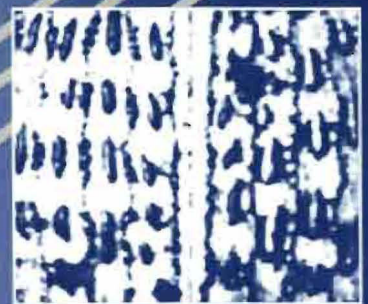


Revision of the subtribe **Cryptochilina**

(Coleoptera: Tenebrionidae: Cryptochilini)



M.-L. Penrith & S. Endrödy-Younga

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M.-L. Penrith & S. Endrödy-Younga

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Introduction

The tribe Cryptochilini was established by Solier (1840) for a group of Tenebrionidae of the subfamily Tentyriinae (= Pimeliinae *sensu* Watt, 1974). The composition of the tribe was revised by Endrödy-Younga (1989), who reduced the status of the original tribe to a subtribe, Cryptochilina, and added three monotypic subtribes (Calognathina, Vansonina and Homebiina). The subtribe Cryptochilina, revised here, is composed of eight genera and 122 species.

The present revision resulted from the accumulation of a large amount of material collected mainly by the State Museum, Windhoek, and the Transvaal Museum, Pretoria, in the western parts of southern Africa where the subtribe is widely distributed. Adult Cryptochilina are active for a short period during the year, i.e., soon after the rain when vegetation is maximal. Most Cryptochilina occur in arid areas where rainfall is irregular, and as a consequence the group has in general been poorly sampled. Of the 55 species of horatomoid Cryptochilina (i.e., excluding the genus *Cryptochile*) recognized by Koch (1952), 45 were known from fewer than 10 specimens, and 36 of these from fewer than five. Many species were described from single specimens, as are several in the present revision.

The aim of the present revision is to establish genera that reflect the lineages in the subtribe and to describe the wealth of new material that has been collected, particularly in the genus *Cryptochile*.

The earliest genus described, *Cryptochile* Latreille, 1829, is the most widespread. Subsequently, *Pachynotelus* and *Horatoma*, were described by Solier (1840), both as monotypical. Haag (1872) described three further monotypical genera, *Epipagus*, *Horatomodes* and *Saccophorus*, as well as new species in established genera, so that at that time *Cryptochile* contained 22 species, *Pachynotelus* three and *Horatoma* two. Further species were described by Haag (1878) and Gebien (1920, 1938). The name *Saccophorus* Haag was preoccupied by *Saccophorus* Kuhl, 1820, and Strand (1935) proposed the name *Saccophorella* to replace it. Koch's (1952) revision of the horatomoid genera and one lineage of the genus *Cryptochile* included descriptions of many new species from the western parts of southern Africa. He recognized the earlier genera and erected two new genera, *Parapachynotela* (with 11 species) and the monotypical *Fossilochile*. In subsequent papers, Koch (1953, 1957, 1958) described new species, and in the first paper the monotypical genus *Cychochile*. Endrödy-Younga (1989) reduced the status of the group from tribe to subtribe, and described a new genus *Cerasoma* allied to *Cryptochile*.

The present revision recognizes eight genera: *Cryptochile*, with 35 species; *Horatoma* (synonyms *Saccophorella*, *Horatomodes*, *Parapachynotela*) with 48 species; *Pachynotelus* (synonym *Fossilochile*) with 24 species; *Cychochile* with four species; *Epipagus*, *Cerasoma* and *Horatomella* gen. nov., each with three species; and *Orientochile* gen. nov. with two species.

MATERIAL AND METHODS

The total number of specimens examined was 8921, the majority from the collections of the Transvaal Museum,

Pretoria, the South African Museum, Cape Town, the National Museum, Bloemfontein, and the State Museum, Windhoek. They are listed in the species accounts. The type specimens of most of the species were examined. Exceptions were the types lodged in Eberswalde, Germany, and Stockholm, Sweden, to which we were denied access, and specimens in the Banks Collection, The Natural History Museum, London, which were too fragile to transport. However, this material had been examined by C. Koch, whose identifications were accepted as being sound. In a few instances the descriptions were sufficient for identification without reference to the types.

The fresh material examined came mainly from the western parts of southern Africa, from southwestern Angola in the north to the western Cape in the south. As pointed out above, adequate sampling of this group is particularly difficult, but the intensive collecting in Namaqualand, South Africa, and in Namibia gave a good coverage of these parts in respect of the number of localities and zoogeographic regions sampled. Coverage of this group in the Trans-Kalahari region and East Africa is poor, but the species involved may be rare, as seems to be the case with many of the species from the western parts southern Africa.

Although the approach to this revision was cladistic, and most of the genera are based strictly on cladistic grounds, it was not possible to construct a cladogram. One of the main difficulties was that no convincing out-group exists. Within the tribe, the three monotypical subtribes are all more apomorphic than the Cryptochilina. The only other tentyriine (pimeliine *sensu* Watt, 1974) tribes with a small mentum are the Molurini and Stenosini. The latter tribe is obviously too specialized to be used as an out-group. The tribe Molurini was therefore used for out-group comparison, but is probably not closely related to the Cryptochilina. The exposed trochantin and 11-segmented antennae of Molurini are plesiomorphic compared to the states of those characters found in most of the Cryptochilini. Owing to the doubtful relationship of the Molurini to the Cryptochilini, general patterns in the family, and particularly in the subfamily Tentyriinae (Pimeliinae *sensu* Watt), were taken into consideration in the out-group comparison.

Abbreviations used:

AMNH – American Museum of Natural History, New York
BMNH – The Natural History Museum, London
HMNH – Hungarian Museum of Natural History, Budapest
MHNG – Musée National d'Histoire Naturelle, Geneva
NCI – National Collection of Insects, Pretoria
NMBL – National Museum, Bloemfontein
SAM – South African Museum, Cape Town
SMW – State Museum, Windhoek
SSM – Staatssammlung, Munich
TM – Transvaal Museum, Pretoria

MORPHOLOGY AND CHARACTER EVALUATION

Head

Clypeus. The shape of the clypeus is useful at species level. Characters include the contour of the anterior margin, the contour of the lateral margins and whether these are parallel or anteriorly convergent, the angle formed by the lateral margins with the genal outline, and the sculpture.

Eye. The eye varies from ovate (a few species) to broadly

reniform (most horatomoid *Cryptochilina*) to narrowly reniform (certain *Horatoma* species, *Cryptochile*, *Orientochile*, *Cychrochile*). The direction of the transformation could not be determined with certainty. Comparison with other groups such as the Adesmiini suggests that the narrowly reniform eye is plesiomorphic, but a broadly reniform eye occurs in the species with 11-segmented antennae, so that the situation is not clear.

Mentum. The mentum is enlarged in *Cychrochile* and *Orientochile*, with a tendency to enlargement in *Epipagus*. This is considered to be a strong apomorphy, and its occurrence in the above genera but not in *Cryptochile* is the main reason for the separation of *Orientochile* from *Cryptochile*.

Antenna. The 10-segmented antenna of most *Cryptochilina* is regarded as a reduction from the plesiomorphic 11-segmented antenna found in most Tentyriinae, by fusion of the apical two segments. Even in the few species in which 11 segments can be identified, some reduction and fusion has taken place. On present evidence it seems likely that the reduction to ten segments has occurred more than once, and probably several times, in the subtribe. The presence of a distinct sclerotized and almost bare basal cupule in segments 9 and 10 is considered more plesiomorphic than the fully setose apical segments of the horatomoid *Cryptochilini*. Antennal sexual dimorphism is common in the subtribe but is of little cladistic help, except in excluding the genus *Horatomella* from the direct ancestry of the other genera.

Pronotum

Complete side margins to the pronotal disc are considered plesiomorphic. Reduction of the lateral margins has occurred more than once, and probably many times, independently, but the reversal of this character is considered to be unlikely.

Elytra

Uniform primary granular rows from suture to epipleural row are considered plesiomorphic, while a differentiated lateral discal margin, or a reduction of the number of rows, are apomorphic, as are produced humeri that embrace the pronotal base. All these apomorphies have probably developed independently more than once.

Sternites

A long prosternum and an anteriorly callose mesosternum are considered plesiomorphic. Collar-like prolongation of the prosternum to cover the mouthparts occurs in *Cryptochile* and *Orientochile*. While this character is certainly apomorphic, it seems to have developed twice, once in the tropical lineage and once in *Cryptochile/Cerasoma*. It occurs elsewhere in the family, e.g., Amarygmini. Variations of sculpture, particularly of the episterna and the abdominal sternites, are valuable at species or species-group level. One species group of *Cryptochile* shows sexual dimorphism of the mesosternum. The length of the abdominal setation is often dimorphic, but like most of the sexually dimorphic characters, it is widespread in the tribe.

Legs

The genus *Pachynotelus* is based on a consistent apomorphy of the metatibia, i.e., the development of a bare and shiny patch apicolaterally, referred to by Koch (1952, 1958) as the

specular spot. Various sexually dimorphic features of the legs are important at species or species-group level.

Sculpture and vestiture

As in most groups of Tentyriinae, characters of sculpture and vestiture are most useful at the species level. In the *Cryptochilina* they must be interpreted with caution, as considerable variation, especially in colour pattern and the development of secondary granules in the elytral intervals, has been observed in species for which a large amount of material is available. Nevertheless, many of the characters of sculpture and vestiture can be usefully applied.

Aedeagus

The aedeagus of *Cryptochilina* is not useful as a taxonomic character. All species of which the aedeagus was examined showed a simple, straight to curved structure, with a bipartite sheath and a tapering median lobe, typical of Tentyriinae. In the genus *Cryptochile* and some of the larger species of *Pachynotelus*, the aedeagus is relatively stout and strongly sclerotized, but no characteristics useful in taxonomy were observed.

Note that throughout the revision the term 'dimorphic' refers to sexual dimorphism.

THE GENERA OF CRYPTOCHILINA

The criteria for recognition of genera of *Cryptochilina* in this revision are discussed in detail under each genus, but a brief summary of the genera and their relationships is given here.

Three main lineages are recognized. The most plesiomorphic lineage is composed of the genera *Horatoma*, *Pachynotelus* and *Horatomella*. The three species of *Horatomella* are separated from *Horatoma* by mutually exclusive apomorphies and the genus is therefore strictly cladistic. The species of *Pachynotelus* share all the apomorphies observed in *Horatoma*, as well as displaying several more that are related to their strongly psammophilous habit. On cladistic grounds it would have been possible to include all the species of *Pachynotelus* in *Horatoma*. However, the species of *Pachynotelus* constitute a sufficiently distinct lineage defined by their several shared apomorphies for separation at the generic level to be preferable.

In the second lineage, represented by *Cryptochile*, which is probably derived from *Horatoma*-like ancestors, a similar situation exists with regard to the genus *Cerasoma*, which comprises an apomorphic and distinctive lineage of *Cryptochile*.

The third lineage consists of three genera whose species are poorly known and apparently rare, or at least poorly collected. Of these, the southern Angolan genus *Epipagus* is the most plesiomorphic, and was probably derived from ancestors similar to the *Horatoma spinipes* group. The lineage is characterized by a very broad mentum. The second genus, *Cychrochile*, previously known from a single specimen from Botswana, now includes four species, and a fifth, western species is indicated by a poorly preserved cadaver that does not allow formal description. The third genus comprises two species which were previously included in *Cryptochile* on account of a produced prosternal collar, but we place them in

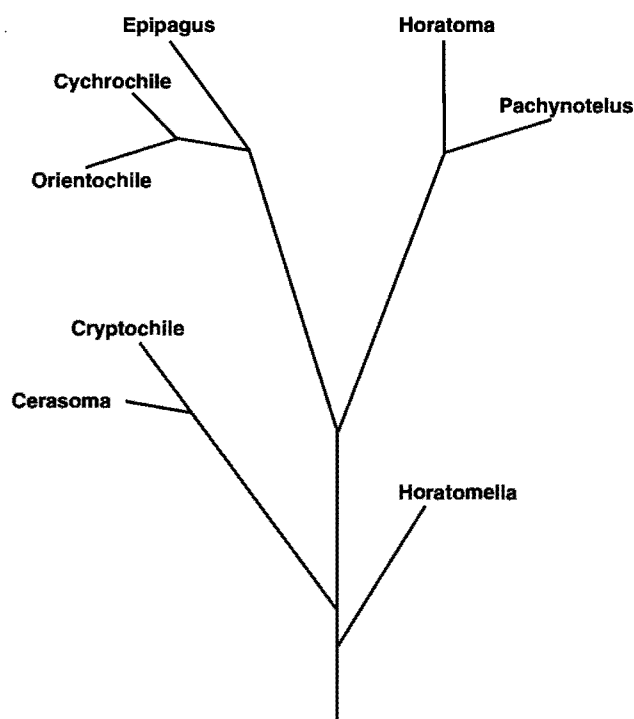


Fig. 1. Phylogenetic tree showing the hypothetical relationships of the genera of Cryptochilina.

a separate genus in another lineage on both morphological and biogeographical grounds.

The relationships of the lineages of Cryptochilina are shown in a phylogenetic tree in Fig. 1.

ETHOLOGY

The subtribe Cryptochilina is a diverse group with regard to habitat preferences, substrate selection and preferred period of activity, although the species tend to be conservative.

All Cryptochilina for which data are available are strongly seasonal. The emergence of adults is closely correlated with rainfall and vegetation; it is not known in which stage the dry periods are spent. The appearance of adults of some species as soon as rain has fallen (e.g., as observed by M.-L.P. in *Pachynotelus kuehnelti*, see below) suggests that long, dry periods may be spent as pupae. Evidence of lengthy larval survival exists in the records of L. Prozesky-Schulze (see below). Since the distribution area includes the arid Namib Desert, where rain is rare and irregular, survival without a period of adult emergence can apparently extend for several seasons.

The duration of the period of adult activity varies considerably. In some of the dune species it may be very short. On the farm Sesriem in the south-central Namib Desert, heavy rains that fell in January 1972 were followed immediately by the emergence on the dunes of large numbers of *Pachynotelus kuehnelti* Koch, which was previously known only from a single cadaver from the same area. By early April, when the vegetation was well developed, only a few cadavers of *Pachynotelus kuehnelti* were found, although other species of *Pachynotelus* were numerous. All species do not emerge at the same period

of the rainfall cycle, but rain and the associated development of the vegetation trigger the adult activity. In general, the activity periods of adult *Horatoma* and *Pachynotelus* appear to be shorter, while *Cryptochile* remains active for a longer period. During trapping surveys in the Windhoek district, *Cryptochile consita* Haag was found to be active for several months, from mid-summer until at least July. The emergence and decline of adults appeared to be more gradual in species whose period of adult activity was longer. Seasonal activity as indicated by collecting data is given below the description of each species. Cape species tend to occur most frequently in spring, following a rise in temperature after winter rains, while species from summer rainfall areas occur most frequently in the late summer and autumn. However, as arid areas, particularly the Namib Desert, have an irregular rainfall pattern, seasonal collecting data of Cryptochilina often show a corresponding irregularity. Collecting data do not always reflect seasonal activity, as cadavers (i.e., the remains of dead beetles) can be collected at any time. They are usually recognizable as cadavers, but are occasionally well preserved. Some of the apparently non-seasonal activity of various species may be due to the collection of cadavers.

Species of Cryptochilina show strong association with a particular type of substrate, although the group as a whole shows adaptation to a wide variety of substrates, and includes both strictly rupicolous and ultrapsammophilous species. The latter are all members of the genus *Pachynotelus*, all of whose species are psammophilous, with long silky setal fringes on the tarsi to facilitate movement in sand. Several psammophilous species are also included in *Horatoma*, but other members of the genus are rupicolous. *Cryptochile* also includes psammophilous to rupicolous species, while *Cerasoma* is strictly psammophilous. The species of *Horatomella* have been found on hard substrates under stones, and may be myrmecophilous, as may be some of the small cryptic species of *Horatoma*.

Epipagus appears to prefer harder substrates, while the scanty data available on *Cychrochile* suggest a preference for sand. Species of *Pachynotelus* and *Horatoma* are frequently encountered clinging to grass stems, where they feed on the flowers. They have also been observed feeding on the flowers of small shrubs, as have species of *Cryptochile*. Most are probably opportunistic feeders, and we have observed species of *Cryptochile* feeding on fairly fresh to dry carrion of both vertebrates and invertebrates (large locusts).

The Cryptochilina are slow-moving in comparison to Zophosini, Adesmiini, or diurnal Molurini such as *Somaticus*, and are most frequently found at the base of plants or under stones. Most are diurnal, but various species, including *Pachynotelus albonotatus* Haag, various small *Horatoma*, and *Cerasoma*, have been collected while they were active at night. The colouring of the vestiture of scales either blends well with the substrate and vegetation, or a variegated black and white pattern, which is common in the group, ensures that the outline is broken. In several species of *Cryptochile*, forms without scales are common, and these are more conspicuous than their scaled conspecifics. Some of the cryptic to nocturnal species of *Horatoma* and *Pachynotelus* are poorly sclerotized, as observed also in some of the nocturnal and/or cryptic Molurini and Zophosini.

Little is known of the breeding habits of Cryptochilina. Specimens are frequently observed in copulation, either on the

ground or on the stems of plants, with the male either mounted on the female or back-to-back. L. Prozesky-Schulze, while at the Transvaal Museum, studied the breeding habits and larval development of many Tenebrionidae. Her records for *Cryptochilina* indicate that they are more difficult to keep than many other Tenebrionidae, and that species of *Cryptochile* were the easiest to keep, presumably because *Cryptochile* species have less extreme habitat preferences, and are longer-lived in nature than most of the subtribe. Various species of *Cryptochile* were kept for periods of one to nine months, and several, including *Cryptochile consita*, *C. denticollis*, *C. spinosa*, *C. granulata*, *C. porosa*, *C. grossa* and *C. maculata*, laid eggs from which larvae hatched. In general the larvae did not survive well, but in one batch of *C. granulata* from Vanrhynsdorp collected in September 1966, the last live larva was recorded in October 1967. By January 1967 only a single adult was alive, and it died in February 1967, suggesting that larvae may survive for up to a year without attaining adulthood. There is no record of adult emergence.

None of the *Horatoma* and only a few of the *Pachynotelus* kept in the insectarium produced offspring. Six *P. machadoi* collected at Gobabeb, Namibia, in April 1967 produced six eggs by June 1967, but no larvae were recorded. Six larvae were recorded on 22 December 1976 from seven *P. striolipennis* collected at Manganese Mine, Richtersveld, South Africa, on 10 October 1976, but by 12 January 1977 all the adults and larvae had died.

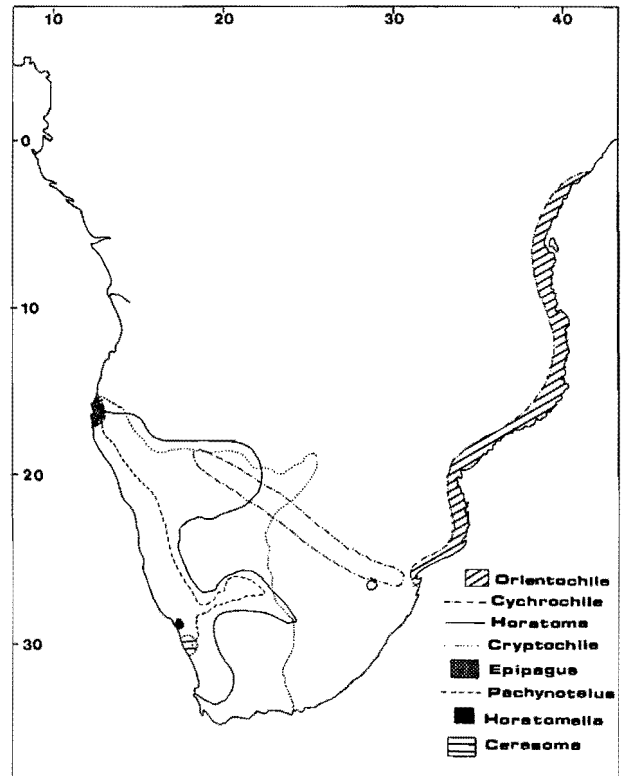


Fig. 2. Distribution areas of the genera of *Cryptochilina*.

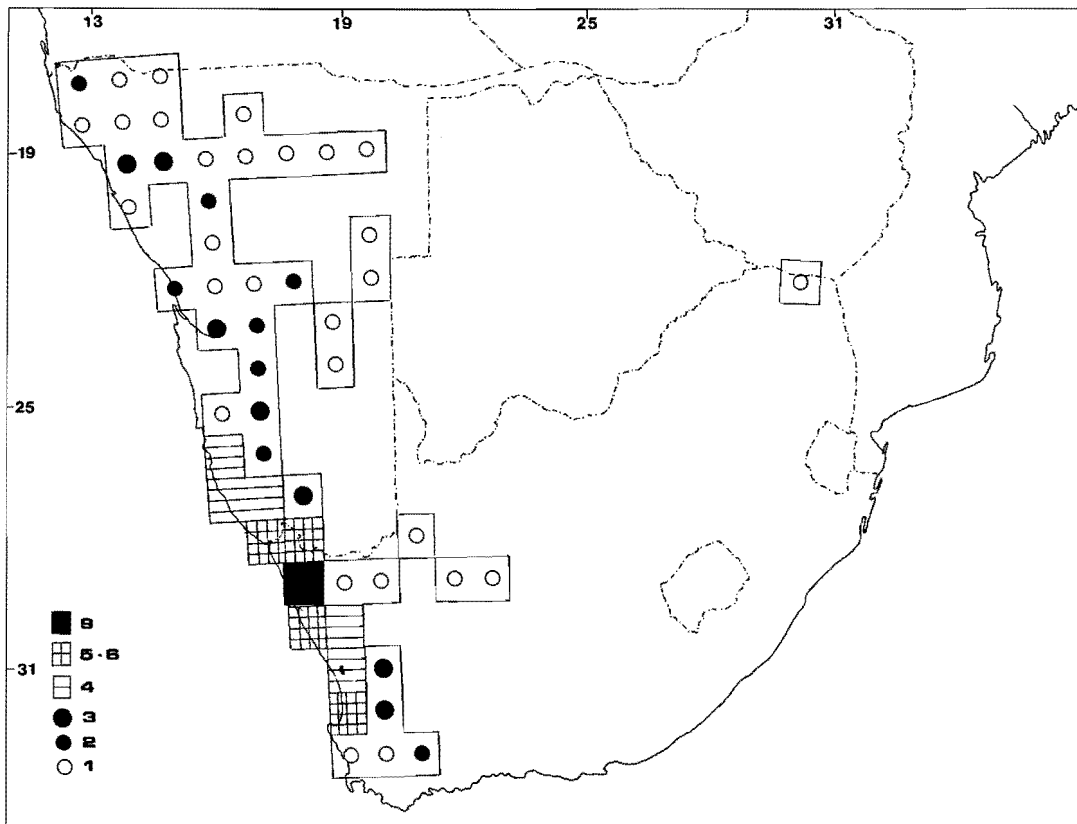


Fig. 3. Distribution of the genus *Horatoma*, showing the relative density of species in each degree square.

