ♂, 30 ♀. HINCKS (1954) synonymized *roccatti* BORELLI and *inermis* BORELLI with this species. Formerly *hova* was considered to be entirely confined to Madagascar, but with this synonymy the species is widely distributed in Central and Eastern Africa. Little variation in colour or in structural features has been noted in the present material.

Thalperus micheli (BURR).

4 ♂, 8 ♀. This species is apparently less common than *hova*; the short elytra and absence of wings tend to be variable characters in the Dermaptera, but in the present genus these are associated with an apparently constant difference in shape of the pronotum, as outlined in the key. Although *T. sanga* REHN was described from a single male (REHN, 1936) the very large size of the specimen suggests that the species should be distinct. However, HINCKS (1954) thought that is may prove to be a large example of *T. micheli*, and this may well be true. It is hoped to examine the type of *sanga* later.

Thalperus poecilocera (BORG).

15 ♂, 14 ♀. Most of these specimens have very dark elytra, and were wrongly determined as *Cordax formosus*, under which name they were returned to the Institut des Parcs Nationaux. They were determined by comparison with specimens so named in the Manchester Museum and in the British Museum (Natural History), and this error seems to have been derived from the mistaken view of BURR (1907) that *poecilocera* and *formosus* represented the female and male of the same species.

T. poecilocera was described by BORG (1904) from a single female, whilst *C. formosus* was described by BURR (1905) from a single male. In 1907 BURR synonymized *formosus* with *poecilocera*, considering that the very long forceps of the *formosus* male was simply a male character and that the difference in colour between these species could be regarded as a variable character. Similar examples of species showing dimorphism in the length of the forceps, and also in colour, are well known in the Dermaptera, and this view of BURR's could well have been sound. However, REHN (1936) re-described both sexes of *C. formosus*, and showed that this species is quite distinct from *poecilocera*. This correction, however, had not previously led to the re-labelling of the species concerned in either the Manchester Museum nor the British Museum (Natural History). The late Dr. W. D. HINCKS was quite aware of this correction, as is shown in his key to the African *Opisthocosmiinae* (1954).

According to REHN (1936) *C. formosus* is distinguished from *T. poecilocera* by the elytra having a yellow spot towards the base whilst the elytra of the latter species is unicolorous, a colour character which REHN (l.c.) found to be constant in the specimens examined. This difference in colour is associated with a great difference in the forceps of both sexes of these species. The male forceps of *C. formosus* (fig. 5) are very long and slender, whilst the forceps of *T. poecilocera* are short in the male (fig. 3). The female forceps of the former species, though shorter than those of the male, are long and slender, and longer than the abdomen, whilst the female forceps of *T. poecilocera* are very short, broader, and contiguous.

All the specimens in the material from the Garamba National Park are referable to *T. poecilocera* as now defined.

Central and East Africa.

DIAPERASTICINAE.

Diaperasticus erythrocephalus (OLIVIER).

68 ♂, 84 ♀. This species is usually readily distinguished by the pale bases of the forceps; but a form occurs in which the forceps are entirely dark. Most specimens have the elytra and wings normally developed, but specimens occur in which the elytra are short, and the wings not visible. The present specimens include representatives of all these forms, most belonging to the first mentioned form in which the forceps are pale at the base. The second form is much less common, whilst the specimens having short elytra have been estimated to consist of about 15 % of the total. The body length of the present material varies from 6.5-8 mm, whilst the forceps of both sexes range from 1.5-2 mm.

Widely distributed in Africa.

D. bonchampsi BURR.

5 ♂, 1 ♀. Much less common than the previous species. It is distinguished from both *erythrocephalus* and *sansibaricus* by the uniform colouration of the elytra and wings; in these two species the wings and elytra are yellowish or brown with a prominent blackish band along the sutures. The male of *bonchampsi* has forceps which are gently arcuate, as is *erythrocephalus*, and not sigmoid in shape as in *sansibaricus*.

Eastern and Central Africa.

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Published April 30, 1968.