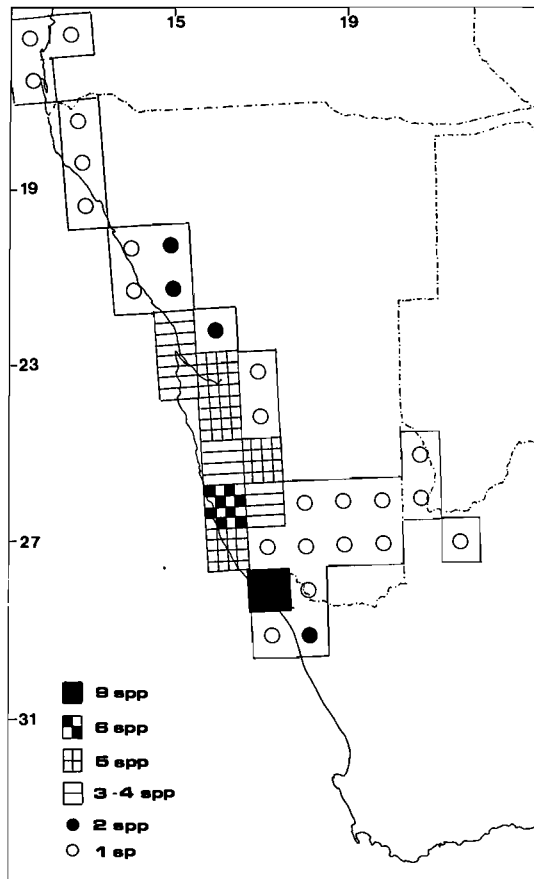


Fig. 4. Distribution of the genus *Pachynotelus*, showing the relative density of species in each degree square.

BIOGEOGRAPHY

The subtribe *Cryptochilina* is widely distributed in the western parts of southern Africa, from southern Angola to the southwestern Cape Province, South Africa. There is a poorly developed trans-Kalahari link to eastern southern Africa, and one genus occurs in East Africa.

Knowledge of the distribution of many species of *Cryptochilina* has been extended by the examination of material in the present revision. The distribution of each species is mapped, and defined below the individual species descriptions. Terms for regions such as 'Karoo' and 'Kalahari' refer to the vegetation types and may be elucidated by referring to Acocks (1988). Other terms that have been used are well known locally. Namaqualand refers to the area of the western Cape, South Africa, bounded on the south by the Olifants River, on the east by an imaginary line roughly agreeing with the 19th parallel, on the north by the Orange River, and on the west by the Atlantic Ocean. The Richtersveld refers to the northern part of Namaqualand bounded by the road to Port Nolloth, on the coast, and the national road to Namibia on the east. Namaqualand (including the Richtersveld) and the southern part of the Namib Desert (north of the Orange River to approximately the Koichab River) constitute the 'Namaqua region.' Damaraland and the Kaokoveld are old political areas referring to the central northwestern and northwestern regions respectively of Namibia. Diamond Area 1 refers to the re-

stricted area extending inland from the coast between the national road from Aus to Lüderitz and the Orange River.

The large genera *Horatoma* and *Cryptochile* have their distribution centres in the western half of southern Africa. *Cryptochile* reaches southern Angola in the north, where a distinct species group occurs, and the western Kalahari and the western and central Karoo in the east. An apomorphic lineage of *Cryptochile*, *Cerasoma*, is confined to the dune area of the Namaqualand coast (Endrödy-Younga, 1989). *Horatoma* is largely confined to Namibia and the western half of the Cape Province, with a single species in the Northern Transvaal. *Pachynotelus* is mainly restricted to the Namib Desert and Namaqualand, with a single species extending eastwards along the Orange River into the southwestern Kalahari. *Horatomella* is confined to a small area in northern Namaqualand. *Epipagus* is restricted to southern Angola, the westernmost representatives of an evolutionary lineage comprising the genera *Epipagus*, *Cychochile* and *Orientochile* that extends eastwards across the Kalahari to the East African coast. The discovery of further species of this lineage, whose species seem to be rare, is likely and will complete the biogeographical link via northern Namibia and Botswana to the Northern Transvaal, Mozambique, and Tanzania, Kenya, and Somalia. With regard to this lineage, biogeographical considerations in conjunction with certain morphological characters led us to separate the East African species formerly included in *Cryptochile* into a genus of their own, *Orientochile*, which is the most apomorphic genus of the lineage.

It is likely that the *Cryptochilina* originated in the western parts of southern Africa, where all the lineages are represented. The most plesiomorphic species of genera such as *Horatoma* and *Cryptochile* occur there today, as well as restricted apomorphic genera such as *Cerasoma* and *Horatomella*. A summary of the present distribution of the subtribe is given in Fig. 2. The large number of species, including all of the most plesiomorphic species, in Namaqualand and southern Namibia, as well as some highly apomorphic groups, suggests this area as the centre of origin and diversification of the subtribe, from which some northward and eastward spread has occurred via relatively apomorphic lines. *Horatoma* is considered to be the most plesiomorphic genus. Figure 3 shows superimposed distributions of all the species of *Horatoma*, indicating that the greatest concentration of species is in Namaqualand, between the Orange and Olifants Rivers. The species group regarded as most plesiomorphic by virtue of the clearly 11-segmented antennae occurs in this area, extending both south and north of it. All the other lineages are considered to have arisen from *Horatoma*-like ancestors. The Namaqua area north or south of the Orange River, as stated above, is therefore postulated as the centre of origin of both the genus *Horatoma* and of the subtribe *Cryptochilina*. This is in agreement with the centre of origin proposed by Endrödy-Younga (1989) for the tribe *Cryptochilini*.

The genus *Pachynotelus* is likely to have arisen from *Horatoma*-like ancestors that developed morphological adaptations to life in deep sandy substrates. Relatively plesiomorphic *Pachynotelus*, with shorter tarsal setae and rather straight tibiae, occur in the interdune valleys and on sandy plains, while more strongly modified tibiae and tarsi are found in the more apomorphic species that occur on the large dunes. This genus occurs in the greatest diversity in the northernmost

Namaqualand dunes and in the southern Namib Desert (Fig. 4). The most apomorphic species occur on the great dunes of the Orange River system, northwards to the central Namib Desert. The northern Namib Desert is populated by few and relatively plesiomorphic species that do not occur on the larger dunes.

Horatomella is confined to a restricted area of northern Namaqualand. The three species in the genus are considered to have diverged from a plesiomorphic *Horatoma*-like ancestor; their completely cryptic habits presumably favour isolation and explain the occurrence of three distinct, closely related species in a very restricted area. They have been observed under stones in association with ants and may be regarded as myrmecophiles, as is suggested by their peculiar antennae.

Cryptochile, a genus in general adapted to less extreme conditions, both of aridity and substrate, has the greatest number of species in the area just south of Namaqualand, from the Olifants River to the Cape Peninsula (Fig. 5). The most plesiomorphic species occur on coastal sands, but most of the species prefer harder substrates. A derived genus, *Cerasoma*, is more strongly psammophilous, and occurs in southern Namaqualand (Endrödy-Younga, 1989). A single lineage of *Cryptochile* has extended northwards to southern Angola, and one species, *Cryptochile consita* Haag, has extended eastwards into the western Kalahari and Karoo.

The Namaqua origin of the Cryptochilina is supported by the biogeography of the tribe Cryptochilini (Endrödy-Younga, 1989), as well as by the predominantly temperate area of distribution, suggesting a temperate centre of origin. The tribes Zophosini and Adesmiini are considered to have a more northerly centre of origin (Penrith, 1986a,b), and these have attained a wide distribution throughout tropical and North Africa and have reached Asia; the Cryptochilini have remained confined to southwestern Africa, with the exception of the single Trans-Kalahari – East African lineage. Although all three tribes have a mainly arid distribution area, the Cryptochilini are apparently much more dependent on rainfall for their adult activity cycle. They are clearly a temperate group, their tropical extensions being confined to coastal areas, where a more temperate climate may prevail, and, in the case of *Cychochile*, to riverine sands, a habitat which permits avoidance of extremes of temperature.

TAXONOMY OF CRYPTOCHILINA

Key to the genera of Cryptochilina

- 1. Mouthparts free, not covered by produced anterior margin of prosternum 2
- Mouthparts covered by produced anterior margin of prosternum 6
- 2. Metatibia straight, apex simple, without specular spot on outer surface; setation of metatarsi variable, but never forming a long, dense, silky fringe; male profemur usually with basal tubercle 3
- Metatibia usually weakly curved apically, sometimes straight, but always with a specular spot on outer surface near apex (Fig. 40); setation of metatarsi always long, usually forming a dense, silky

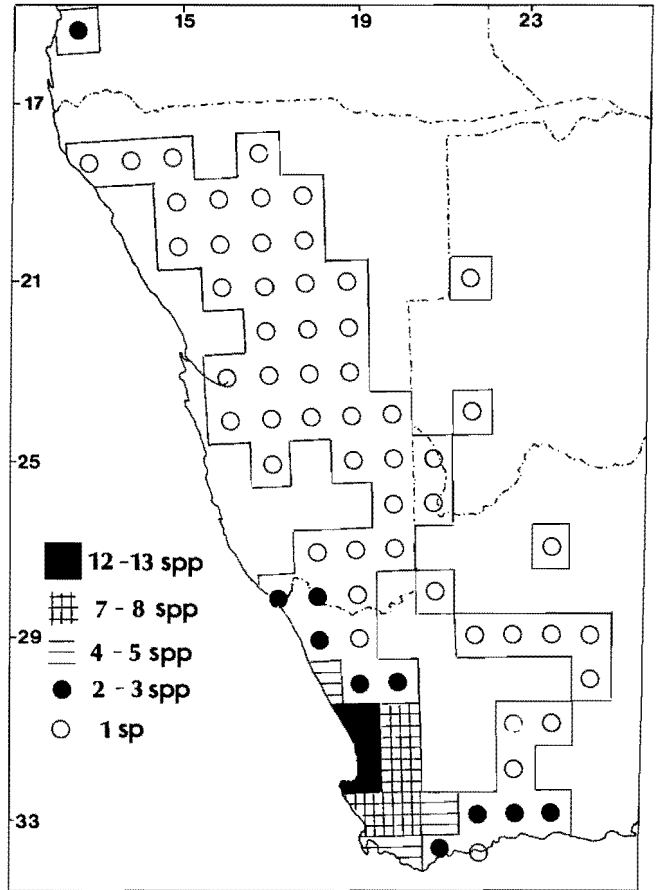


Fig. 5. Distribution of the genus *Cryptochile*, showing the relative density of species in each degree square.

- fringe; profemur never dimorphic . . . *Pachynotelus* Solier
- 3. Elytra usually with lateral margin of disc defined by two or more primary rows that are closer together than the others; primary rows on deflected part of elytra usually absent or reduced to one or two, if well developed, marginal discal rows strongly differentiated; if margin not indicated, then most discal primary rows reduced or absent; apical antennal segment not much longer than penultimate segment; male profemur, if modified, with a simple tubercle or low, smooth or crenulate ridge on anteroventral edge 4
- Elytra continuously rounded from suture to epipleura, with 11 evenly spaced granular primary rows; apical antennal segment longer than penultimate segment in both sexes, sometimes very elongate in male (Figs 6–8); male profemur with a high ridge or large fovea with raised edges occupying most of anteroventral margin (Figs 6–8). (Northern Namaqualand). *Horatomella* gen. nov.
- 4. Pronotum with sides subparallel at least in posterior half, not strongly converging from base to apex; head of normal size; middle tooth of outer protibial margin, if developed, small to moderately large; mentum small to moderately large (Fig. 46A) 5

- Pronotum trapezoid, with sides strongly converging from base to apex; head small; middle tooth of outer protibial margin moderately to extremely large (Fig. 47); mentum large (Fig. 46B)
..... *Cychochile* Koch
- 5. Pronotal sculpture consisting of large, round, sometimes elevated granules; lateral pronotal margin virtually complete. (Angola) *Epipagus* Haag
- Pronotal sculpture variable, never as above, granules usually elongate, sometimes absent; lateral pronotal margin interrupted to poorly developed
..... *Horatoma* Solier
- 6. Mentum small, not covering bases of maxillae (Fig. 46D); pronotal sculpture variable, usually consisting of strioliform granules or ridges, never of large round or elevated granules. (Western parts of southern Africa) 7
- Mentum large, covering bases of maxillae (Fig. 46C); pronotal sculpture consisting of round to ovate elevated granules. (East Africa)
..... *Orientochile* gen. nov.
- 7. Head of normal size to rather large; sexual dimorphism of body moderate, male sometimes smaller and narrower than female, but female not strikingly different from male; apical segments of antennae not or weakly dimorphic *Cryptochile* Latreille
- Head very small; female inflated, lacking vestiture of scales, reddish in colour, male smaller, of normal shape, black with extensive vestiture of scales; apical segments of antennae of male large, ovate, or elongate, much larger than those of female
..... *Cerasoma* Endrödy-Younga

Genus *HORATOMELLA* gen. nov.

Type species: *Parapachynotela johni* Koch, 1957.

Diagnosis. Cryptochilina of small size (elytral length 2.0–5.5 mm). Integument reddish brown to black, with setae or vestiture of scales and tomentose patches. Head large, moderately deflected, not amplexed in thorax, mouthparts free, not concealed by collar-like extension of prosternum. Eye ovate to broadly reniform, visible in lateral view, setose. Clypeus emarginate anteriorly, with sides straight, anteriorly convergent, separated from gena by a small notch. Mentum strongly transverse, maxillae entirely exposed. Occiput with long stridulatory file. Antennae 10–11-segmented, segments 10 and 11 extensively fused, usually not distinguishable as separate entities; strongly dimorphic, penultimate segment (9) slightly enlarged, apical segment (10 + 11) elongate or extremely elongate in male (Figs 6–8). Apical segments with distinct sclerotized and setose parts.

Pronotum subrectangular, widest from base to anterior two-thirds, or anteriorly (one species); lateral margins partly to extensively carinate, carina abbreviated before anterolateral angle or not. Sculpture consisting of slightly elongate granules.

Elytra ovate to rounded, not much longer than pronotum; with 9–11 granular rows more or less evenly spaced between

suture and epipleural row, margin of disc not costiform, disc and deflected part roundly continuous. Sutural interval broad. Humeri not produced or embracing pronotal base.

Anterior margin of prosternum simple; prosternum very long, anteprocoxal length almost as long as longest diameter of coxal cavity. Apophysis with apex pointed, abruptly deflected, end of horizontal part bilobed or truncate. Procoxal cavity narrowly closed behind. Mesosternum callose anteriorly; apophysis narrow, usually with a pair of shiny round tubercles. Thoracic and abdominal sternites of both sexes scaled, with long, erect and semi-erect setae emerging from round granules, no sexual difference in length of setae.

Legs only moderately long. Male profemur with either an elongate, elevated ridge or a setigerous fovea with raised edges on anteroventral margin at middle or in distal half (Figs 6–8). Protibia compressed, outer margin prominently denticulate. Metatibial calcaria spiniform in both sexes. Metatarsi not dimorphic, or those of female slightly shorter and thicker. Femora, tibiae and tarsi with long hairs.

Aedeagus simple.

Remarks. The new genus is described for a peculiar group of three species from the Richtersveld. They are most closely related to *Horatoma*, but while the presumably plesiomorphic arrangement of the elytral primary rows and the exposed sclerotized base of the apical antennal segments do not permit their derivation from a *Horatoma* ancestor, the antennal dimorphism and the probably apomorphic profemoral dimorphism exclude them from the ancestry of *Horatoma*. The two genera are therefore separated on cladistic grounds.

Key to the species of *Horatomella*

1. Pronotum broadest anteriorly, just before anterior angles in both sexes (Fig. 6); lateral margin of pronotum strongly carinate anteriorly; male profemur with elongate, seta-filled tubercle occupying most of middle of anteroventral surface (Fig. 6) . . . *johni* Koch
- Pronotum with sides subparallel, in male equally broad from base to just behind anterior angles, in female broadest in posterior half (Figs 7, 8); lateral margin of pronotum often absent, at most finely carinate anteriorly; male profemur with anterolateral margin raised in a simple (Fig. 7) or setigerous (Fig. 8) ridge 2
2. Scales of elytra narrow, but not hair-like; posterior elytral tomentose patches confined to second interval; head setation erect; male profemur with rectangular raised ridge at middle of anteroventral surface (Fig. 7); apical segment of male antenna about six times the length of penultimate segment (Fig. 7) *louwi* spec. nov.
- Scales of elytra long, hair-like; posterior elytral tomentose patches extend over second and third intervals; head setation procumbent; male profemur with subtriangular raised ridge at middle of anteroventral surface, setose at apex (Fig. 8); apical segment of male antenna slightly more than twice the length of penultimate segment (Fig. 8)
..... *piliscutata* spec. nov.

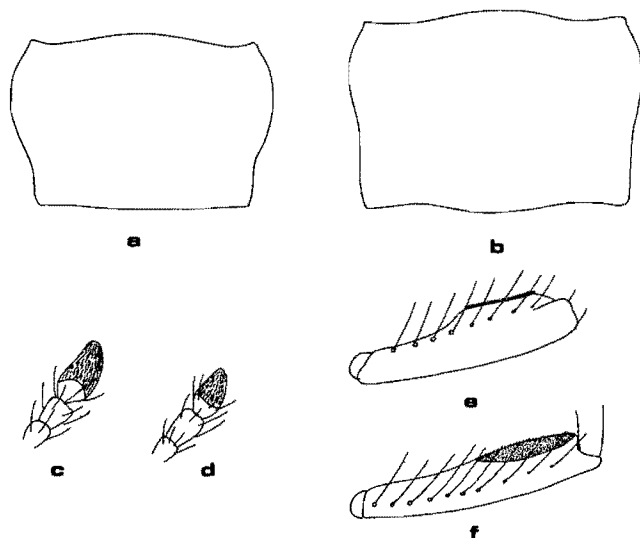


Fig. 6. *Horatomella johni* (Koch). A: male pronotum; B: female pronotum; C: male antenna, terminal segments; D: female antenna, terminal segments; E: male profemur, anterolateral view; F: male profemur, ventral view.

***Horatomella johni* (Koch) comb. nov., Figs 6, 9**
Parapachynotela johni Koch, 1957: 105, pl. V, fig. 2.

Diagnosis. Pronotum broadest anteriorly, sides completely carinate or at least sharply carinate anteriorly and posteriorly. Apical antennal segment of male twice length of penultimate segment. Male profemur with a foveate, setigerous tubercle on anteroventral margin.

Description. Size small, elytral length 2.9–5.5 mm. Integument dark reddish brown to black, vestiture of elytra setose, bicoloured, golden brown and dark brown, vestiture of ventral surface and appendages consisting of silvery white scales.

Head large, more than half of pronotal width; supra-antennal portion of gena scarcely raised. Eyes with short, broad, scale-like setae. Antennae slender, apparently 10-segmented, faint line indicating fusion of tenth and eleventh segments occasionally visible; with apical two segments slightly enlarged in both sexes, strongly dimorphic: apical segment in male elongate, subconical, about twice as long as penultimate segment (Fig. 6C). Frons with subspherical granules bearing long, erect and anteriorly inclined black setae, and white scales laterally and on clypeus.

Pronotum subquadrate, dimorphic, broader in female, about one-third wider than long in female, only slightly wider than long in male; widest anteriorly, only slightly narrower than elytra together, and about two-thirds of elytral length (Fig. 6A,B). Lateral margins weakly sinuate, completely carinate or carina interrupted for a short distance behind middle, at sinuosity, where proepisterna just visible in dorsal view. Setose vestiture well developed only laterally and anteriorly, elsewhere sparse, silvery white; with subspherical to (mainly) slightly elongate granules and long, erect black setae.

Elytra slightly broader than pronotum, sides weakly rounded, apex rounded; with six primary granular rows including sutural row on disc, granules rather large, bead-like. Sutural and six

discal intervals with dense golden adherent setae and few secondary granules, resembling those of primary rows; four large patches of dark tomentose bristles between sutural and third discal rows, larger pair at base, other pair in front of apical declivity. Lateral margin not defined except by sixth discal row, disc evenly rounded to deflected part, which has five slightly irregular primary rows similar to rows on disc. Deflected part with sparse white setose scales. Epipleural row approximated to abdominal sternites, developed only posteriorly, consisting of small round granules. Granules of primary rows bearing long, bristle-like, erect black setae, setae usually abraded on deflected parts.

Prosternum scaled, with scattered round granules and long, semi-erect black setae. Proepisterna with dense round to short strioliform granules; upper part with long, erect black setae, ventral part with shorter, adherent fine setae. Mesosternum sharply bituberculate anteriorly, sides angular. Mesosternal apophysis rather narrow, only slightly broader than mesocoxa, scaled, with a pair of large round shiny tubercles, setae semi-recumbent, long. Metasternum about half length of mesosternum, with round granules and a pair of larger tubercles, as on metasternum. Abdominal sternites scaled, densely granular, and with long, recumbent setae.

Legs moderately stout. Femora and tibiae with silvery white vestiture of scales. Pro-, meso- and metafemora with long setae on ventral surface. Posterior edge of femora with a row of granules. Male profemur with a large fovea with raised and setose edges occupying distal half of anterior margin. Tibiae with very long setae; protibia compressed, dorsal surface toothed, with two larger teeth in distal half. Meso- and metatibia straight, subcylindrical. Calcaria spiniform in both sexes, long. Tarsi slender, with moderately long bristles; first metatarsal segment about as long as ungual segment.

Aedeagus simple, slender.

Material examined. Lectotype ♂, elytral length 3.3 mm (TM); Gelykswerf, Richtersveld, X.1955, C. Koch (new designation). Paralectotypes: 49♂, 38♀, same data as lectotype.

Other material: 1♂ (NCI), Gelykswerf, October.

Season. Spring (October)

Habitat. Koch (1957) found the specimens living gregariously under stones.

Distribution (Fig. 9). Known only from the type locality in the Richtersveld (northwestern Cape), South Africa.

Remarks. More paralectotypes are listed above than in Koch (1957), but the entire series comes from a single sample collected by him and his number represents either a miscount or a misprint.

***Horatomella louwi* spec. nov., Figs 7, 9**

Diagnosis. Pronotum with sides subparallel or (female) broadest posteriorly, lateral margins weakly carinate anteriorly and posteriorly. Scales of elytra narrow but not hair-like. Posterior tomentose patches confined to second elytral interval.

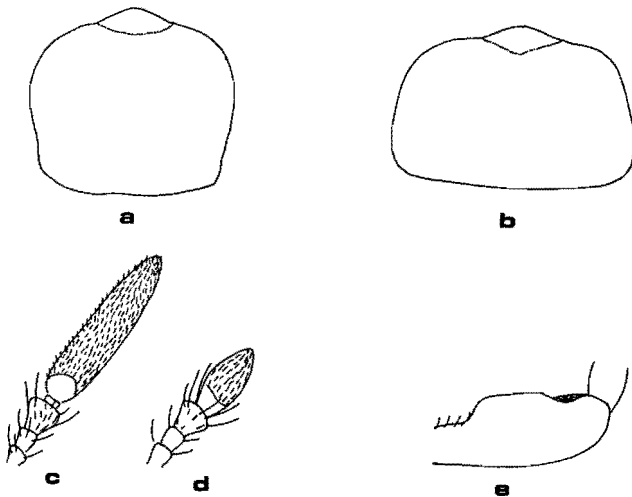


Fig. 7. *Horatomella louwi* spec. nov. A: male pronotum; B: female pronotum; C: male antenna, terminal segments; D: female antenna, terminal segments; E: male profemur, anterolateral view.

Apical antennal segment of male about six times length of penultimate segment. Anteroventral margin of male profemur with a median, rectangular, raised ridge.

Description. Size small, elytral length 2,0–3,6 mm. Integument reddish brown, scales of elytra bicoloured, light brown and white, with black tomentose patches, vestiture of ventral surface and appendages silvery white.

Head moderately large; supra-antennal portion of gena scarcely raised. Eye large, ovate, with short stout setae. Antennae with apical two segments enlarged in both sexes, dimorphic, elongate, apical segment about twice length of penultimate segment in female, about six times length of penultimate segment in male, with blunt apex (Fig. 7C). Frons with round granules and elongate silvery white scales, more concentrated laterally, and with very long, erect black setae.

Pronotum dimorphic (Fig. 7A,B), quadrate in male, sides subparallel, indicated by a carina at least anteriorly and posteriorly, transverse in female, sides convergent anteriorly, indicated by a row of granules; proepisterna just visible in dorsal view. Vestiture sparse except posterolaterally, consisting of hair-like silvery scales; with round to short strioliform granules and long, erect, dark, setae.

Elytra slightly (male) to much (female) broader than pronotum, sides rounded; with ten evenly spaced primary granular rows from suture to epipleural row, granules large and raised. Vestiture on disc consisting of fine, narrow brown scales, laterally of fine silvery scales; basal third of second and third intervals occupied by a large black tomentose patch, and second interval with on either side a smaller tomentose patch at top of apical declivity. Intervals on disc in male with irregular, in female with a row of secondary granules. Deflected part bare except for epipleural area. Epipleural row consisting of contiguous short strioliform granules. Granules of primary rows and secondary granules bearing very long, bristle-like, erect, dark setae.

Prosternum anteprococally as long as procoxa, scaled, with scattered round granules. Proepisterna with dense, mainly

strioliform granules. Mesosternum with large double tubercle anteriorly. Mesosternal apophysis slightly broader than mesocoxa; with two round shiny tubercles in female. Metasternum less than half of mesocoxal length, with two small round shiny tubercles in female. Abdominal sternites scaled, with rather dense, large round granules bearing long, erect setae.

Legs stout, moderately long. Femora and tibiae with vestiture of white scales. Pro-, meso- and metafemora with long setae on ventral surface. Posterior margin of profemur with a row of granules. Male profemur with median part of anteroventral edge raised to form a long ridge (Fig. 7D). Tibiae with long bristles; protibia compressed, dorsal surface toothed, with 3–4 large teeth in distal two-thirds. Meso- and metatibia straight, subcylindrical. Metatibial calcaria spiniform, extending beyond apex of first metatarsal segment. Tarsi slender, with moderately long bristles; first metatarsal segment much shorter than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 2,2 mm (SMW): Eksteenfontein, 22 km N, 28.38S 17.15E, Cape, R.S.A., 11 Sept. 1982, [leg. M.-L. Penrith] / H 54419. Allotype ♀, elytral length 3,6 mm (SMW): same data as holotype. Paratypes: 3♂, 2♀ (SMW, 1 pair in TM), 1♀ (NMBL): (5) same data as holotype; (1) S. Africa, C.P., Stinkfontein, 22 km N, Namaqualand, 28.38S 18.54E, 11 Sept. 1982, S. Louw / NMBH 8448.

Season. Spring (September).

Habitat. Under stones on a rocky hillside with compact soil and quartz.

Distribution (Fig. 9). Known from a single locality in the Richtersveld, South Africa. The apparently different localities are due to a change in the name 'Stinkfontein' to the more socially acceptable 'Eksteenfontein,' and an erroneous latitude on the second label.

Remarks. The new species differs from *H. johni* in its small size, the shape and dimorphism of the pronotum, generally less elongate shape, shape of the male profemoral tubercle, extremely elongate apical antennal segment of the male, dimorphism of the meso- and metasternal tubercles, and in details of sculpture and vestiture.

Etymology. The new species is named in honour of our friend Dr Schalk Louw of the Entomology Department, University of the Orange Free State, formerly of the National Museum, Bloemfontein, who was the host on an expedition during which the specimens were collected.

Horatomella piliscutata spec. nov., Figs 8, 9

Diagnosis (male). As *H. louwi*, except as follows: in male apical antennal segment only slightly more than twice as long as penultimate segment (Fig. 8B); profemur with middle section subtriangularly raised, highest point bearing a few setae (Fig. 8C). Long dark setae on head procumbent. Scales of elytral vestiture denser, longer and more hair-like; no secondary

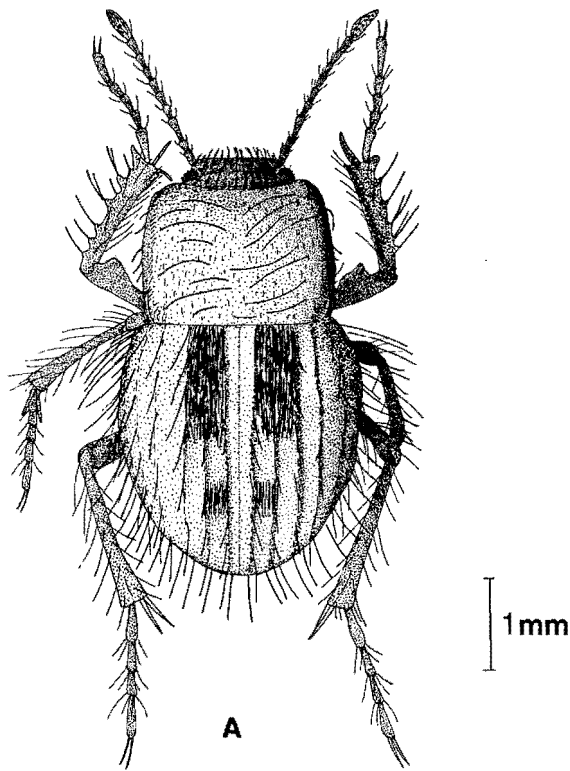


Fig. 8. *Horatomella piliscutata* spec. nov. A: habitus; B: male antenna, terminal segments; C: male profemur, anteroventral margin.

granules in intervals; posterior tomentose patches more extensive; all setae forming tomentose patches longer.

Material examined. Holotype ♂, elytral length 2,8 mm (TM): S.Afr., Richtersv., Stinkfontein, 4 km SSW, 28.49S 17.13E / 8.9.1976; E-Y:1235, from under stones, leg. Endrödy-Younga.

Season. Spring (September).

Distribution (Fig. 9). Known only from the type locality in the Richtersveld, South Africa.

Remarks. *Horatomella piliscutata* resembles *H. louwi* in size and shape, but differs from it in the characters listed above.

Etymology. The name of the new species is derived from the hair-like scales of the elytra (Latin, *pilus*, -*m*, a hair; *scutatus*, -*a*, -*um*, armed with a shield, referring to the scales of the vestiture).

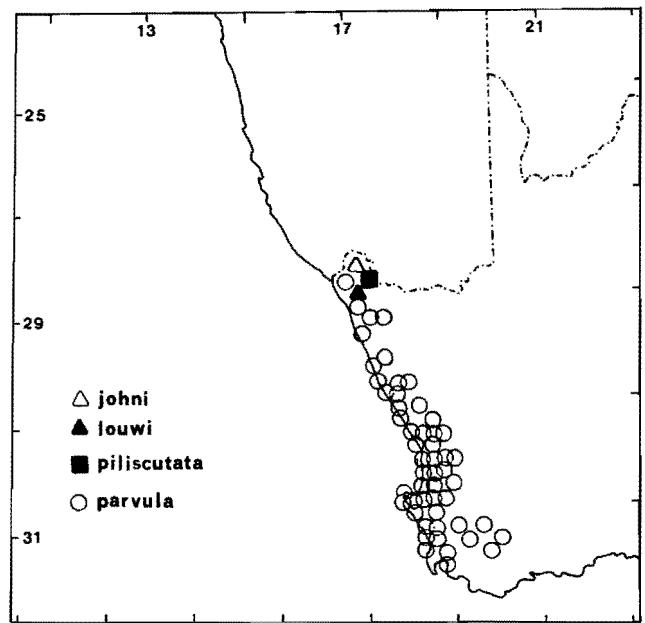


Fig. 9. Distribution of *Horatomella johni*, *H. louwi*, *H. piliscutata* and *Horatoma parvula*.

Genus HORATOMA Solier

Horatoma Solier, 1840: 364, pl. 10: figs 10–13; Haag, 1872: 274, 309; Gebien, 1937: 193; Koch, 1952: 47.

Horatomodes Haag, 1872: 305; Gebien, 1937: 193; Koch, 1952: 81. **syn. nov.**

Saccophorus (nec Kuhl) Haag, 1872: 303 (*nom. preocc.*).

Saccophorella Strand, 1935 (replacement for *Saccophorus* Haag, *nom. preocc.*). **syn. nov.**

Parapachynotela Koch, 1952: 54. **syn. nov.**

Type species: *Horatoma parvula* Solier, 1840 (by monotypy).

Diagnosis. Cryptochilina of small to large size, elytral length 2,0–10,6 mm. Integument reddish brown to black, with vestiture of scales and setation variably developed. Head moderate to large, moderately deflected, not amplexed in thorax; mouthparts free, not covered by collar-like extension of prosternum; eye ovate to broadly reniform, setose, visible in lateral view. Clypeus with sides straight, anteriorly convergent or (rarely) subparallel, continuous with gena, or gena raised, genal and clypeal margins separated. Occiput with long stridulatory file. Mentum strongly transverse, maxillae entirely exposed. Antennae 10–11 segmented, segment 11 at least partly, usually completely fused with 10. Apical antennal segments dimorphic or not, always somewhat enlarged relative to other segments; almost entirely sericeous, without extensive sclerotized base.

Pronotum usually transverse, rarely almost square, sides usually subparallel in at least posterior three-fourths; lateral margins generally not carinate except at posterior angle, in a few species more extensively carinate. Sculpture usually consisting of strioliform granules, granules rarely reduced, round, or absent. Inner anterior surface in middle with fine stridulatory striae.

Elytra usually oblong, occasionally rounded; broader and usually much longer than pronotum; five granular primary rows usually present between suture and lateral discal margin, rarely absent or indicated only by rows of punctures or setae.

Lateral margin of elytra usually indicated by two to three closely approximated granular rows separating disc from deflected part. Sutural interval broad. Humeri usually produced and embracing elytral base, rarely not produced.

Anterior margin of prosternum simple. Prosternal length variable, seldom long, anteprocoxal space shorter to much shorter than procoxa. Procoxal cavity narrowly closed behind. Mesosternum usually raised to callose anteriorly, sometimes inermous, sloping evenly to foramen. Apophysis very narrow to broad. Sternites scaled, abdominal setation similar in both sexes or longer in female.

Legs moderately long to long. Male profemur usually with a tubercle or low ridge on anteroventral margin near base, rarely with a row of tubercles, or undifferentiated. Protibia compressed to rounded, outer margin with small to large denticles. Metatibial calcaria usually dimorphic, spiniform in male, broader to foliaceous in female; rarely not dimorphic, spiniform in both sexes. Metatarsi usually dimorphic, slightly to very much shorter and thicker in female.

Aedeagus simple, slender.

Distribution (Fig. 3). Western parts of southern Africa.

Remarks. *Horatoma* as defined above includes the genera: *Horatoma sensu* Solier, *Saccophorella* Strand, *Horatomodes* Haag and *Parapachynotela* Koch. *Horatoma sensu* Koch (1952) included two species, *H. parvula* Solier and *H. irregularis* Haag; a third species, *H. pulchra* Koch, was described in 1957. Koch (1952) defined the genus as lacking antennal dimorphism. This applies to *H. parvula* and *H. pulchra*, which are clearly closely related, but *H. irregularis* has sexually dimorphic antennae.

Saccophorella, with 12 species (Koch, 1952), was distinguished by the possession of a bare callosity on the apex of the mesepisternum. This character is consistently exhibited by a closely related group of species, but also by *pulcherrima* Koch, which differs considerably from them. Furthermore, the presence of a callosity is variable in *peringueyi* Koch and *bushmanica* Koch, which Koch (1952) assigned to his genus *Parapachynotela*, and the character is therefore not acceptable at generic level.

Horatomodes, based on *Horatomodes batesi* Haag, was separated from *Horatoma* on account of the antennal dimorphism (Haag, 1872), a character which is irregularly distributed in the subtribe and varies in most genera. Koch (1952) did not see the type of *H. batesi*, and therefore misinterpreted the genus. He based his definition of *Horatomodes* on a group of species in which antennal dimorphism varied, but all of which have a narrow mesosternal apophysis. The type of *H. batesi* has a broad mesosternal apophysis, and according to Koch's key and diagnosis belongs to *Parapachynotela* Koch, which would thus become a synonym of *Horatomodes*. However, the width of the mesosternal apophysis varies considerably in some species (e.g., *carinulata* Gebien), although reasonably consistent in others, and is therefore not a useful character for generic delimitation. The only character that appears consistent in the horatomoid group is the indication of a distinct eleventh antennal segment (minute, but clearly developed, Fig. 10) in *Horatoma parvula*, *H. pulchra* and *H. levis*. These three species all have non-dimorphic antennae and a narrow mesosternum. There are, however, no apomorphies shared

by these three species that would separate them on cladistic grounds from the species formerly included in *Saccophorella*, *Horatomodes* and *Parapachynotela*, as the three character states mentioned are considered plesiomorphic. We prefer to define *Horatoma* as a broadly based genus, within which a few distinct species groups can be recognized. Subgenera have not been used for these, partly owing to the same difficulties of definition that applied to the use of genera, and partly because of a large number of non-aggregated species. The present arrangement reflects the relationship of the species, and is flexible enough to accommodate new species that await discovery.

Key to the species of *Horatoma*

- 1. Antenna with distinct small eleventh segment (Fig. 10) 2
- Antennae 10-segmented 4
- 2. Disc of elytra with granular primary rows; margin of elytra indicated by 2–3 approximated granular rows; deflected part of elytra with distinct epipleural row of granules and 1–3 other granular rows 3
- Disc of elytra with primary rows indicated only by rows of setae emerging from minute, separated granules; margin of elytra not indicated, disc and deflected part continuous; deflected part of elytra without an epipleural row or any other granular rows *levis* spec. nov.
- 3. Elytral and pronotal setation short to moderate; male profemur usually with rudimentary basal ridge on anteroventral surface; proepisterna with sparse granules with dense scales between them *parvula* Solier
- Elytral and pronotal setation long; male profemur inermous; proepisterna with dense coarse granules and sparse scales between them . . . *pulchra* Koch
- 4. Size very small, elytral length less than 4 mm; clypeus anteriorly either with a deep, narrow, crescentic emargination, or with a straight-sided, V-shaped emargination (Figs 12, 16, 17); lateral margin of elytral disc rounded, indicated only by a change in sculpture or vestiture; supra-antennal portion of gena either completely continuous with sides of clypeus or separated by a very shallow notch, visible in lateral view only; length of prosternum in front of procoxa more than half of procoxal length; integument of elytra and sometimes pronotum coarsely punctate 5
- Size variable; clypeus anteriorly broadly, shallowly to deeply emarginate; lateral margin of elytral disc usually indicated, at least at humerus, by approximated rows of granules; supra-antennal portion of gena usually separated from side of clypeus by a distinct notch; length of prosternum in front of procoxa usually not more than half of procoxal length; integument of dorsal surface not densely punctate (at most, primary rows of elytral disc flanked by conspicuous rows of punctures) 9
- 5. Clypeus with deep, narrow, crescentic median emargination (Fig. 12); pronotum of male about as

- wide as long; penultimate antennal segment of male shorter than preceding three segments together 6
- Clypeus with straight-sided, V-shaped median emargination (Figs 16, 17); pronotum of male transverse; penultimate antennal segment of male longer than preceding three segments together 8
6. Eye ovate, not indented by genal canthus; lateral pronotal margin carinate anteriorly; penultimate antennal segment of male slightly shorter than preceding two segments together (Fig. 12A); male profemoral anteroventral margin strongly denticulate over most of length, denticles without setae (Fig. 12E) *hessei* spec. nov.
- Eye reniform, weakly indented anteriorly by genal canthus; lateral pronotal margin not carinate anteriorly; penultimate antennal segment of male as long as or longer than preceding two segments together; male profemoral anteroventral margin either with simple basal tubercle or with small, setigerous denticles in proximal half 7
7. Male profemoral anteroventral margin with setigerous denticles in proximal half (Fig. 13E); apical antennal segments of male larger (Fig. 13C); sides of female pronotum less strongly convergent anteriorly, anterior margin clearly more than half the width of base. *thoracica* spec. nov.
- Male profemur with simple basal ridge with a few setae (Fig. 14E); apical antennal segments of male smaller (Fig. 14C); sides of female pronotum strongly convergent anteriorly (Fig. 14B), anterior margin about half of basal width. *ovula* spec. nov.
8. Elytra with distinct primary rows, not entirely densely and irregularly punctate; side margins of pronotum indicated posteriorly *diabolica* spec. nov.
- Elytra without primary rows, entirely densely and irregularly punctate; side margins of pronotum not indicated *porosa* spec. nov.
9. Lateral margin of pronotum evanescent anteriorly, not carinate at anterolateral angle 10
- Lateral margin of pronotum carinate anteriorly, carina meeting anterior margin at anterolateral angle *tomentifera* spec. nov.
10. Epipleural crest well developed as a continuous row of granules or punctures 11
- Epipleural crest absent, or reduced to a few widely spaced granules 39
11. Disc of elytra with at least three primary rows, usually all five, consisting of prominent, round to elongate, mainly contiguous granules over most or all of their length 12
- Disc of elytra with primary rows absent or reduced to widely spaced, small granules, or indicated by flanking rows of punctures 36
12. Lateral margins of pronotum in front of posterior angles consisting of granules or tubercles, not a distinct carina; deflected part of elytra without several distinct rows of granules 13
- Lateral margins of pronotum finely carinate over most of length, reduced anteriorly; deflected part of elytra with several distinct rows of granules *peringueyi* Koch
13. Apex of mesepisternum scaled or (rarely) bare, if bare not raised to form a distinct callosity 14
- Apex of mesepisternum bare and raised, forming a distinct callosity. 25
14. Mesosternal apophysis distinctly narrower than width of mesocoxa 15
- Mesosternal apophysis equal to or wider than width of mesocoxa 18
15. Lateral pronotal margin at posterior angle consisting of a fine carina or separate granules or denticles; elytra ovate or elongate; pronotum with strioliform granules, none very long; margin of disc of elytra consisting of three distinct rows of granules (granules of middle row sometimes very widely spaced). (Kalahari and northern pro-Namib Deserts) 16
- Lateral pronotal margin sharply carinate at posterior angle; elytra rounded; pronotum with strioliform ridges; marginal edge of elytra consisting of two distinct rows of granules. (Southwestern Cape) 17
16. Elytra ovate; male profemur with distinct, long, low tubercle on anteroventral margin. *praetoriusi* Koch
- Elytra elongate; male profemur inermous *hereroensis* Koch
17. Posterior angles of pronotum with edge sharply raised, translucent; apical segments of male antennae elongate, very large (Fig. 19C); male profemur with minute basal tubercle. *irregularis* Haag
- Posterior angles of pronotum without raised, translucent sharp edge, finely carinate; apical segments of male antennae enlarged, but rounded (Fig. 19B); male profemur inermous *altera* spec. nov.
18. Anterior margin of pronotum slightly raised along entire length, or not raised. 19
- Anterior margin of pronotum raised only in middle *bushmanica* Koch
19. Pronotum very strongly transverse, at least twice as broad as long, lateral margins evanescent in front of posterior angles; elytra oblong 20
- Pronotum less transverse, distinctly less than twice as wide as long, lateral margins distinctly developed as a row of approximated granules in front of posterior angles; elytra rounded *minuta* spec. nov.
20. Posterior angle of pronotum distinctly carinate laterally; marginal rows of disc of elytra prominent. 21
- Posterior angle of pronotum without distinctly carinate lateral margin (granular or covered by scales); marginal rows of disc of elytra fine, not prominent 23
21. Epipleural row consisting of large punctures associated with small granules; deflected part of elytra extensively punctate; male antenna with apical segments strongly enlarged 22
- Epipleural row composed of distinct granules that

- are more conspicuous than associated punctures, at least anteriorly; deflected part of elytra with punctures mainly confined to upper half; male antenna with apical segments slightly enlarged
 *richtersveldea* Koch
22. Size larger (elytral length 4,0–9,0 mm); penultimate segment of male antenna shorter than preceding three segments together. *batesi* Haag
 — Size smaller (elytral length 4,0–4,2 mm); penultimate segment of male antenna longer than preceding three segments together. *apicalis* spec. nov.
23. Anterior margin of pronotum smooth. (Western parts of southern Africa) 24
 — Anterior margin of pronotum with five denticles. (Transvaal, South Africa) *munroi* Koch
24. Secondary intervals of elytra with strioliform granules; pronotum with strong strioliform ridges
 *spinipes* Koch
 — Secondary intervals of elytra without secondary granules; pronotum with fine strioliform granules
 *piscelluminis* spec. nov.
25. Elytral bristle-like setae short, not as long as width of elytral secondary intervals 26
 — Elytral bristle-like setae long, at least as long as width of some elytral secondary intervals; elytra with extensive dark brown pattern ... *pulcherrima* Koch
26. Pronotal disc evenly and shallowly to moderately convex 27
 — Pronotal disc callose in middle . . *convexicollis* spec. nov.
27. Pronotum densely sculptured, with long, approximated strioliform ridges, scales mainly confined to sides and middle. 28
 — Pronotum with fine, scattered strioliform granules, entire surface of pronotum with dense vestiture of scales *squamicollis* Koch
28. Elytra with a tessellate pattern owing to bare patches with secondary granules, or patches of dark scales, or both (if more striped than tessellate, small secondary granules nevertheless present on intervals 2–4, some tessellation at least posteriorly); sutural interval variable, but not entirely black 29
 — Elytra striped, without tessellation, or with a little in lateral interval only, secondary granules confined to lateral interval, none on disc; sutural interval uniformly and densely black *striata* spec. nov.
29. Scales of elytra bicoloured or tricoloured, with dark tomentose patches 30
 — Scales of elytra unicoloured, greyish; secondary granules of elytral intervals very large and broad
 *tuberculata* Haag
30. Posterolateral edge of pronotum variable, but never sharply carinate and translucent; scales of elytra usually tricoloured; antennae variably dimorphic. (Namaqualand) 31
 — Posterolateral edge of pronotum sharply carinate and translucent; scales of elytra unicoloured except for patches of almost black setae; apical segments of male antenna only slightly enlarged, penultimate segment squarish, shorter than preceding two segments together. (Richtersveld)
 *horatomoides* Koch
31. Penultimate segment of male antenna round, shorter than preceding two segments together; shape of elytra oblong, sides parallel in middle section; size larger (elytral length 4,3–9,6 mm) 32
 — Penultimate segment of male antenna elongate, longer than at least preceding two segments together; shape rounded, elytral sides continuously slightly rounded; size smaller (elytral length 3,8–5,7 mm) 35
32. Humeri of elytra sometimes granular, but not strongly raised, callose and tuberculate 33
 — Humeri of elytra strongly raised, callose and tuberculate *callosa* Koch
33. Posterolateral angles of pronotum variable, but not sharply raised 34
 — Posterolateral angles of pronotum sharply raised
 *angulata* spec. nov.
34. Head usually distinctly narrower than pronotal base; elytra usually broadest in middle third
 *crenulata* Haag
 — Head usually as broad as pronotal base; elytra broadest at level of top of apical declivity
 *cephalica* Koch
35. Penultimate segment of male antenna longer than preceding two segments but shorter than preceding three segments together; sides of clypeus almost continuous with gena; granules of proepisternum mainly elongate to strioliform
 *antennalis* Koch
 — Penultimate segment of male antenna longer than preceding three segments together; sides of clypeus meeting gena at obtuse angle; granules of proepisternum subspherical *dutoiti* spec. nov.
36. Main components of sculpture of pronotal disc long strioliform granules 37
 — Main components of sculpture of elytral disc round, slightly elongate, or short strioliform granules
 *eberlanzi* Gebien
37. Apical segments of male antenna narrowly elongate, penultimate segment distinctly longer than preceding two segments together; proepisternal granules scattered 38
 — Apical segments of male antenna enlarged, ovate, penultimate segment not or scarcely longer than preceding two segments together; proepisternal granules dense in upper half. *carinulata* Gebien
38. Antennal segments with long black bristles; male profemur with distinct small basal tubercle
 *tessellata* Gebien
 — Antennal segments with short, pale to brown bristles; male profemur inermous *striolidiscus* Koch
39. Elytra with distinct granular primary rows on disc, granules elongate, strioliform 40
 — Elytra with primary rows indicated only by rows of setae borne on inconspicuous, round to slightly

- elongate granules 47
40. Posterolateral angles of pronotum not prominent or carinate 41
- Posterolateral angles of pronotum prominent, at least partly carinate *humidens* spec. nov.
41. Pronotal granules distinctly strioliform; male apical antennal segments variable 42
- Pronotal granules small, round; male apical antennal segments enlarged, elongate, penultimate segment slightly shorter than preceding three segments together *nocturna* spec. nov.
42. Elytral base distinctly embracing pronotal base 43
- Elytral base not embracing pronotal base, humeri meeting posterolateral angles of pronotum 46
43. Lateral margin of pronotum not indicated, or indicated by small and irregular granules; male profemur inermous or with small tubercle 44
- Lateral margin of pronotum indicated posteriorly by elongate granules; male profemur with large, elongate basal tubercle *rupicola* spec. nov.
44. Penultimate segment of male antenna not longer than preceding two segments together; strioliform granules of pronotum fine; supra-antennal portion of gena at most moderately raised 45
- Penultimate segment of male antenna slightly longer than preceding three segments together; strioliform granules of pronotum coarse; supra-antennal portion of gena strongly raised, auricular *pronamibensis* spec. nov.
45. Elytral lateral margin prominent, formed by two approximated rows of granules; pronotal margin fairly prominent posteriorly; male profemur with small tubercle near base *schulzeae* spec. nov.
- Elytral lateral margin not prominent, rounded, no rows approximated; pronotal margin not indicated; male profemur inermous *scherzi* Koch
46. Supra-antennal portion of gena strongly raised, auricular; apical two segments of male antenna very large, elongate, penultimate segment as long as or longer than preceding four segments together. (Central Namib Desert, escarpment area) *rupestris* spec. nov.
- Supra-antennal portion of gena moderately raised, not auricular; apical segments of male antenna enlarged, roundish, penultimate segment about as long as preceding two segments together *delicata* spec. nov.
47. Supra-antennal portion of gena auricular (Fig. 30A); apical segments of male antenna greatly enlarged, elongate, penultimate segment only slightly shorter than preceding four segments together (Fig. 30B); mesosternum raised anteriorly *singularis* spec. nov.
- Supra-antennal portion of gena angular; apical segments of male antenna slightly enlarged, penultimate segment about as long as preceding two segments together; mesosternum not raised anteriorly, sloping evenly to foramen *deserticola* spec. nov.

***Horatoma parvula* Solier, Figs 9, 10A**

Horatoma parvula Solier, 1840: 267; Haag, 1872: 309; Gebien, 1937: 193; Koch, 1957: 105 (in discussion).

Horatoma parvula var. *sedecimcostata* Solier, 1840: 267; Haag, 1872: 309; Gebien, 1937: 193. **syn. nov.**

Diagnosis. Antennae 11-segmented. Elytral disc with distinct granular primary and lateral rows, deflected part with 1–3 granular rows and a granular epipleural row. Elytra and pronotum with short to moderate setae. Proepisterna with sparse granules.

Description. Size small, elytral length 3.2–6.1 mm (usually less than 5.5 mm). Integument reddish brown to black, scales of elytra usually tricoloured, light brown, dark brown and white, scales of ventral surface and appendages white.

Head large, only slightly narrower than pronotum; supra-antennal portion of gena scarcely raised. Clypeus deeply emarginate, sides straight, convergent anteriorly, scarcely separated from sides of gena. Eye broadly reniform, with short, scale-like setae. Antennae with apical segments slightly enlarged in both sexes, not dimorphic, subspherical, with subconical apex; eleventh segment just distinguishable, although fused with tenth (Fig. 10A). Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum strongly transverse, sides subparallel, indicated by an irregular row of spaced granules, carinate only at posterior angles; proepisterna just visible in dorsal view. Vestiture variable, but an interrupted median stripe and a pair of lateral stripes of scales are usually discernible, latter broadening posteriorly, white; with long strioliform ridges and short recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules very fine and almost obscured by vestiture. Colouring variable, but sutural interval usually with dense white scales and no secondary granules; intervals 2–5 variously with uni- to tricoloured vestiture, intervals 2 and 3 often with concentrated light and dark brown scales forming patches or stripes, as well as white vestiture. Lateral interval with patches of white setae alternating with bare patches. Lateral margin consisting of two or three rows of granules, variably approximated or separated, always closer than any two discal rows, sometimes evanescent. Deflected part scaled, usually bicoloured brown and white, with one to three complete or incomplete rows of short strioliform granules. Epipleural row consisting of short strioliform granules. Granules of primary rows bearing short to moderately long, bristle-like, semi-erect dark setae; sparse granules along midline of intervals bearing similar setae.

Prosternum in front of procoxa less than half of procoxal length, apex of horizontal part of apophysis bilobed; apophysis narrow. Proepisterna with small, moderately dense strioliform granules. Mesosternum with large tubercle anteriorly. Mesosternal apophysis moderate, slightly broader than mesocoxa. Pro-, meso- and metasterna with small scattered granules and short to long semi-erect setae. Abdominal sternites scaled, with granules and setae as described for thoracic sternites.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like

setae on proximal ventral surface. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Calcaria spiniform to subfoliaceous (female), long. Tarsi slender to very slender, with moderately long bristles; first metatarsal segment much longer than unguis segment.

Aedeagus simple, moderately slender.

Material examined. Lectotype ♂, elytral length 3,5 mm (MHNG): *parvula* Sol. / *16 costatum* Reich. / Cap B. E. Reiche / Musée de Genève no. 18. Paralectotypes: 2 ex., sex not determined (MHNG): (1) *parvula* Sol. / Cap B. E. / colln. Gory (Solier). (1) *H. parvula* Sol.; *reticulatum* Chev. / Cap B. E., Drege.

Other material: 768 (TM), 102 (SMW), 127 (NMBL), 80 (SAM), 5 (NCI); localities: Algeria, 10 km W, 32.21S 19.03E; Blaauwberg; Boshof; Brackfontein farm; Brakrivier Mouth; Bulhoek, Olifants R.; Cape Columbine; Cape Town; Cape Town, 63 km N at 33.24S 18.16E, 38 km N at 33.34S 18.27E; Citrusdal, 8 mi. N; Clanwilliam; Clanwilliam, 4 mi. S, 20 km S, 6 km N, 12 km N, 16 km N, 20 km N; Clanwilliam, Olifants R.; Dembergsdraai farm; Doornfontein farm; Duiker Island (opp.); Duiker Island, coast at; Elands Bay; Farquarson; Garies; Gembokvlakte farm; Graafwater; Graskom; Groenrivier Mouth; Grootdrif farm; Grootmist; Hex R.; Het Kruis; Hoekbaai, 2 km ENE; Hondeklip Bay, 12 km E; Island Point, 4 km S; Jakkalsputs; Katdoringvlei; Klawer; Klawer, 12 mi. before; Klein Klipheuwel; Klein Kogelfontein; Kliphoutkop; Koeberg; Koekenaap; Kommandokraal; Kotzesrus; Lambert's Bay; Lambert's Bay, 6 km E, 10 km E; Langebaan, 4 km NE, 33.03S 18.04E; Leipoldville; Leipoldville - Elands Bay; Leipoldville - Graafwater; Malmesbury; Marais Dam, Worcester; Milnerton; Montagu (white sand dune); Moorreesburg; Muisvlak, 29.13S 16.56E; Olifants R. betw. Citrusdal and Clanwilliam; Olyfheuwel; Oograbies; Op die Berg, 34 km N, 3219Cc; Pakhuis Pass; Paleisheuwel; Papendorp; Papendorp dunes; Piquetberg; Quaggafontein; Ratelfontein; Robertson; Robertson, 10 km S, 15 km W; Rondabel farm; Rooidam farm; Saamstaan farm; St Helena Bay; St Helenafontein; Sandbaai; Sederberg; Skulpbaai, 2,5 km NW; Skurfkop; Skurfkop Stn, 2 km N; Soebatsfontein; Somerset West; Soutpan dunes; Stellenbosch; Strandfontein (Namaqualand); Tulbagh; Vanrhynsdorp; Velddrif, 3 km S; Verlorevlei farm; Vredendal; Vredendal, 20 km W at 31.40S 18.31E, 6 km E; Waterval farm; Wiedou. Also 'Bushmansland' and evidently erroneous locality, 15 mi. S Colesberg.

Season. This species has been recorded throughout the year (January – December).

Habitat. Sandy areas, especially vegetated dunes, at the base of plants.

Distribution (Fig. 9). Namaqualand and the southwestern Cape Province, South Africa.

Remarks. *Horatoma parvula* is an extremely variable species in which there are no grounds for the recognition of subspecies.

Apart from the colour pattern, most variation occurs in the formation of the lateral margin of the elytra, the length of the dorsal setation, and the length and thickness of the tarsi. The

colour variation, including the development of pairs of dark patches on the elytra, varies widely within populations.

The lateral margin of the elytra may be formed by either two or three rows of granules. The lectotype and one of the paralectotypes have three rows, while the other paralectotype has two. Nearly all specimens from the southern part of the range (southwestern Cape) have three well-developed granular rows. In the northern part of the distribution range (from Vredendal northwards), two rows are more common. In the centre of the range, in particular in long series from Klawer and Elands Bay, specimens with both two and three rows are found, the middle row when present being variably developed, from complete to consisting of a few granules.

Populations from the northern part of the range often include two distinct forms: in one form the marginal edge of elytra is strongly developed and raised and the elytral setation is extremely short, while in the other the marginal edge is rounded, with the granular rows slightly further apart and poorly developed, and the elytral setae are longer. The two forms are quite distinct in these characters, but evidently occur together in the same area. Further south, populations intermediate between the two forms occur.

Horatoma pulchra Koch, Figs 10B, 15

Horatoma pulchra Koch, 1957: 103.

Diagnosis. Antennae 11-segmented. Elytral disc with distinct granular primary and lateral rows, deflected part with three granular rows and a granular epipleural row. Elytra and pronotum with long setae. Proepisterna with dense coarse granules.

Description. Size small, elytral length 3,0–4,6 mm. Integument reddish brown to black, vestiture of elytra tricoloured, light brown, dark brown and white scales, ventral surface and appendages white.

Head moderately large, slightly more than half width of pronotum. Clypeus narrow, with deep crescentic median emargination; sides straight, convergent anteriorly, separated from gena by a shallow notch; supra-antennal portion of gena scarcely raised. Eye broadly reniform, with short, stout, erect bristles. Antennae with apical segments slightly enlarged in both sexes, not dimorphic, subspherical, with slightly elongate conical apex, eleventh segment distinctly visible. Frons with elongate granules and white scales, more concentrated laterally, and with very long semi-erect dark setae.

Pronotum strongly transverse, sides subparallel, slightly divergent anteriorly, indicated by a row of small, widely spaced granules in front of carinate posterolateral angle; proepisterna just visible in dorsal view. Vestiture of scales variable, mostly scattered, but a pair of lateral stripes usually discernible, white; with long strioliform ridges and long, semi-erect to recumbent dark setae.

Elytra slightly broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules very fine and almost obscured by vestiture of scales. Sutural interval with dense white scales and no secondary granules; intervals 2–4 on disc mainly with dark scales, variably interrupted by lighter areas; fifth interval with light brown scales. Lateral interval with patches of white setae alternating with bare patches surrounding small round secondary granules. Lateral

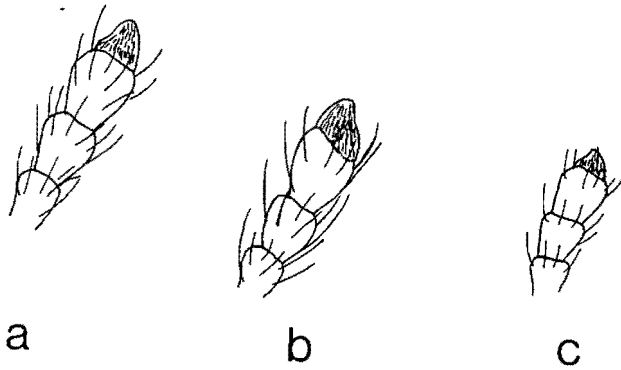


Fig. 10. Terminal segments of antenna of A: *Horatoma parvula* Solier; B: *H. pulchra* Koch; C: *H. levis* spec. nov., showing distinct eleventh segment.

margin consisting of two rows of granules, clearly separated. Deflected part uniformly and relatively sparsely scaled, scales white, with three complete rows of short strioliform granules. Epipleural row consisting of short strioliform granules. Granules of primary rows on disc bearing long, bristle-like, erect dark setae; widely spaced granules along midline of intervals bearing similar, but usually shorter, setae.

Prosternum in front of coxa less than half of procoxal length; with large round granules bearing long setae; apophysis narrow, apex bilobed. Proepisterna with small, moderately dense, round to strioliform granules bearing long setae. Mesosternum with large tubercle anteriorly. Meso- and metasterna with granules and setae as prosternum. Mesosternal apophysis narrow, equal to or slightly broader than mesocoxa. Abdominal sternites scaled, with small scattered granules.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with long bristle-like setae on ventral surface. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Calcaria spini-form, longer in female. Tarsi slender to very slender, with long bristles; first metatarsal segment much longer than ungual segment.

Aedeagus simple, moderately slender.

Material examined. Lectotype ♂, elytral length 3,0 mm (TM); Buffels R. near Grootmist, C.P., 21-XI-1948, Koch & van Son. Paralectotypes: 19 ex (TM): (14) same data as lectotype; (4) Holgat, L. Namaquald, 2.IX.1950, C. Koch, G. van Son (5 mentioned in original description); (1) Oograbies, L. Namaquald, 30.VIII.50, C. Koch, G. van Son (4 mentioned in original description).

Other material: 8 ex. (TM); localities: Buffelsrivier valley at 29.36S 17.14E; Holgat gate.

Season. Spring (September, October).

Distribution (Fig. 15). Northern Namaqualand, South Africa.

Remarks. This species differs consistently from *H. parvula* in the very long setation of the elytral disc (*H. parvula* is variable and may have long lateral setation, but setation of the disc is short), the shape of the elytra, and the width of the mesosternal

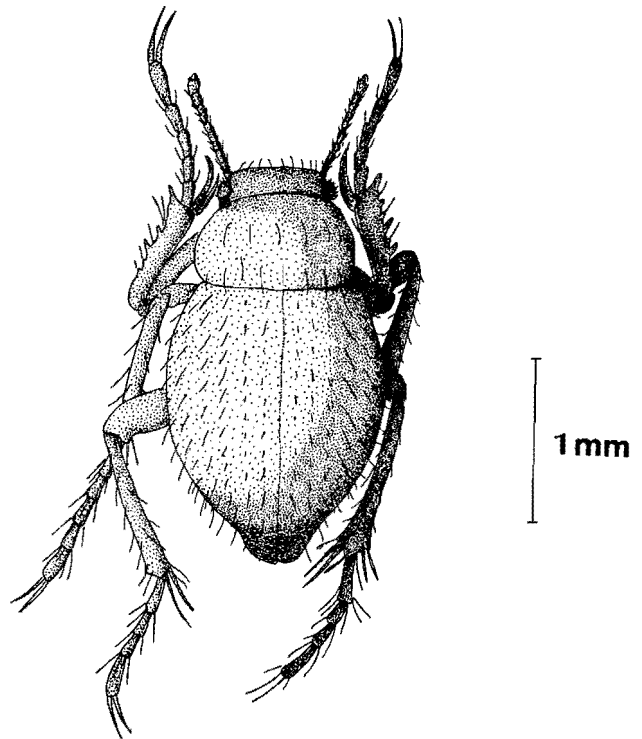


Fig. 11. *Horatoma levis* spec. nov., habitus and lateral outline.

apophysis. Three of Koch's (1957) syntypes of this species (two from Oograbies and one from Hondeklip Bay) belong to the longer-haired form of *H. parvula*.

Horatoma levis spec. nov., Figs 10C, 11, 15

Diagnosis. Antennae 11-segmented. Elytral disc with primary rows indicated by setae emerging from minute, widely spaced granules, disc and deflected parts continuous, no distinct lateral margin; epipleural row absent.

Description. Size small, elytral length 2,0–4,0 mm. Integument reddish brown to black, vestiture of elytra unicoloured, silvery white, or bicoloured, scales light brown and white, scales of ventral surface and appendages white.

Head moderately large, more than half of pronotal width. Clypeus shallowly emarginate, sides subparallel, separated from gena by a shallow notch; supra-antennal portion of gena scarcely raised. Eye large, broadly ovate, with short to moderately long, stout, erect bristles. Antennae with apical segments slightly enlarged in both sexes, not or slightly dimorphic,

subspherical, with subconical apex, eleventh segment minute but clearly separated from tenth (Fig. 10C). Frons with elongate granules and dense white scales, and with long procumbent setae.

Pronotum strongly transverse, slightly broader in female, sides not indicated, evenly rounded to proepisterna, which are just visible in dorsal view. Scales dense, almost uniform, slightly more concentrated in a median stripe or patch medio-basally, silvery white; with sparse, almost concealed strioliform granules and long, erect pale setae.

Elytra broader than pronotum, sides rounded; with five rows of long, stout, erect light to dark setae representing primary rows on disc. Lateral margin consisting of a similar row of setae. Vestiture of scales uniformly silvery white, or partly light brown, sutural interval with denser, white scales. Light brown scales, if present, forming two irregular patches on disc over second and third intervals. Deflected part scaled, silvery white. Epipleural row absent. Humeri broadly rounded, not produced or embracing pronotal base.

Prosternum short in front of coxa, about one-fourth of procoxal length, scaled, with moderately long recumbent setae, apophysis very narrow, bilobed. Proepisterna densely scaled, with minute, sparse setigerous granules. Mesosternum not raised or callose anteriorly, sloping evenly to foramen. Mesosternal apophysis narrow, as broad as or slightly broader than mesocoxa. Meso- and metasterna and abdominal sternites with scales and setae as on prosternum.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with silvery white scales. Pro-, meso- and metafemora with bristle-like setae on at least proximal ventral surface. Male profemur inermous. Tibiae with short to long bristles; protibia scarcely compressed, almost subcylindrical, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform in both sexes, much longer in female, in male extending beyond first metatarsal segment, in female extending beyond third. Tarsi slender, with long bristles, not dimorphic; first metatarsal segment distinctly shorter than unguis segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 2,4 mm (SMW): Sargdeckel, Klinghardt Mts, 27.24S 15.41E, Diamond Area 1, 1–2 Oct. 1982, M.-L. Penrith, J. Irish / H 54933. Allotype ♀, elytral length 3,4 mm (SMW): same data as holotype. Paratypes: 279 ex. (SMW, 20 in TM): (217), same data as holotype; (45) Klinghardt Mts W. at 27.24S 15.38E, Diamond Area 1, 1–4 Oct. 1982, M.-L. Penrith, J. Irish / H 54896; (9) Sargdeckel, Klinghardt Mts, SE 2715 Bc, Diamond Area 1, 22–25 Oct. 1977, coll. M.-L. Penrith, S. Louw / H 35018; (4) Klinghardt Mts at 27.20S 15.45E, Diamond Area 1, 3–6 Sept. 1980, S. Louw, M.-L. Penrith / H 42463; (1) Klinghardt Mts, 27.18S 15.41E, Diamond Area 1, 29–30 July 1981, M.-L. Penrith / H 43484; (1) Heioab, SE 2716 Ac, Diamond Area 1, 25–26 Oct. 1977, coll. S. Louw, M.-L. Penrith / H 35058; (1) Obib Dunes N at 27.59S 16.33E, Lüderitz, 19 Sept. 1973 / H 14533 [coll. M.-L. Penrith, J.B.U. Tebje].

Season. Late winter to spring (late July – October).

Habitat. Sandy areas, usually on grass during day; also at base of plants.

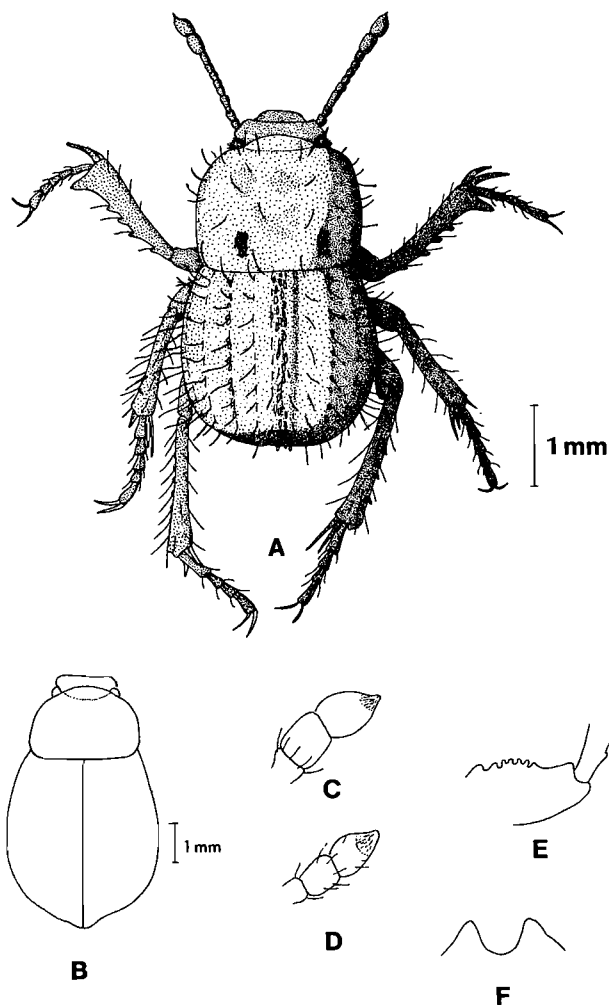


Fig. 12. *Horatoma hessei* spec. nov. A: habitus, male; B: dorsal outline, female; C: male antenna, terminal segments; D: female antenna, terminal segments; E: male profemur, anteroventral margin; F: clypeus, dorsal view.

Distribution (Fig. 15). Southern Namib Desert, Namibia.

Remarks. This species differs from previously described species in having lost the primary elytral sculpture, although the rows are represented by rows of setae. It differs from *H. parvula* and *H. pulchra*, with which it shares the distinct eleventh antennal segment, non-dimorphic antennae and male profemur, and an inermous mesosternum, in the shape and sculpture of the pronotum and elytra, and the lack of an epipleural crest.

Etymology. The name of the new species refers to its smooth appearance (Latin, *levis*, -e, smooth).

Horatoma hessei spec. nov., Figs 12, 15

Diagnosis. Clypeus with deep narrow crescentic median emargination. Eye ovate. Male pronotum subquadrate, lateral margin carinate anteriorly. Anteroventral margin of male profemur with bare denticles over most of length.

Description. Size small. elytral length 2,0–3,9 mm. Integument reddish brown to black, vestiture of elytra bicoloured, light brown to off-white and dark brown scales, scales of ventral surface and appendages silvery white.

Head moderately large, more than half of pronotal width. Clypeus with deep narrow crescentic emargination anteriorly (Fig. 12F), sides straight, anteriorly convergent, not separated from supra-antennal portion of gena, which is not raised. Antennae longer in male, with apical two segments enlarged in both sexes, larger in male (Fig. 12C,D), subspherical, with subconical apex; apical and penultimate segments about equal in length. Frons with round granules and white scales, more concentrated laterally and anteriorly, and with semi-erect to erect coarse setae.

Pronotum dimorphic, in male subquadrate, sides subparallel, narrowing anteriorly, in female markedly transverse, sides subparallel in posterior half, then strongly convergent anteriorly (Fig. 12B); sides indicated by a fine carina anteriorly and posteriorly; proepisterna just visible in dorsal view. Scales variable, extensive; a pair of dark tomentose patches variably developed on either side just in front of base; with small round granules and coarse erect dark setae.

Elytra scarcely broader than pronotum in male, much broader in female; sides weakly curved; with five primary rows on disc, usually indicated only by rows of setae. Sutural interval with dark erect tomentose scales at least basally; remainder of elytral disc with scales varying in length and density. Entire integument coarsely punctate. Lateral margin indicated only by a change in vestiture, disc continuous with deflected parts where a sixth setose row is present. Deflected part punctate, sparsely scaled, with at least one complete row of granules. Epipleural row consisting of short strioliform granules and conspicuous punctures. Primary rows with bristle-like, long, erect, dark setae.

Prosternum in front of procoxa at least two-thirds of procoxal length, apophysis narrow, bilobed. Proepisterna densely scaled, with a few long setae. Mesosternum raised anteriorly. Mesosternal apophysis moderately broad, about one-and-a-half times width of mesocoxa. All sternites scaled, with sparse shiny granules bearing moderately long, semi-erect, posteriorly inclined setae.

Legs moderately slender, short. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with basal tubercle and large part of anteroventral edge denticulate (Fig. 12E); female with anteroventral edge finely serrulate. Tibiae with moderately long bristles; protibia compressed, dorsal surface toothed. Meso- and metatibia straight, moderately compressed, bristly. Metatibial calcaria spiniform in both sexes, in male extending beyond apex of first metatarsal segment, in female reaching end of second. Metatarsi moderately slender, not dimorphic, with moderately long bristles; first metatarsal segment about as long as ungual segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 2,0 mm (TM): S. Afr., S.W. Cape, Papendorp dunes, 31.38S 18.12E / 22.8.1981, E-Y:1831, groundtraps, 64 days, leg. Endrödy-Younga / groundtraps with ferm. banana bait. Allotype ♀, elytral length 3,9 mm (TM): Clanwilliam, IX.1928, Dr Brauns.

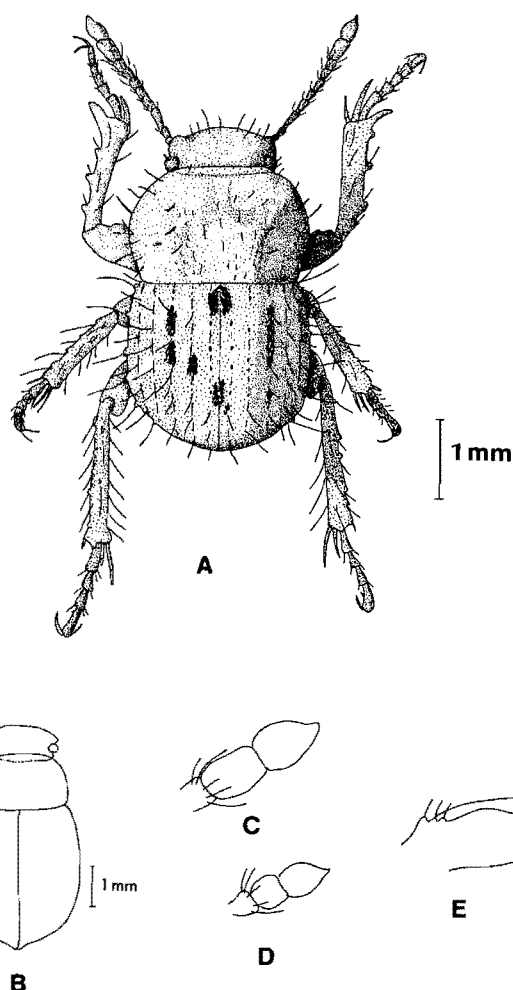


Fig. 13. *Horatoma thoracica* spec. nov. A: habitus, male; B: dorsal outline, female; C: male antenna, terminal segments; D: female antenna, terminal segments; E: male profemur, anteroventral view.

Paratypes: 2♀ (SAM), 1♀ (TM): (1) same data as allotype; (1) Clanwilliam, Leipoldt; (1) Olifants River bet. Citrusdal & Clanwilliam, C.P., Museum Staff, Oct.–Nov. 1931.

Season. Spring (August – November).

Distribution (Fig. 15). Southwestern Cape, South Africa.

Remarks. *Horatoma hessei* is distinguished from the three previously described species of *Horatoma*, *H. parvula*, *H. pulchra* and *H. levis*, by the undivided apical antennal segment, dimorphic pronotal shape, narrowly emarginate clypeus, denticulate male profemur, anteriorly carinate pronotal margin, and ovate eyes. Some of these features are shared by members of the same species group, all five of which are described as new. The long prosternum and dimorphic pronotum are reminiscent of species of *Horatomella*, but the antennae are different.

Etymology. The new species is named in honour of Dr A. J. Hesse, former entomologist of the South African Museum, who certainly collected one of the type specimens, although his labels always modestly stated 'museum staff.'

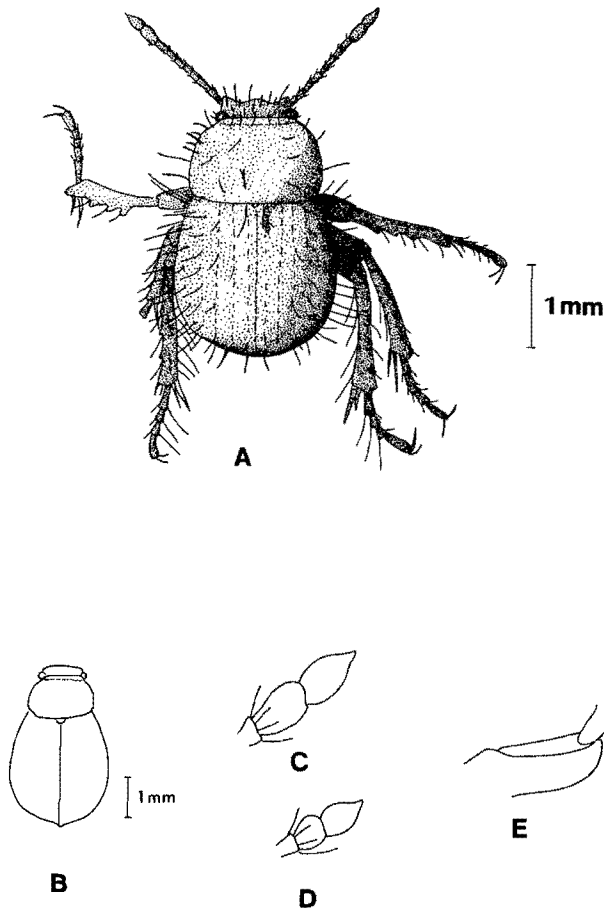


Fig. 14. *Horatoma ovula* spec. nov. A: habitus, male; B: dorsal outline, female; C: male antenna, terminal segments; D: female antenna, terminal segments; E: male profemur, anteroventral margin.

Horatoma thoracica spec. nov., Figs 13, 15

Diagnosis. Size small, elytral length 2,1–3,1 mm. Description as for *Horatoma hessei*, but distinguished as follows: eyes more elongate, anterior margin shallowly indented by genal canthus; sides of clypeus separated from gena by a minute notch; apical antennal segments of male larger, more rectangular (Fig. 13C); lateral margin of pronotum not carinate anteriorly; male profemur denticulate only in proximal half of anteroventral margin, denticles other than basal tubercle smaller and less regular than in *H. hessei*, most bearing rather long setae (Fig. 13E).

Material examined. Holotype ♂, elytral length 2,1 mm (TM): S. Afr., Namaqualand, Perdekraal fm, 3 km W, 30.45S 17.53E / 24.8.1979, E-Y:1585, groundtraps, 62 days, leg. Endrödy-Younga / groundtraps with ferm. banana bait. Allotype ♀, elytral length 3,1 mm (TM): same data as holotype, but meat bait. Paratypes: 1♂, 1♀ (TM), same data as holotype, ♂ at ferm. banana bait, ♀ at meat bait.

Season. Spring (August).

Distribution (Fig. 15). Namaqualand, South Africa.

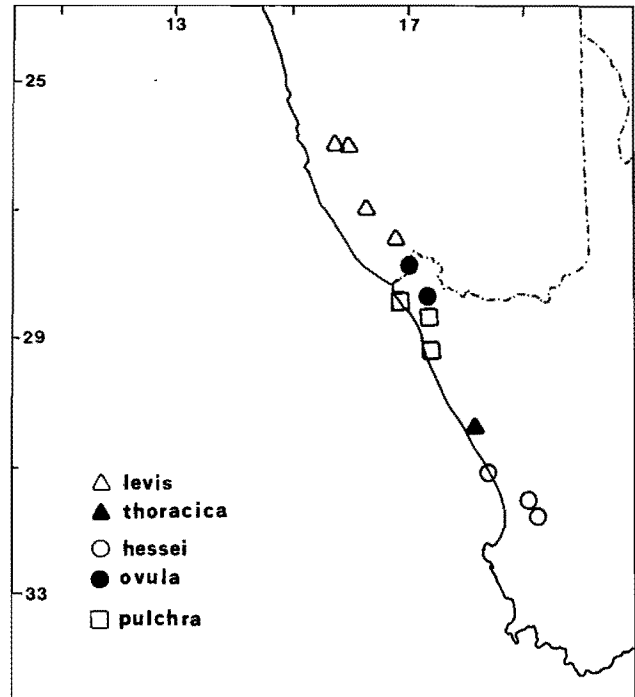


Fig. 15. Distribution of *Horatoma pulchra*, *H. levis*, *H. hessei*, *H. thoracica* and *H. ovula*.

Remarks. *Horatoma thoracica* differs from *H. hessei* in the characters listed above; the two species are otherwise indistinguishable.

Etymology. The name of the new species refers to the thorax, since the lateral margin of the pronotum distinguishes this species from *H. hessei*.

Horatoma ovula spec. nov., Figs 14, 15

Diagnosis. Size small, elytral length 1,8–3,8 mm. Description as for *Horatoma hessei*, but distinguished as follows: eyes more elongate, as in *H. thoracica*; apical antennal segments larger than in *H. hessei*, but not as large as in *H. thoracica* (Fig. 14C); lateral pronotal margin not carinate anteriorly; male profemur with a simple low ridge bearing a few setae proximally on anteroventral margin; female pronotum with sides more strongly convergent anteriorly than in either of the other two species.

Material examined. Holotype ♂, elytral length 1,8 mm (TM): S. Afr., Richtersveld, Kuboos, 9 km W, 28.28S 16.54E / 7.9.1976, E-Y:1228, groundtraps, 30 days, leg. Endrödy-Younga / groundtraps with meat bait. Allotype ♀, elytral length 2,6 mm (TM): same data as holotype but with faeces bait.

Other material: 1♀, elytral length 3,8 mm (TM), S. Afr., Richtersveld, Stinkfontein, 9 km SSW, 28.47S 17.12E / 7.9.1976, E-Y:1233, groundtrap, 33 days, leg. Endrödy-Younga / groundtrap with faeces bait.

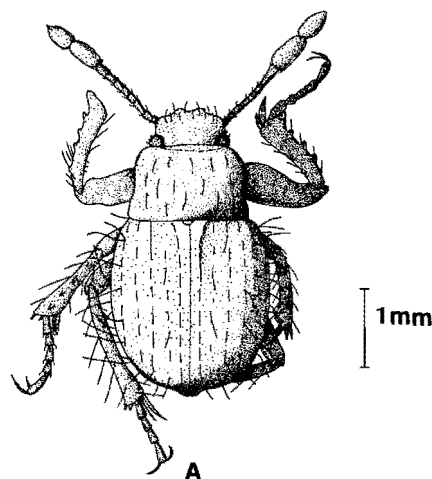
Season. Spring (September).

Distribution (Fig. 15). Richtersveld, South Africa.

Remarks. The large female from Stinkfontein is assigned to this species, but is not included in the type series; it is much larger and has better developed tomentose patches on the pronotum and the elytra.

Horatoma ovula differs from *H. hessei* in the same characters as does *H. thoracica* (see Diagnosis), and from *H. thoracica* in the size of the apical antennal segments in the male, the male profemur, and the shape of the female pronotum.

Etymology. The name of the new species refers to the egg-shaped body (Latin, *ovum*, -i, n., egg).



Horatoma diabolica spec. nov., Figs 16, 22

Diagnosis. Clypeus with straight-sided, V-shaped median emargination. Male pronotum transverse, lateral margins faintly carinate posteriorly. Elytra with four granular primary rows on disc.

Description (male holotype). Size small, elytral length 2,2 mm. Integument black, appendages reddish brown, vestiture of scales of elytra almost unicoloured, mottled grey-white, scales of ventral surface and appendages off-white.

Head moderately large, more than half as wide as pronotal base. Clypeus with broad, V-shaped apical emargination (Fig. 16C), sides straight, converging anteriorly, not separated from gena; supra-antennal portion of gena scarcely raised. Eye reniform, with minute setae. Antennae with apical two segments greatly enlarged in male, elongate, penultimate segment longer than preceding three segments together, apical segment shorter, with subconical apex (Fig. 16B). Frons with inconspicuous sparse granules and dense white scales, and with procumbent setae.

Pronotum strongly transverse, sides subparallel, indicated by a fine interrupted carina; proepisterna just visible in dorsal view. Vestiture extensive, but scales concentrated in a narrow median stripe and a pair of broad lateral stripes, latter broadening posteriorly; with strioliform granules and long recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded; with four primary granular rows on disc (second row lost), granules very fine and almost obscured by vestiture of scales. Humeri not embracing pronotal base. No secondary granules present on disc; lateral interval with inconspicuous secondary granules. Integument where visible (scales rubbed off) with scattered round microgranules. Lateral margin consisting of two rows of granules, widely separated except at humerus. Deflected part scaled, without distinct secondary sculpture. Epipleural row apparently absent. Granules of primary rows and lateral secondary granules bearing long, bristle-like, erect dark setae.

Prosternum in front of procoxa more than half of procoxal length. Proepisterna with inconspicuous sparse granules. Mesosternum raised anteriorly. Mesosternal apophysis broader than mesocoxa. Sternites scaled, with long, semi-erect, posteriorly inclined setae.

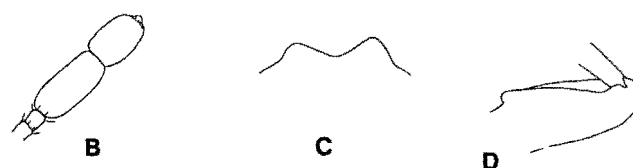


Fig. 16. *Horatoma diabolica* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: clypeus, dorsal view; D: male profemur, anteroventral margin.

Legs slender, moderately long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with low, narrow tubercle near base of ventral edge (Fig. 16D). Tibiae with long bristles; protibia scarcely compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform, as long as first metatarsal segment. Metatarsi slender, with moderately long bristles; first metatarsal segment about as long as ungual segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 2,2 mm (TM): S. Afr., W. Cape, Helskloof neck, 28.20S 16.59E / 3.9.1976, E-Y:1214, from under stones, leg. Endrödy-Younga.

Season. Spring (September).

Distribution (Fig. 22). Richtersveld, South Africa.

Remarks. This species differs from *H. hessei*, *H. thoracica* and *H. ovula* in the shape of the clypeus and the apical antennal segments of the male, the simple male profemoral tubercle, and details of shape and sculpture.

Etymology. The name of the new species, meaning devilish, seemed appropriate for a rather unusual species collected in 'Helskloof.'

***Horatoma porosa* spec. nov., Figs 17, 22**

Diagnosis. Clypeus with median emargination dimorphic: straight-sided and V-shaped in male, shallowly crescentic in female. Pronotum transverse in both sexes, sides not indicated. Elytra entirely densely and irregularly punctate, without primary rows.

Description of male holotype (Fig. 17A,B,D,F). Size small, elytral length 2,0 mm. Integument light reddish brown, scales of elytra mostly unicoloured, white, scales of ventral surface and appendages white.

Head moderately large, slightly broader than half of pronotal base. Clypeus with V-shaped apical emargination, sides straight, anteriorly convergent, separated from gena by a shallow notch (Fig. 17D); supra-antennal portion of gena scarcely raised. Eye protuberant, ovate, with short stout setae. Antennae with apical two segments greatly enlarged in male, elongate, penultimate segment longer than preceding three segments together, apical segment shorter, with subconical apex (Fig. 17B). Frons with elongate granules and white scales, and with minute procumbent setae.

Pronotum transverse, sides weakly rounded, not marginate; proepisterna just visible in dorsal view. Vestiture uniform, consisting of dense semi-erect scales, white; with inconspicuous small granules and short fine recumbent pale setae.

Elytra broader than pronotum, sides weakly rounded; without primary rows on disc. Humeri not embracing pronotal base. Surface entirely densely and coarsely punctate, with small erect pale scales. Lateral margin not developed, disc and deflected parts continuous. Deflected part scaled. Epipleural row absent. Sides of disc and posterior parts with long to moderately long, bristle-like, erect pale setae.

Prosternum in front of procoxa more than half of procoxal length, apophysis narrow, bilobed. Proepisterna without distinct secondary sculpture; with erect white scales. Mesosternum raised anteriorly. Mesosternal apophysis distinctly broader than mesocoxa. All sternites scaled, with short, semi-erect setae.

Legs slender, moderately long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with tubercle near base of ventral surface (Fig. 17F). Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform, slightly longer than first metatarsal segment. Metatarsi slender, with moderately long bristles; first metatarsal segment about as long as ungual segment.

Aedeagus not examined.

Description of female allotype (Fig. 17C,E,G). Size small, elytral length 4,5 mm. Integument as in male.

Head moderately large, slightly broader than pronotal base.

Clypeus with broad, shallowly crescentic apical emargination, sides straight, anteriorly convergent, separated from gena by a very shallow notch (Fig. 17E); supra-antennal portion of gena scarcely raised. Eye protuberant, ovate, with short stout setae. Antennae with apical two segments moderately enlarged, ovate, penultimate segment about as

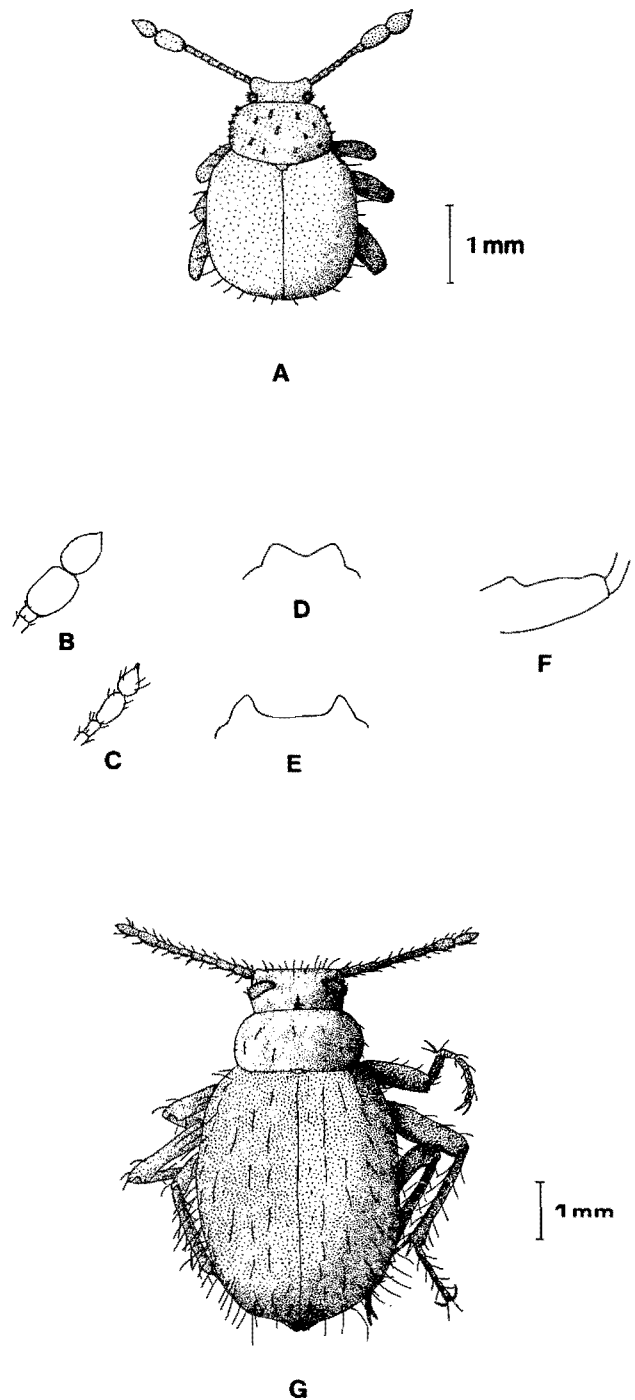


Fig. 17. *Horatoma porosa* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: female antenna, terminal segments; D: clypeus, male; E: clypeus, female; F: male profemur, anteroventral margin; G: habitus, female.

long as preceding two segments together; segments 1 to 8 slightly longer than in male, and much more slender (Fig. 17C). Frons with sculpture and vestiture as in male, but procumbent setae longer and stouter.

Pronotum slightly more transverse than in male, sides weakly rounded, more or less divergent. Sculpture and vestiture as in male, but recumbent setae stouter and longer.

Elytra broader than pronotum, sides rounded; primary rows

on disc indicated only by rows of long, erect setae. Humeri slightly produced, but not embracing pronotal base. Surface entirely densely punctate, punctures slightly less coarse than in male, with small white scales. Lateral margin not developed, disc and deflected parts continuous. Deflected part scaled. Epipleural row absent. Sides of disc and posterior parts with long, erect pale setae, setae particularly long apicolaterally.

Prosternum and proepisternum as in male. Mesosternal apophysis broader, almost twice mesocoxal width; mesosternum not as strongly raised anteriorly. Sculpture and vestiture of sternites as in male.

Legs long, more slender than in male, especially the femora. Vestiture of scales less conspicuous. Metatibial calcaria foliaceous, almost as long as metatarsi, which are similar to those of male.

Material examined. Holotype ♂, elytral length 2,0 mm (SMW): Klinghardt Mts, 27.18S 15.41E, Diamond Area 1, 25–30 July 1981 / Preservative traps / H 43557 [leg. M.-L. Penrith]. Allotype ♀, elytral length 4,5 mm (SMW): Tsaus Mt. & dunes, 27.11S 16.13E, Diamond Area 1, 13–14 Aug. 1983, J. Irish, E. Griffin.

Season. Late winter and spring (July, August).

Habitat. Coarse, fairly compact sand with grass and succulent vegetation.

Distribution (Fig. 22). Southern Namib Desert, Namibia.

Remarks. The female is described separately because it is not certain that the holotype and allotype, which were not collected together but in adjacent quarter-degree squares, belong to the same species. However, the observed differences probably relate to sexual dimorphism, most of them being no greater than the differences between males and females of many species of *Horatoma*. The legs do not differ as markedly in any other species as in these two specimens, although the legs of the female are more slender in many species.

This species differs from *H. diabolica*, with a similarly-shaped male clypeus, in the proportions of the apical segments of the male antenna, and in shape and sculpture. It differs from *H. deserticola* and *H. singularis*, with which it shares the lack of an epipleural row combined with the poorly defined elytral primary rows, in the more rounded elytral shape and the uniformly porous sculpture, as well as in details of the male antennae.

Etymology. The name of the new species refers to the porous appearance of the integument due to the large, dense punctures. (Greek, Πόρος, passage, pore).

Horatoma tomentifera spec. nov., Figs 18, 22

Diagnosis. Lateral margin of pronotum carinate anteriorly, carina meeting carinate anterior margin at anterolateral angle; pronotum transverse (female). Elytra with five primary granular rows on disc and with conspicuous tomentose patches.

Description (female). Size small, elytral length 4,5–5,3 mm.

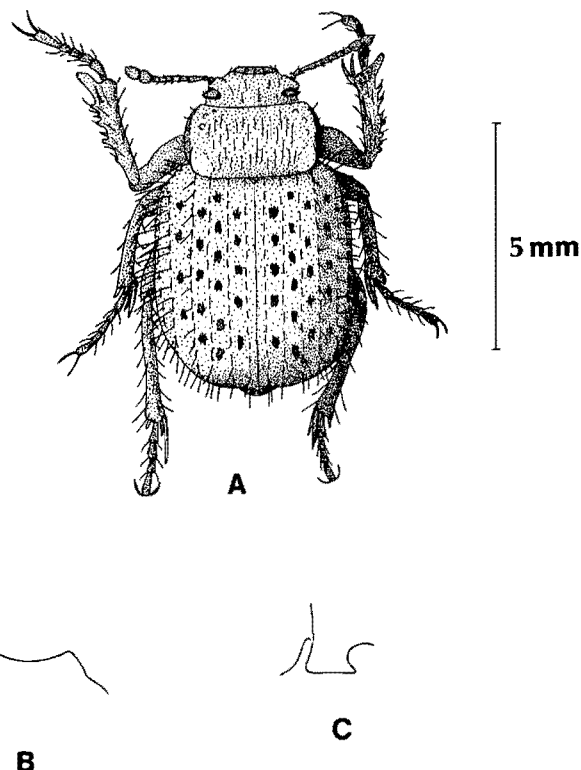


Fig. 18. *Horatoma tomentifera* spec. nov. A: habitus, female; B: clypeus, dorsal view; C: profile of mesosternum.

Integument reddish brown to black, vestiture of elytra tricoloured, scales light brown, dark brown and white, vestiture of ventral surface and appendages white.

Head large, about three-fourths of pronotal width. Clypeus shallowly emarginate anteriorly (Fig. 18B), sides rounded, subparallel, separated from gena; supra-antennal portion of gena slightly raised. Eye reniform, with short stout setae. Antennae with apical two segments slightly enlarged in female, subspherical, with subconical apex. Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row of granules except at posterolateral angles and just before anterolateral angles, where sharply carinate; proepisterna not visible in dorsal view. Vestiture with scales mainly concentrated in an interrupted median stripe and a pair of lateral stripes, white; with long strioliform ridges and long recumbent brown setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules prominent, flanked by inconspicuous punctures. Humeri embracing elytral base. Sutural interval anteriorly with erect dark tomentose scales, posteriorly with dense light brown scales and no secondary granules; intervals 2–4 with tricoloured vestiture, white and light brown scales with small tomentose patches of dark scales, interval 5 and lateral interval with patches of white or white and brown scales alternating with small bare patches surrounding small secondary granules. All but sutural interval with small secondary granules. Lateral margin consisting of two divergent rows of granules, with widely separated granules

between them. Deflected part scaled, white, with one complete row of short strioliform granules in upper half, and other scattered granules. Epipleural row consisting of short strioliform granules subtended by a row of punctures. Granules of primary rows bearing moderately long, bristle-like, erect dark setae.

Prosternum in front of procoxa about half length of procoxa, apophysis narrow, bilobed. Proepisterna with small, moderately dense round granules. Mesosternum with large callosity anteriorly (Fig. 18C). Mesosternal apophysis much broader than mesocoxa. Sternites scaled, with long, semi-recumbent setae, longer posteriorly, emerging from fine, sparse granules.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Tibiae with long bristles; protibia slightly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria subfoliaceous (female), as long as first two metatarsal segments together. Metatarsi slender, with moderately long bristles; first metatarsal segment much shorter than unguis segment.

Material examined. Holotype ♀, elytral length 4,5 mm (TM): S.W.Afr., S. Namib, Rosh-Pinah, 27.53S 16.50E / 14.9.1973, E-Y:104, from under stones, leg. Endrödy-Younga. Paratypes: 3♀ (TM): same data as holotype.

Season: Spring (September).

Distribution (Fig. 22). Namaqua area just north of the Orange River, Namibia.

Remarks. This species, although known only from female specimens, is sufficiently different from all others to warrant description. From *H. hessei*, the only other species of *Horatoma* with the lateral margin of pronotum carinate anteriorly, it differs in the shape of the clypeus and pronotum, as well as in the shape of the eye, the less flattened protibiae and the shape of the mesosternum.

Etymology. The name of the new species refers to the prominent tomentose patches on the elytra (Latin, *tomentum*, -i, n., stuffing of a pillow).

Horatoma altera spec. nov., Figs 19A,B,E, 26

Diagnosis. Pronotum with lateral margins finely carinate at posterior angles; sculpture of disc consisting of strioliform ridges. Elytra with five granular primary rows and two lateral rows. Mesosternum without callosity, apophysis equal to or narrower than mesocoxal width. Dimorphism slight: male profemur inermous, apical antennal segments of male enlarged but subspherical.

Description. Size small, elytral length 3,4–4,5 mm. Integument reddish brown to black, scales of elytra usually unicoloured to indistinctly bicoloured, white or light brown and white, scales of ventral surface and appendages white or off-white.

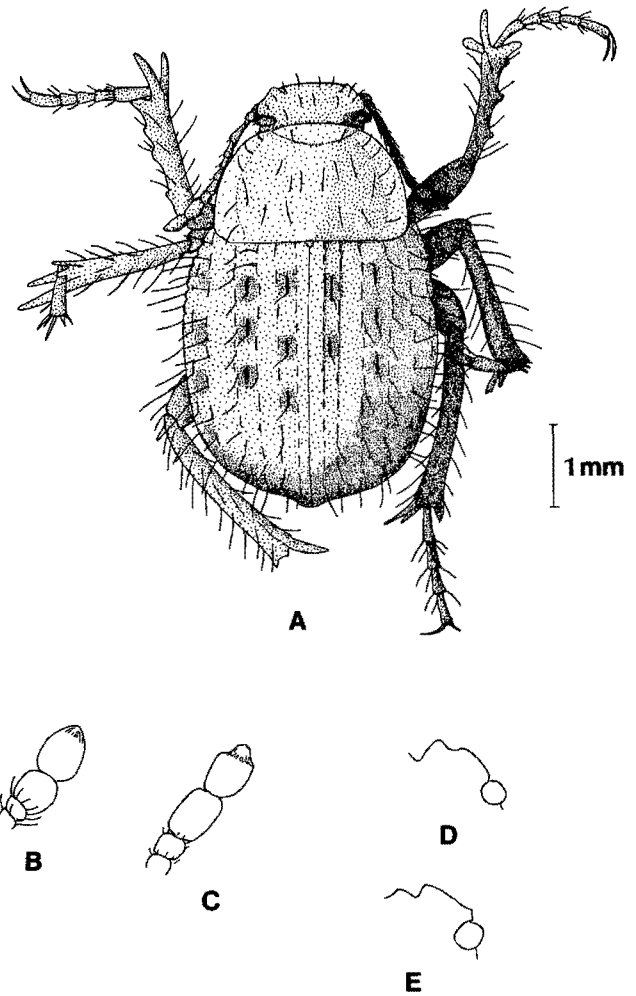


Fig. 19. *Horatoma altera* spec. nov. A: habitus, male; B: male antenna, terminal segments; E: supra-antennal region, dorsal view; *H. irregularis* (Haag); C: male antenna, terminal segments; D: supra-antennal region, dorsal view.

Head moderately large, slightly more than half to almost three-fourths of pronotal width. Clypeus shallowly emarginate anteriorly, sides subparallel, separated from gena (Fig. 19E); supra-antennal portion of gena distinctly raised. Eye reniform, with short stout bristles. Antennae with apical two segments slightly enlarged in both sexes, longer and with apical segments slightly larger in male, subspherical, with subconical apex (Fig. 19B). Frons with interspersed elongate and small round granules, white scales which are denser laterally, and procumbent setae.

Pronotum transverse, sides subparallel posteriorly, convergent anteriorly, indicated by a fine carina which is evanescent anteriorly for a varying length; proepisterna not or just visible in dorsal view. Posterior angles carinate externally. Vestiture variable, interrupted median stripe and a pair of lateral stripes usually discernible, latter broadening posteriorly, white. Sculpture consisting of long strioliform ridges and long, erect dark setae.

Elytra broader than pronotum, sides rounded; with five primary granular rows on disc, granules elongate and strongly raised, flanked by rows of punctures. Sutural interval with dense white scales and no secondary granules; intervals 2–5 variably with uni- to bicoloured vestiture, intervals 2 and 4 with vestiture interrupted by bare patches sometimes surrounding a strioliform secondary granule. Lateral interval with patches of white setae alternating with bare patches sometimes surrounding secondary granules. Lateral margin consisting of two rows of granules flanking a median irregular row of strioliform granules, space between outer and inner lateral rows narrower than discal intervals. Deflected part scaled, usually unicoloured, white, with a complete or incomplete row of short strioliform granules at upper third, and a few irregularly scattered granules. Epipleural row consisting of short strioliform granules. Granules of primary rows bearing long, bristle-like, erect dark setae; secondary granules bearing similar setae.

Prosternum in front of procoxa about one-third of procoxal length; apophysis narrow, weakly bilobed. Proepisterna with minute, sparse granules, upper granules bearing long coarse dark setae. Mesosternum raised anteriorly, without callosity. Mesosternal apophysis narrow, distinctly narrower than mesocoxa. All sternites scaled, with fine scattered granules and long, semi-recumbent setae.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal (profemur) or entire ventral surface. Male profemur inermous. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria stout, spiniform in both sexes, not dimorphic. Tarsi slender, metatarsi in male longer, with moderately long bristles; first metatarsal segment subequal in length to ungual segment.

Aedeagus simple, moderately slender; apicale shorter than basale.

Material examined. Holotype ♂, elytral length 3,5 mm (SAM): Tankwa Karoo, Waterval, C.P. / Mus. Exped. Nov. 1952 [underneath] / 2821 [pencil]. Allotype ♀, elytral length 4,0 mm (SAM): same data as holotype. Paratypes: 7 ex. (SAM), 5 ex. (TM): (9) same data as holotype. (1) No loc. - 180 unique / *Horatoma* n. sp. (1) S. Afr., W. Cape, Cedarberg, Oukraal, 32.25S 19.25E / 2.9.1979, E-Y:1630, sandblown mt., leg. Endrödy-Younga. (1) S. Afr., Cape - Cedarbg, east track, 650 m, 32.24S - 19.25 E / 21.8.1983; E-Y:1957, groundtraps, 66 days, leg. Endrödy, Penrith / groundtraps with faeces bait.

Other material: a headless cadaver (TM): S. Afr., Cape-Cedarbg, east track, 650 m, 32.23S 19.24E / 21.8.1983; E-Y:1958, groundtraps, 66 days, leg. Endrödy, Penrith / groundtraps with meat bait.

Season. Spring (August – November).

Habitat. Windblown sand.

Distribution (Fig. 26). Cedarberg Mountains and surrounding area in the southwestern Cape, South Africa.

Remarks. The new species differs from the next species, *H. irregularis*, only in the non-dimorphic apical antennal segments, the less sharply raised posterior pronotal angles, and

the deeper angle between the gena and the sides of the clypeus.

Etymology. The name of the new species is derived from the Latin *alter*, *-tera*, *-terum*, the other.

Horatoma irregularis Haag, Figs 19C,D, 26

Horatoma irregularis Haag, 1878: 84; Gebien, 1937: 193.

Diagnosis. Size small, elytral length 2,5–4,3 mm. Description as for *H. altera*, but apical antennal segments of male considerably larger, penultimate segment slightly elongate, distinctly longer than preceding two segments together (Fig. 19C); posterior pronotal angles with carinate edge raised and translucent; angle between supra-antennal portion of gena and sides of clypeus very shallow (Fig. 19D).

Material examined. Holotype ♀, elytral length 4,2 mm (SSM): Cap, Fetting / *Horatoma irregularis* / *irregularis* n. sp. / Type: *Horatoma irregularis* Haag-R. [pink].

Other material: 2♂, 2♀ (SAM); localities: Touws River; Touws River, 8 mi E to Hondewater.

Season. Summer (December).

Distribution (Fig. 26). Southwestern Karoo, South Africa.

Remarks. Examination of the type confirmed the identity of the Touws River specimens, which were identified as *H. irregularis* by A. J. Hesse.

Since a full description of a closely related new species, *H. altera*, is given above, only a diagnosis, listing the differences, is given for this species, of which the female was fully described by Haag (1878). He placed this species in the genus *Horatoma* in the restricted sense on the basis of the small apical antennal segments. Discovery of the male showed that the antennae are strongly dimorphic, which would have placed the species in *Horatomodes* Haag.

Horatoma praetoriusi (Koch) comb. nov., Fig. 22

Horatomodes praetoriusi Koch, 1952: 83.

Diagnosis. Lateral pronotal margin posteriorly finely carinate; sculpture of disc consisting of strioliform granules. Elytra ovate, with five granular primary rows on disc and three lateral rows. Mesosternal apophysis equal to or narrower than mesocoxal width. Anteroventral margin of male profemur with a distinct long, low tubercle.

Description. Size small, elytral length 3,0–6,0 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large, almost three-fourths of pronotal width. Clypeus shallowly emarginate anteriorly, sides weakly convergent, separated from gena; supra-antennal portion of gena slightly raised. Eye reniform, with short setae. Antennae

with apical two segments slightly enlarged in both sexes, slightly larger in male, subspherical, with subconical apex. Frons with elongate granules and white scales, and with procumbent setae.

Pronotum strongly transverse, sides weakly rounded, indicated by a row of granules anteriorly, carinate posteriorly; proepisterna not visible in dorsal view. Vestiture extensive, but scales denser in an interrupted median stripe and a pair of lateral stripes, latter broadening posteriorly, white; with fine strioliform granules and short semi-erect or recumbent pale setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules elongate. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with white vestiture variably interrupted by strioliform secondary granules, sometimes surrounded by bare patches. Lateral interval with a row of small secondary granules. Lateral margin consisting of three rows of granules, more or less approximated. Deflected part scaled, unicoloured, white, with scattered irregular strioliform granules in upper third, sometimes forming an incomplete row. Epipleural row consisting of short strioliform granules. Granules of primary rows, and secondary granules, bearing moderately long, bristle-like, erect pale setae.

Prosternum in front of procoxa less than half of procoxal length, apophysis narrow, weakly bilobed. Proepisterna with small, sparse round granules. Mesosternum strongly raised to callose anteriorly. Mesosternal apophysis narrow, distinctly narrower than mesocoxa. Sternites scaled, with short (male) to moderately long (female) semi-recumbent setae emerging from inconspicuous granules.

Legs slender, moderately long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal (profemur) or entire ventral surface. Male profemur with low elongate tubercle on anterior ventral surface at base. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria broadly spiniform in both sexes, long, extending beyond apex of second metatarsal segment. Tarsi slender, metatarsi much shorter in female, with moderately long bristles; first metatarsal segment much shorter than ungual segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 5,1 mm (TM): Otjitundua, Kaokoveld, June 1951. Allotype ♀, elytral length 4,9 mm (TM): same data as holotype (date cut off label, but label of same type). Paratypes: 2♂ (TM): same data as holotype. Another paratype from the same series (TM) and a ♂ paratype from Otjinjerese (SAM) were not found.

Other material: 31 ex. (TM), 294 ex. (SMW), 9 ex. (SAM), 1 ex. (NCI); localities: Abachaus; Delhi; Duineveld; Good Hope; Ike; Khowarib R.; Onze Rust; Otjive; Owingi; Richthofen; Rooi-dag Gate, 30 mi. N; Stampriet; Vaalbank.

Season. After rain, mainly in summer (recorded in August, November, December, and from February to June).

Habitat. In sandy areas, usually on grass during the day.

Distribution (Fig. 22). Western Kalahari, Namibia.

Horatoma hereroensis (Koch) comb. nov., Fig. 26

Horatomodes hereroensis Koch, 1952: 83.

Diagnosis. Lateral pronotal margin posteriorly granulate; sculpture of disc consisting of strioliform granules. Elytra elongate, with five primary granular rows on disc and three lateral rows. Mesosternal apophysis equal to or narrower than mesocoxal width. Male profemur inermous.

Description. Size small, elytral length 3,4–6,2 mm. Integument reddish brown to black, scales of elytra unicoloured, white, vestiture of ventral surface and appendages silvery white.

Head moderately large, more than half of pronotal width. Clypeus shallowly emarginate anteriorly, sides slightly rounded, convergent, separated from gena; supra-antennal portion of gena distinctly raised. Eye reniform, with short setae. Antennae with apical two segments slightly enlarged in both sexes, slightly larger in male, subspherical, with subconical apex. Frons with elongate granules, white scales, and procumbent setae.

Pronotum strongly transverse, sides weakly rounded, indicated by a row of granules; proepisterna just visible in dorsal view. Vestiture of scales variable, but a complete or interrupted median stripe and a pair of lateral stripes usually discernible, latter broadening posteriorly, white; with strioliform granules and long semi-erect to recumbent golden setae.

Elytra broader than pronotum, ovate; with five primary granular rows on disc, granules very elongate and prominent. Humeri embracing pronotal base. Sutural interval usually with dense white or off-white scales and no secondary granules; intervals 2–5 and lateral interval with patches of white scales alternating with bare patches surrounding strioliform secondary granules. Lateral margin consisting of two rows of adjacent granules, with a row of widely separated strioliform granules between them. Deflected part scaled, with a complete row of strioliform granules at upper third, and with scattered strioliform granules dorsal and ventral to it. Epipleural row consisting of short strioliform granules. Granules of primary rows and secondary granules bearing long, bristle-like, erect golden setae.

Prosternum in front of procoxa about half length of procoxa; apophysis narrow, truncate. Proepisterna with small, moderately dense round granules. Mesosternum with large callosity anteriorly. Mesosternal apophysis narrow, distinctly narrower than mesocoxa. Sternites scaled, with moderately long (male) to long (female), coarse, semi-recumbent setae emerging from small granules.

Legs moderately slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on ventral surface. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform to subfoliaceous (female), extending beyond apex of first metatarsal segment. Tarsi slender, not dimorphic, with rather short bristles; first metatarsal segment much shorter than ungual segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 4,6 mm (SAM):

Kaross, S.W.A., Mus. Exped., Feb. 1925. Allotype ♀, elytral length 6,2 mm (SAM): same data as holotype. Paratypes: 28 ex., 15 (SAM), 13 (TM): (7) same data as holotype; (6) Otjibumbe, Kunene R., Mar. 1923, S.W. Africa Mus. Exped.; (1) Kawares, S.W.A., Mus. Exp. Mar. 1926; (6) Kowares [June 1951, leg. Bernard Carp - Transv. Mus. Exped.]; (1) Swartbooisdrif, Kunene, Kaokoveld, VII.51, Koch; (1) Ohopoho, Kaokoveld, July 1951, H. Hall; (1) Ehombe Mt [July 1951, leg. Bernard Carp - Transv. Mus. Exp.]; (1) Mungobi, SW Angola, VII.1948, C. Koch; (1) no label but data probably as follows: Kaoko Otavi, Mar. 1926, Mus. Exped.

Other material: 6 ex. (TM), 1 ex. (SMW); localities: Koabendus; Orupembe; Sesfontein; Sesfontein, before; Swartbooisdrif; Upper Marienfluss.

Season. Autumn to spring (May, July, August).

Distribution (Fig. 26). Kaokoveld, Namibia, and southern Angola.

***Horatoma scherzi* (Koch) comb. nov., Fig. 22**

Horatomodes scherzi Koch, 1952: 84.

Horatomodes minimus Koch, 1952: 84. **syn. nov.**

Diagnosis. Lateral pronotal margin rounded, indicated only by a row of granules; pronotum with strioliform granules. No epipleural row or crest, elytra with five primary rows of fine elongate granules, lateral margin rounded, not clearly indicated. Elytra distinctly embracing pronotal base. Male profemur inermous.

Description. Size small, elytral length 3,0–5,0 mm. Integument reddish brown to black, vestiture of elytra unicoloured to indistinctly bicoloured, white or white and off-white, scales of ventral surface and appendages white.

Head moderately large, slightly more than half of pronotal width. Clypeus shallowly emarginate anteriorly, sides straight, weakly convergent, separated from gena; supra-antennal portion of gena slightly raised. Eye broadly reniform, with minute setae. Antennae with apical two segments slightly enlarged in both sexes, not dimorphic, subspherical, with subconical apex, antennae slightly longer in male. Frons with elongate granules and white scales, and with procumbent setae.

Pronotum strongly transverse, sides rounded, indicated by a row of granules; proepisterna not or scarcely visible in dorsal view. Vestiture extensive, but scales concentrated in an interrupted median stripe and a pair of lateral stripes, latter broadening posteriorly, white; with fine strioliform granules and moderately long, semi-erect to recumbent setae.

Elytra slightly broader than pronotum, sides weakly curved; with five primary granular rows on disc, granules very fine and elongate. Sutural interval with dense white scales and no secondary granules; intervals 2–6 variably with vestiture of scales, interrupted by long fine strioliform or small round secondary granules sometimes surrounded by a bare patch. Lateral margin consisting of two rows of fine elongate granules, slightly separated. Deflected part scaled, white, with scattered strioliform granules in upper part, sometimes

forming an incomplete row. Epipleural row absent. Granules of primary rows as well as secondary granules bearing long, bristle-like, erect golden setae.

Prosternum in front of procoxa about half of procoxal length; apophysis narrow, subtruncate. Proepisterna with small, scattered to moderately dense, subspherical granules. Mesosternum slightly raised anteriorly. Mesosternal apophysis narrow, distinctly narrower than mesocoxa. Sternites scaled, with short (male) to moderately long (female abdomen) semi-recumbent setae.

Legs moderately slender. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on at least proximal ventral surface. Male profemur inermous. Tibiae with moderately long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform in both sexes, longer in female. Tarsi moderately slender, with moderately long bristles; metatarsi slightly shorter in female; first metatarsal segment shorter than unguis segment.

Aedeagus not examined.

Material examined. Holotype, *scherzi*: ♀, elytral length 4,2 mm (TM): Windhoek, Dec. 1951, R.E. Scherz. Paratypes, *minimus*: 2♀ (TM): Okahandja, 27-i – 3-ii-1928; S.W. Africa, R.W. Turner / Brit. Mus. 1928 - 100. Holotype, allotype and 5 paratypes in BMNH (not seen).

Other material: 5 ex. (TM), 11 ex. (SMW), 1 ex. (NCI); localities: Arechsadamaberg; Ganab, NE Hillgap; Gobabeb, 60 km NE; Gorob Mine; Hoogland; Naukluft Camp Site, Namib-Naukluft Park, 26.16S 16.15E; Otjiseva; Us Pass, 46 km from Park.

Season. Active after rain (February, March, June, July, December).

Habitat. Compact soil, on vegetation.

Distribution (Fig. 22). Central parts of western Namibia.

Remarks. Koch (1952) distinguished *minimus* from *scherzi* on body size and proportions of the antennal and metatarsal segments. The wider range of material shows size to be variable. The other differences are sexually dimorphic. The two species are therefore synonymized.

***Horatoma delicata* spec. nov., Figs 20, 26**

Diagnosis. Pronotum with lateral margin granular, disc with strioliform granules. Elytra with five primary discal and two lateral rows of granules, no epipleural row or crest. Humeri of elytra not embracing pronotal base. Supra-antennal portion of gena moderately raised. Penultimate segment of male antenna about as long as preceding two segments together.

Description. Size small, elytral length 3,0–4,6 mm. Integument reddish brown to black, vestiture of elytra uni- or

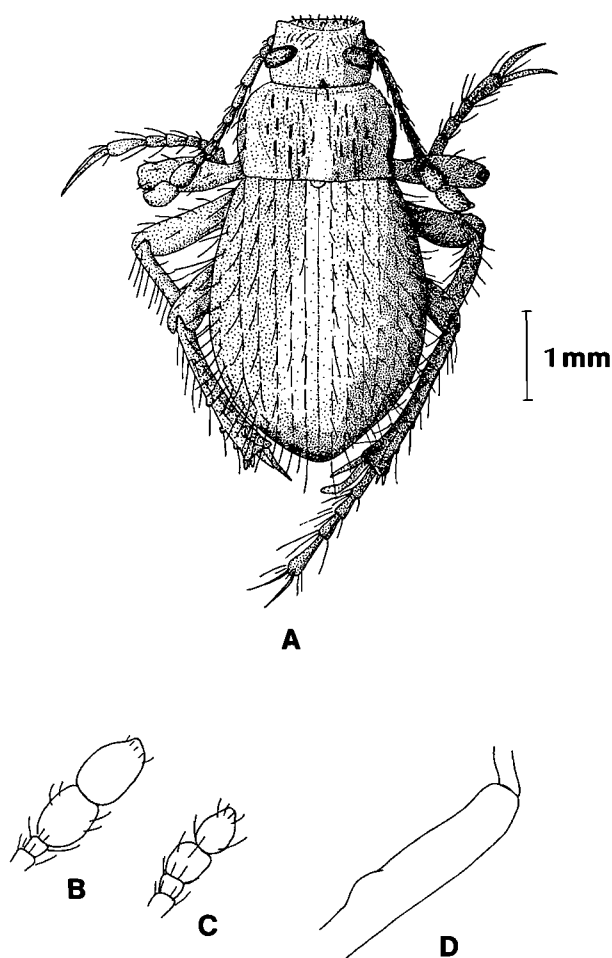


Fig. 20. *Horatoma delicata* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: female antenna, terminal segments; D: male profemur, anteroventral margin.

bicoloured, white or white and off-white, scales of ventral surface and appendages white.

Head moderately large, more than half of pronotal width. Clypeus shallowly emarginate apically, subparallel, separated from gena by a shallow notch; supra-antennal portion of gena moderately raised. Eye broadly reniform with stout, scale-like setae. Antennae with apical two segments enlarged in both sexes, distinctly larger in male, subspherical, with subconical apex (Fig. 20B,C). Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum transverse, broader in female, sides subparallel, indicated by a row of granules; proepisterna just visible in dorsal view. Vestiture of scales variable, but a median stripe and a pair of lateral stripes discernible, latter broadening posteriorly, white; with strioliform granules and short recumbent pale setae.

Elytra broader than pronotum, sides weakly curved; with five primary fine granular rows on disc. Sutural and lateral intervals and often second interval with dense white scales, lateral and second interval variably with secondary granules; intervals

3–5 with sparser white or off-white vestiture, integument where visible between scales finely punctate. Lateral margin consisting of two approximated rows of granules, with a few granules between them. Deflected part scaled, usually bicoloured off-white and white, with a row of round to short strioliform granules just above middle, and scattered granules in upper half. Epipleural row absent or represented by a few small granules posteriorly. Granules of primary rows and secondary granules bearing long, bristle-like, erect pale setae.

Prosternum in front of procoxa slightly more than half of procoxal length; apophysis narrow, subtruncate. Proepisterna with small, sparse subspherical granules. Mesosternum scarcely raised anteriorly. Mesosternal apophysis as broad as or slightly broader than mesocoxa. All sternites scaled, with moderately long (male) to long (female abdomen) semi-erect to recumbent setae emerging from inconspicuous granules.

Legs moderately slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on at least proximal ventral surface. Male profemur with a long low tubercle at basal fourth of anteroventral surface (Fig. 20D). Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria broadly spiniform to subfoliaceous (female), long. Tarsi moderately slender, with moderately long bristles; first metatarsal segment shorter than unguis segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 3,2 mm (TM): S.W. Afr., Kaokoveld, Kunene Riv., 55 km S, 17.40S 12.17E / 6.4.1984; E-Y:2090, grassnetting, leg. Endrödy-Younga. Allotype ♀, elytral length 5,1 mm (TM): same data as holotype. Paratypes: 164♂, 56♀ (TM, 30 in SMW), 1♀ (SMW): (184) same data as holotype; (4) S.W. Afr., Kaokoveld, Kunene riv., 44 km S, 17.34S 12.17E / 17.2.1984; E-Y:2078 (3), E-Y:2079 (1), groundtraps, 54 days, leg. Penrith, Müller / meat bait (3), banana bait (1); (7) S.W. Afr., Kaokoveld, Kunene riv., 23 km S, 17.24S 12.18E / 8.4.1984; E-Y:2101, veget. on red sand, leg. Endrödy-Younga; (1) Junction east branch, Marienfluss – Cunene Riv., NW Kaokoveld, VIII.1956, C. Koch; (1) Marienfluss, 8.5.61 / H 27145 / Gaerdes Coll.; (24) S.W. Afr.: Kaokoveld, Marienfluss, 7.4.1986, E. Holm.

Season. Active after rain (February, April, May, August).

Habitat. Sandy areas, usually on vegetation.

Distribution (Fig. 26). Northern Namib Desert, Namibia.

Remarks. *Horatoma delicata* differs from all the preceding species with a narrow mesosternal apophysis and a shallowly emarginate clypeus in the vestiture and colour pattern, as well as the non-produced humeri; it differs in addition from *H. praetoriusi*, *H. hereroensis* and *H. scherzi* in the strongly dimorphic antennae, and from *H. irregularis* and *H. altera* in shape and in possessing a well-developed male profemoral tubercle.

Etymology. The name of the new species refers to the fragile appearance of this species (Latin, *delicatus*, -a, -um, dainty, nice).

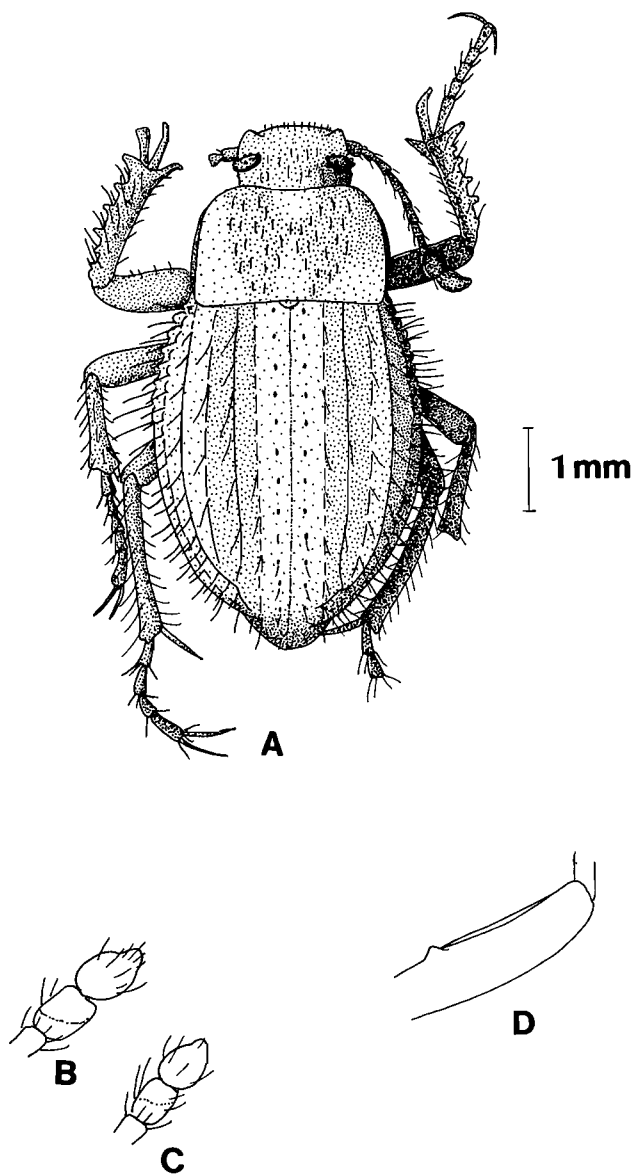


Fig. 21. *Horatoma schulzeae* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: female antenna, terminal segments; D: male profemur, anteroventral margin.

Horatoma schulzeae spec. nov., Figs 21, 22

Diagnosis. Pronotum with lateral margin granular, moderately distinct posteriorly; disc with strioliform granules. Elytra with five primary granular rows on disc, lateral margin prominent, consisting of two approximated rows of granules; no epipleural row or crest. Humeri of elytra embracing pronotal base. Male profemur with small tubercle near base.

Description. Size small, elytral length 3.6–6.5 mm. Integument reddish brown to black, vestiture of elytra uni- or bi-coloured, white or off-white and white, scales of ventral surface and appendages white.

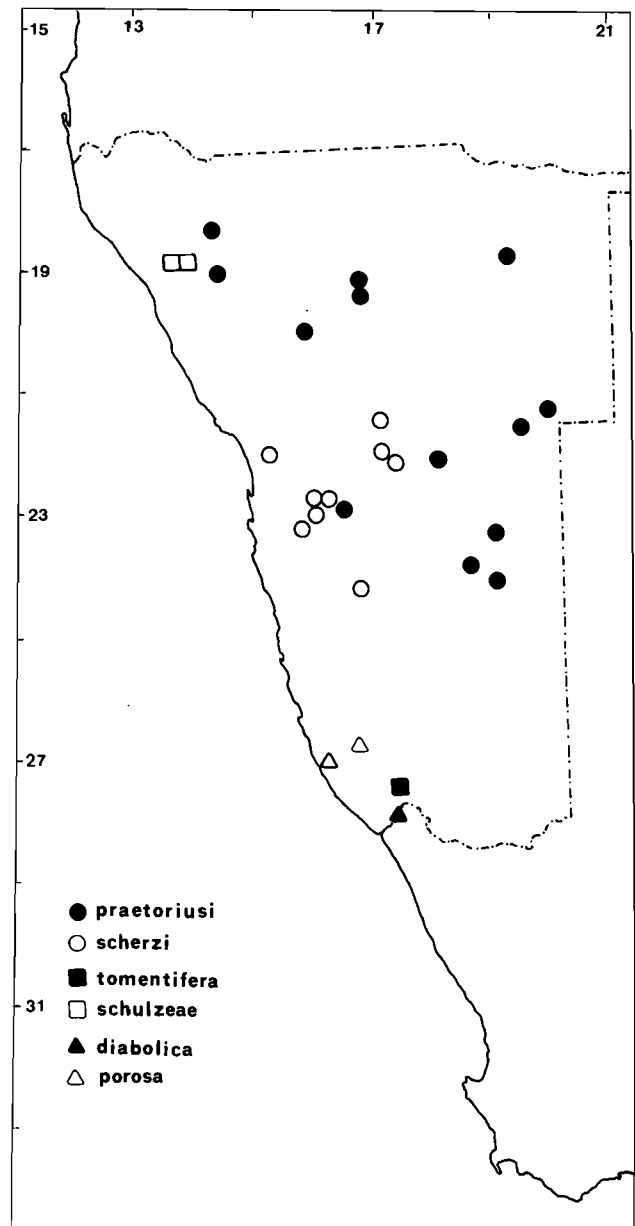


Fig. 22. Distribution of *Horatoma diabolica*, *H. porosa*, *H. tomentifera*, *H. schulzeae*, *H. praetoriusi* and *H. scherzi*.

Head moderately large, almost three-fourths of pronotal width. Clypeus shallowly emarginate anteriorly, sides straight, subparallel, separated from gena; supra-antennal portion of gena scarcely raised. Eye reniform, with short, stout setae. Antennae with apical two segments enlarged in both sexes, distinctly larger in male, subspherical, with subconical apex (Fig. 21B,C). Frons with elongate granules and white scales, more concentrated on clypeus and laterally, and with procumbent setae.

Pronotum strongly transverse, sides slightly rounded, indicated by an evanescent row of granules; proepisterna scarcely visible in dorsal view. Vestiture of scales variable, interrupted median stripe and a pair of lateral stripes discernible, latter

broadening posteriorly, white; with strioliform granules and moderately long recumbent pale setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules fine. Colouring variable, sutural interval with dense white or off-white scales and no secondary granules; intervals 2–5 variably with uni- to bicoloured vestiture, sometimes with minute, subspherical secondary granules, not surrounded by bare patches. Lateral interval with dense white scales, with or without small secondary granules. Lateral margin consisting of two rows of granules, with sparse, larger granules between them. Deflected part scaled, white or bicoloured off-white and white, with a row of minute to short strioliform granules, and with or without scattered granules in upper half. Epipleural row absent. Granules of primary rows and secondary granules bearing moderate to long, bristle-like, erect pale setae.

Prosternum about half of procoxal length in front of procoxa; apophysis narrow, bilobed. Proepisterna with small, scattered subspherical granules. Mesosternum slightly raised anteriorly. Mesosternal apophysis moderate, slightly broader than meso-coxa. All sternites scaled, with short (male) to long (female abdomen), fine, mainly recumbent setae.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae at least on proximal ventral surface. Male profemur with small tubercle at first fourth of anteroventral edge (Fig. 21D). Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform to subfoliaceous or foliaceous (female), long. Tarsi moderately slender, shorter and stouter in female, with long bristles; first metatarsal segment shorter than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 4,2 mm (TM): S.W. Afr., Kaokoveld, Sesfontein, 17 km WSW, 19.12S 13.32E / 1.2.1975; E-Y:601, at night, dunes, leg. Endrödy-Younga / insectarium no. 1433. Allotype ♀, elytral length 6,5 mm (TM): same data as holotype. Paratypes: 3♂ (TM): (1) S.W. Afr., Kaokoveld, 17 km WSW Sesfont., 19.12S 13.32E / 1.2.1975; E-Y:598, river dunes, veg., leg. Endrödy, Schulze; (2) 15 km W Sesfontein, Kaokoveld, S.W.A., SE 1913 Ab4, 17-I-1981, Univ. van Pretoria.

Season. Summer (January, February).

Distribution (Fig. 22). Northern pro-Namib Desert, Namibia.

Remarks. *Horatoma schulzeae* differs from *H. delicata* in the produced humeri and more pronounced lateral margin of the elytra; from *H. praetoriusi*, *H. hereroensis*, *H. scherzi*, *H. irregularis* and *H. altera* in the fineness of the elytral primary rows and the relative lack of secondary granules on the elytra, and from all of these species except *H. scherzi* in the lack of an epipleural row; from *H. scherzi* it differs also in its larger size, colour pattern, and the pronounced marginal row of the elytra.

Etymology. The new species is named in honour of our friend Dr Liselotte Prozesky-Schulze, who assisted in its collection.

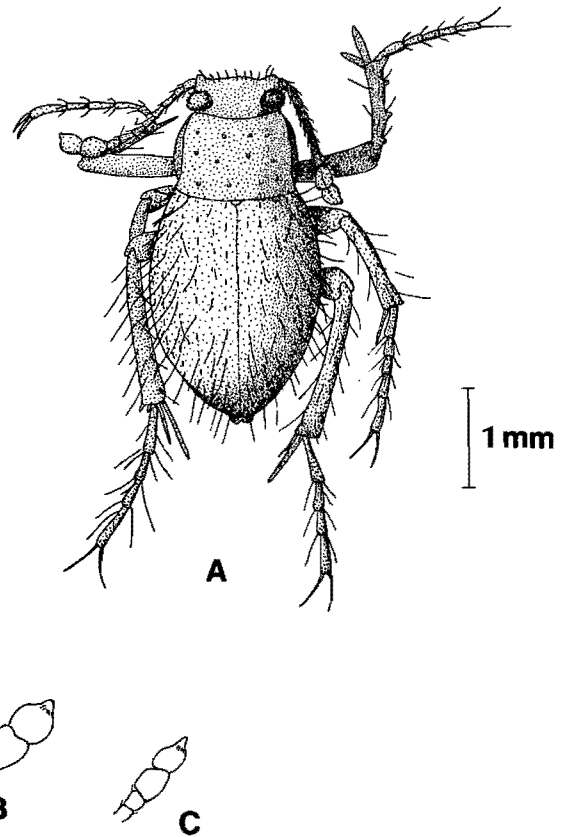


Fig. 23. *Horatoma deserticola* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: female antenna, terminal segments.

Horatoma deserticola spec. nov., Figs 23, 26

Diagnosis. Pronotum transverse, sides not indicated, disc with short strioliform granules. No epipleural row or crest; elytra with five primary rows indicated by setae, granules minute, obscured by scales. Mesosternum not raised anteriorly. Supra-antennal portion of gena not auricular. Penultimate antennal segment of male about as long as preceding two segments together.

Description. Size small, elytral length 2,4–3,7 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large, about three-fourths of pronotal width. Clypeus shallowly emarginate anteriorly, sides subparallel, rounded, separated from gena; supra-antennal portion of gena raised but not auricular. Eye large, broadly reniform, with minute setae. Antennae slender, with apical two segments enlarged in both sexes, slightly larger in male, subspherical, with subconical apex (Fig. 23B,C). Frons with subspherical granules and white scales, and with procumbent setae.

Pronotum transverse, sides weakly rounded, not marginate; proepisterna just visible in dorsal view. Vestiture more or less uniform, scales slightly denser posteriorly, white; with short strioliform granules and short recumbent pale setae.

Elytra broader than pronotum, sides weakly rounded; with five primary rows indicated on disc, granules very fine and

sparse, almost obscured by scales, bearing very long, erect setae; minute granules on intervals bearing long setae. Vestiture of scales almost uniform, white. Lateral margin indicated by a row of setae similar to those of primary rows of disc. Deflected part scaled, white, without distinct secondary sculpture. Epipleural row absent.

Prosternum in front of procoxa about half of procoxal length; apophysis narrow, truncate. Proepisterna with small, sparse setigerous granules. Mesosternum flat or almost flat anteriorly. Mesosternal apophysis slightly broader than mesocoxa. All sternites scaled, with long, fine, semi-erect to semi-recumbent setae, subequal on abdomen in both male and female, or slightly shorter in female.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with an elongate tubercle situated at basal third of anteroventral edge. Tibiae with moderately long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to subfoliaceous (female), long. Tarsi slender, with long bristles; first metatarsal segment slightly shorter than ungual segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 2,5 mm (SMW): 6 km N Arandis, 22.22S 14.59E, Damaraland, 12 Feb. – 1 March 1985, J. Irish, H. Rust / H 62390. Allotype ♀, elytral length 2,9 mm (SMW): same data as holotype. Paratypes: 1♂, 1♀ (TM): (1) Gobabeb, 23.3 S, 15.9E, 408 m / 7 ? April 67; (1) Gorob mine, Trap 40, 8 May 67.

Season. Late summer and autumn (February – May).

Distribution (Fig. 26). Northern parts of the central Namib Desert, Namibia.

Remarks. *Horatoma deserticola* differs from the preceding species with 10 antennal segments and a shallowly emarginate clypeus, in the evanescent primary rows and pronotal sculpture, as well as in the strongly raised supra-antennal portion of the gena.

Etymology. The name of the new species is derived from the desert habitat in which it lives (Latin, *deserta*, -orum, n., deserts; *incolo*, -ere, to inhabit).

Horatoma rupicola spec. nov., Figs 24, 26

Diagnosis. Pronotum with lateral margin indicated posteriorly by elongate granules. Elytra elongate, with five primary granular rows on disc, three granular lateral rows, no epipleural row. Supra-antennal portion of gena strongly raised, auricular. Apical segments of male antenna greatly enlarged, ovate, apical and penultimate segments about equal in length, as long as segments 7 and 8 together. Male profemur with large, elongate basal tubercle.

Description (male holotype). Size small, elytral length 3,7 mm. Integument reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

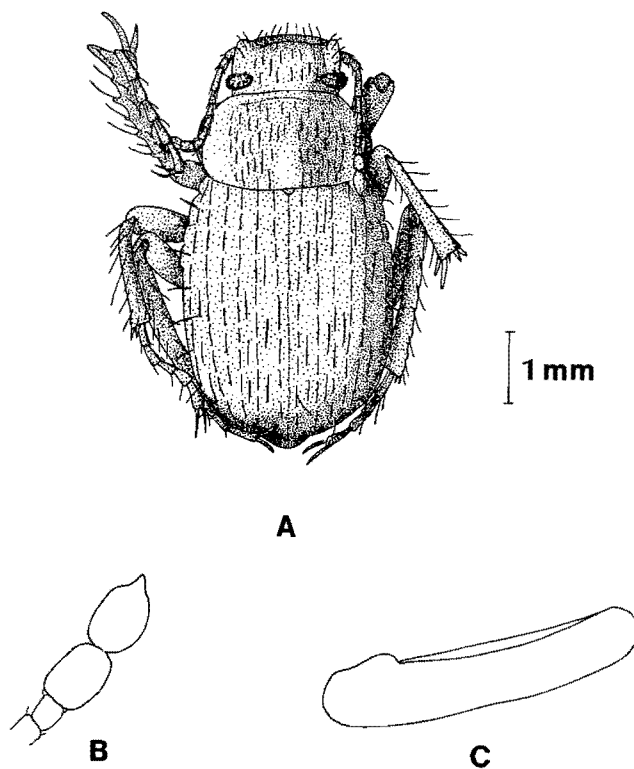


Fig. 24. *Horatoma rupicola* spec. nov. A: habitus, male; B: male antennae, terminal segments; C: male profemur, anteroventral margin.

Head large, more than three-fourths of pronotal width. Clypeus emarginate anteriorly, sides short, weakly convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, with short setae. Antennae with apical two segments greatly enlarged in male, ovate, penultimate segment about as long as preceding two segments together, equal to apical segment which has a subconical apex (Fig. 24B). Frons with elongate granules, white scales, and procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules, elongate at posterior angles; proepisterna just visible in dorsal view. Scales forming vestiture mainly concentrated in a median stripe and a pair of lateral stripes, latter broadening posteriorly, white; with long strioliform granules and recumbent dark setae.

Elytra broader than pronotum, elongate-ovate; with five primary granular rows on disc, granules elongate; third and fifth rows united before apical declivity, fourth abbreviated. Humeri embracing elytral base. Sutural interval with white scales and no secondary granules; intervals 2–5 variably with mainly strioliform secondary granules surrounded by bare patches interrupting white vestiture. Lateral interval with a median row of strioliform secondary granules surrounded by bare patches. Lateral margin consisting of three rows of granules, granules of middle row more widely separated. Deflected part with white scales, with one complete row of strioliform granules just above middle. Epipleural row reduced to sparse inconspicuous granules. Granules of primary rows as well as secondary granules bearing long (many broken off short), bristle-like, erect dark setae.

Prosternum in front of procoxa more than half of procoxal length; apophysis narrow, bilobed. Proepisterna with

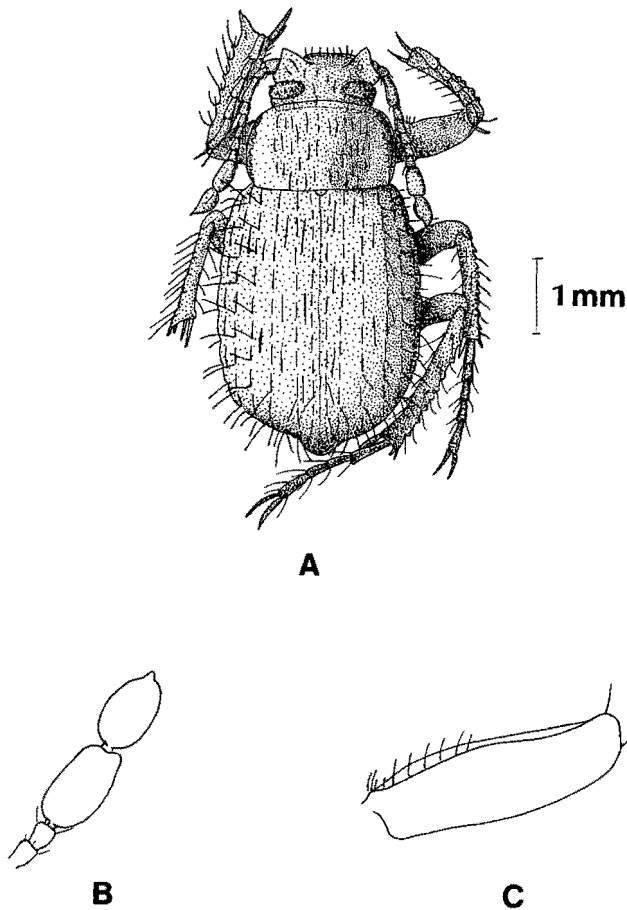


Fig. 25. *Horatoma pronamibensis* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: male profemur, anteroventral margin.

moderately large, moderately dense granules. Mesosternum with callosity anteriorly. Mesosternal apophysis only slightly broader than mesocoxa. All sternites scaled, with short to moderately long, semi-recumbent setae.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with elongate tubercle on anteroventral surface near base (Fig. 24C). Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform, about as long as first metatarsal segment. Tarsi very slender, with moderately short bristles; first metatarsal segment about as long as unguinal segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 3,7 mm (SMW); Kanaän 104, SE 2516 Cc, Lüderitz, 25 Apr. – 2 May 1977, M.-L. Penrith, S. Louw / H 34783.

Season. Autumn (April/May).

Habitat. On rocky hillside with windblown sand.

Distribution (Fig. 26). Known only from the type locality in the southern part of the central Namib Desert, Namibia.

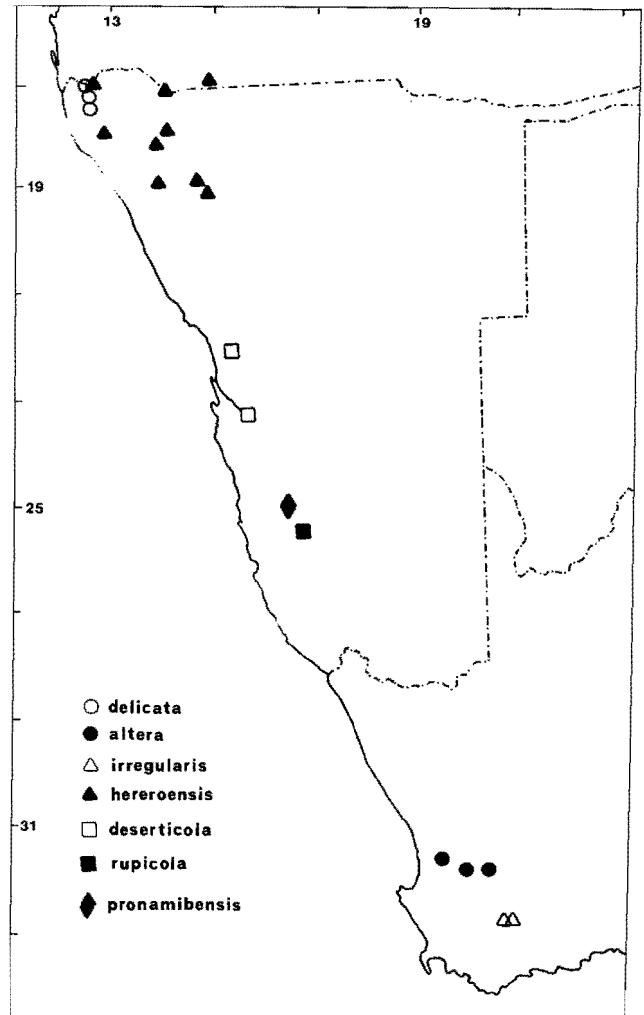


Fig. 26. Distribution of *Horatoma altera*, *H. irregularis*, *H. delicata*, *H. deserticola*, *H. hereroensis*, *H. rupicola* and *H. pronamibensis*.

Remarks. This species differs from the preceding species as follows: from all the species in the broadly auricular supra-antennal part of the gena and the more deeply emarginate clypeus; from all except *H. hereroensis* in the elongate shape, and from *H. hereroensis* in the antennal shape and the well-developed male profemoral tubercle. It differs from all the species of *Horatoma* in the shape of the apical antennal segments of the male.

Etymology. The name of the new species refers to the habitat where it was found (Latin, *rupes*, -is, f., rock, cliff; *incola*, -ere, to inhabit).

Horatoma pronamibensis spec. nov., Figs 25, 26

Diagnosis. Lateral margin of pronotum indicated posteriorly by small granules; disc with coarse strioliform granules. Elytra subovate, with five primary granular rows, three lateral rows, and epipleural row indicated by punctures. Supra-antennal portion of gena strongly raised, auricular. Penultimate antennal segment of male as long as preceding three segments

together, slightly longer than apical segment. Male profemur inermous.

Description (male holotype). Size small, elytral length 3,5 mm. Integument reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large, more than half of pronotal width. Clypeus emarginate apically, sides very short, weakly convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye broadly reniform, with minute setae. Antennae with apical two segments enlarged in male, ovate, penultimate segment as long as preceding three segments together, apical segment slightly shorter, with subconical apex (Fig. 25B). Frons with elongate granules and white scales, and with procumbent setae.

Pronotum strongly transverse, sides rounded, indicated by a row of granules; proepisterna just visible in dorsal view. Scales mainly concentrated in a median stripe and a pair of lateral stripes, white; with long, coarse, strioliform granules and moderately long, recumbent pale setae.

Elytra broader than pronotum, subovate; with five primary granular rows on disc, granules very elongate and flanked by fine punctures. Humeri produced, embracing elytral base. Sutural interval with dense white scales and no secondary granules; intervals 2–5 variably with alternate patches of scales and bare patches surrounding long strioliform secondary granules. Lateral interval similar. Lateral margin consisting of two rows of adjacent granules, with a row of strioliform granules between them. Deflected part scaled, white, with a row of short strioliform granules just above middle. Epipleural row consisting of punctures, occasionally subtended by minute granules. Granules of primary rows and secondary granules bearing long, bristle-like, erect dark setae.

Prosternum more than half of procoxa length in front of procoxa; apophysis narrow, bilobed. Proepisterna with coarse, scattered round granules. Mesosternum callose anteriorly. Mesosternal apophysis distinctly broader than mesocoxa. All sternites scaled, with moderately long, fine, semi-erect setae.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur inermous (Fig. 25C). Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, weakly compressed, bristly. Metatibial calcaria spiniform, shorter than elongate first metatarsal segment. Tarsi very slender, long, with short bristles; first metatarsal segment subequal in length to ungual segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 3,5 mm (SMW): Gorrasis 99, SE 2515 Bd, Lüderitz, 25–31 Jan. 1974 / H 17115 [leg. M.-L. Penrith].

Season. Summer (January); collected during heavy rain.

Distribution (Fig. 26). Known only from the type locality in the southern part of the central pro-Namib Desert, Namibia.

Remarks. This species resembles *H. rupicola* in habitus, but differs from it mainly in lacking a profemoral tubercle in the male.

Etymology. The name of the new species is derived from the area in which it occurs.

Horatoma humeridens spec. nov., Figs 27, 32

Diagnosis. Posterolateral angles of pronotum prominent, sharply carinate. Humeri of elytra with approximated and sharply denticulate granules. Elytra with five primary and two lateral granular rows. Apical antennal segments of male oblong, enlarged, penultimate segment slightly shorter than preceding three segments together, about as long as apical segment. Male profemur with vestigial basal ridge.

Description (male holotype). Size small, elytral length 3,7 mm. Integument reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large, more than half of pronotal width. Clypeus shallowly emarginate anteriorly, sides weakly convergent, straight, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, with short stout setae. Antennae with apical two segments considerably enlarged in male, oblong, penultimate segment slightly shorter than preceding three segments together, about as long as apical segment which has a subconical apex (Fig. 27B). Frons with subspherical granules and white scales, and with long procumbent dark setae.

Pronotum strongly transverse, sides subparallel, indicated by a row of granules in front of posterior angle, which is sharply carinate; proepisterna just visible in dorsal view. Vestiture fairly extensive, but scales concentrated in an interrupted median stripe and a pair of lateral stripes, latter broadening posteriorly, white; with long strioliform granules and long, semi-erect to recumbent dark setae.

Elytra broader than pronotum, sides rounded; with five primary granular rows on disc, granules small. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with patches of scales alternating with bare patches surrounding fine strioliform secondary granules. Lateral interval with large patches of white scales alternating with small bare patches surrounding small secondary granules. Lateral margin consisting of two rows of granules, slightly separated except at humerus, where granules are approximated and sharply denticulate; rows with a few small granules between them. Deflected part scaled, white, with an evanescent row of small subspherical granules at upper third. Epipleural row reduced to a row of sparse, inconspicuous short strioliform granules in anterior third. Granules of primary rows and secondary granules bearing long, bristle-like, dark setae.

Prosternum in front of procoxa about as long as procoxa; apophysis narrow, weakly bilobed. Proepisterna with coarse, moderately dense round granules. Mesosternum raised anteriorly. Mesosternal apophysis broad, about one-and-a-half times width of mesocoxa. All sternites scaled, with short to moderately long, semi-recumbent setae emerging from small granules.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white vestiture of scales. Pro-, meso- and metafemora with bristle-like setae on at least proximal ventral surface. Male profemur with vestigial short ridge near base of anteroventral edge (Fig. 27C). Tibiae with long bristles; protibia subcylindri-

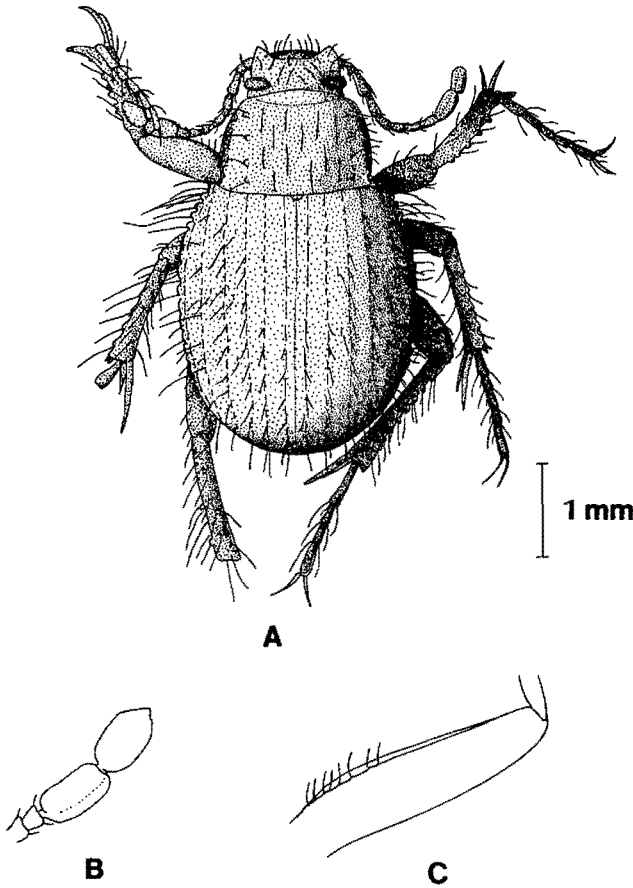


Fig. 27. *Horatoma humeridens* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: male profemur, anteroventral margin.

cal, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform, subcylindrical, extending beyond apex of elongate first metatarsal segment. Tarsi long, slender, with moderately long bristles; first metatarsal segment about as long as unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 3,7 mm (SMW): Barby 26, Bethanie, SE 2516 Dc, 17–18 Jan. 1972 / H 6189 [leg. M.-L. Penrith, L. Coetzee].

Season. Summer (January); collected during heavy rain.

Distribution (Fig. 32). Known from the type locality in the southern escarpment area of the pro-Namib Desert, Namibia.

Remarks. This species resembles only *H. tessellata* in the denticulate humeri but differs from it in numerous characters including size, shape, colour pattern, apical antennal segments of the male, and sculpture. It differs from *H. rupicola* and *H. pronamibensis* in the less elongate shape of the body, as well as in the denticulate humerus.

Etymology. The name of the new species refers to the denticulate humeri (Latin, *dens*, *dentis*, m., tooth).

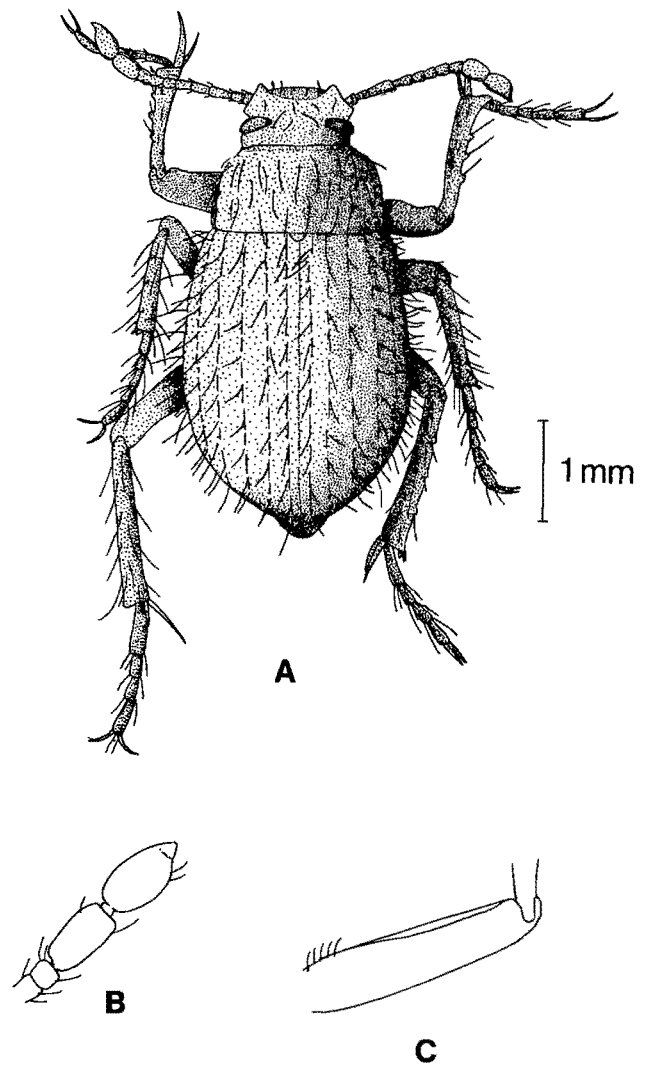


Fig. 28. *Horatoma nocturna* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: male profemur, anteroventral margin.

Horatoma nocturna spec. nov., Figs 28, 35

Diagnosis. Pronotum with small round granules, posterior angles not prominent, not or weakly carinate. Elytra with five primary and two lateral granular rows, humeri not denticulate. Apical antennal segments of male elongate, subequal in length, penultimate segment about as long as preceding three segments together. Mesosternal apophysis distinctly broader than mesocoxa. Male profemur inermous.

Description (male holotype). Size small, elytral length 2,9 mm. Integument black, appendages reddish brown, vestiture of elytra unicoloured, off-white, scales of ventral surface and appendages silvery white.

Head moderately large, almost three-fourths of pronotal width. Clypeus shallowly emarginate anteriorly, sides short, weakly convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, with short stout

setae. Antennae with apical two segments enlarged in male, oblong, equal in length, each about as long as preceding three segments together; apical segment with a subconical apex (Fig. 28B). Frons with small inconspicuous granules and off-white scales, and with long procumbent setae.

Pronotum transverse, sides subparallel, indicated by an evanescent row of granules, inermous or weakly carinate at posterior angles; proepisterna just visible in dorsal view. Vestiture extensive, scales concentrated in a median basal patch and a pair of lateral stripes; with small round granules and with long recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules very fine and almost obscured by scales. Humeri not embracing pronotal base. Vestiture more or less uniform, only lateral interval with inconspicuous secondary granules. Lateral margin consisting of two approximated rows of granules. Deflected part scaled with an inconspicuous row of short strioliform granules in upper third. Epipleural row evanescent. Granules of primary rows and secondary granules bearing long, bristle-like, erect dark setae.

Prosternum in front of procoxa more than half of procoxal length, apophysis narrow, rounded. Proepisterna with minute, moderately dense, round granules. Mesosternum raised anteriorly. Mesosternal apophysis broad, distinctly broader than mesocoxa. All sternites scaled, with moderately short semi-recumbent to recumbent setae.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur inermous (Fig. 28C). Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male), reaching apex of elongate first metatarsal segment. Tarsi slender, long, with moderately long bristles; first metatarsal segment slightly longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 2,9 mm (BMNH): at light, S.W. Africa (13), Barby Farm, 25 mi W. Helmeringhausen, 17–18.1.1972 / Southern African Exp. B.M. 1972–1.

Season. Summer (January); collected during heavy rain.

Distribution (Fig. 35). Known only from the type locality in the escarpment area of the pro-Namib Desert, Namibia.

Remarks. This species differs from the sympatric *H. humeridens* in the humeri, which are not prominent or denticulate, and details of the antennae, body shape and sculpture. It resembles *H. scherzi* in habitus, but is distinguished from that species by the broader mesosternal apophysis and the greatly enlarged apical antennal segments of the male. It differs from *H. rupicola* and *H. pronamibensis* in the less elongate elytra and details of the sculpture and antennae.

Etymology. The name of the new species refers to the fact that it was collected at night (Latin, *nocturna*, -a, -um, by night).

Horatoma rupestris spec. nov., Figs 29, 32

Diagnosis. Pronotum with fine strioliform granules. Humeri of elytra not embracing pronotal base. Elytra with five granular primary rows, two lateral rows, epipleural row evanescent. Supra-antennal portion of gena strongly raised, auricular. Last two segments of male antenna enlarged, penultimate segment as long as preceding four segments together. Male profemur inermous.

Description (male). Size small, elytral length 2,8 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large, slightly narrower than pronotum. Clypeus shallowly emarginate anteriorly, sides straight, strongly convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye narrowly reniform, with short stout setae. Antennae with apical two segments greatly enlarged in male, elongate, penultimate segment longer than preceding four segments together, apical segment almost as long as penultimate segment, with subconical apex (Fig. 29B). Frons with small inconspicuous granules, dense white scales, and procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row of granules; proepisterna just visible in dorsal view. Scales of vestiture scattered except in a pair of lateral stripes broadening posteriorly, white; with fine strioliform granules and short recumbent brown setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules very fine and elongate. Humeri not embracing pronotal base. Sutural interval without secondary granules; vestiture almost uniform but intervals 2–5 and lateral interval variably interrupted by round to strioliform secondary granules sometimes surrounded by a bare patch. Lateral margin consisting of two rows of granules, slightly separated. Deflected part scaled, white, with a row of punctures dorsally and a row of subspherical to strioliform granules dorsal to midline. Epipleural row evanescent, where discernible consisting of subspherical to short strioliform granules. Granules of primary rows and secondary granules bearing long, bristle-like, erect dark setae.

Prosternum in front of procoxa slightly more than half of procoxal length; apophysis narrow, subtruncate. Proepisterna with small, scattered subspherical granules. Mesosternum raised anteriorly. Mesosternal apophysis broad, much broader than mesocoxa. Sternites scaled, with short, fine, mainly recumbent setae emerging from small granules.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur inermous. Tibiae with long bristles; protibia subcylindrical, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male), shorter than elongate first metatarsal segment. Tarsi slender, long, with moderately long bristles; first metatarsal segment about as long as unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 2,8 mm (TM): S.W. Africa, Naukluft, Felseneck farm, 24.21S 16.00E /

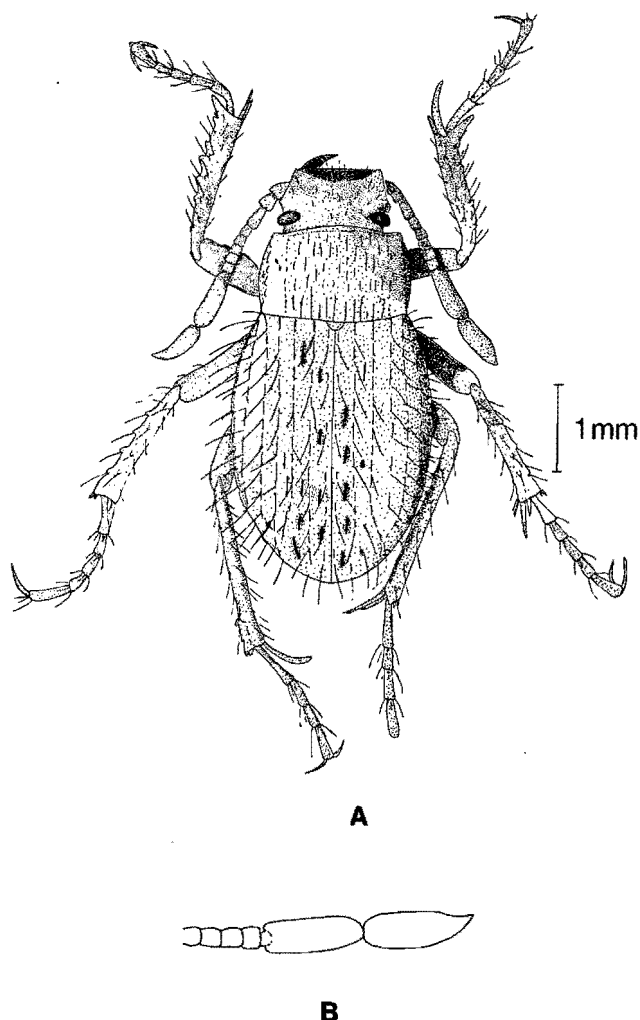


Fig. 29. *Horatoma rupestris* spec. nov. A: habitus, male; B: male antenna, terminal segments.

25.10.1974; E-Y:419, groundtraps, 136 day, leg. Endrödy-Younga. Paratypes: 3♂ (TM), locality and collector as holotype but (1) E-Y:419E / with faeces bait; (2) 5.6.1975; E-Y:863 / groundtraps, with banana bait (1), faeces bait (1).

Season. Winter and spring (June, October).

Distribution (Fig. 32). Known only from the type locality in the central escarpment area of the pro-Namib Desert, Namibia.

Remarks. This species differs from all the preceding species with a broad mesosternal apophysis in the more elongate body shape, the narrower and more elongate apical segments of the male antenna, and the narrower pronotum.

Etymology. The name of the new species refers to the type locality, 'Felseneck,' meaning rocky corner (Latin *rupes*, -is, f., rock, cliff).

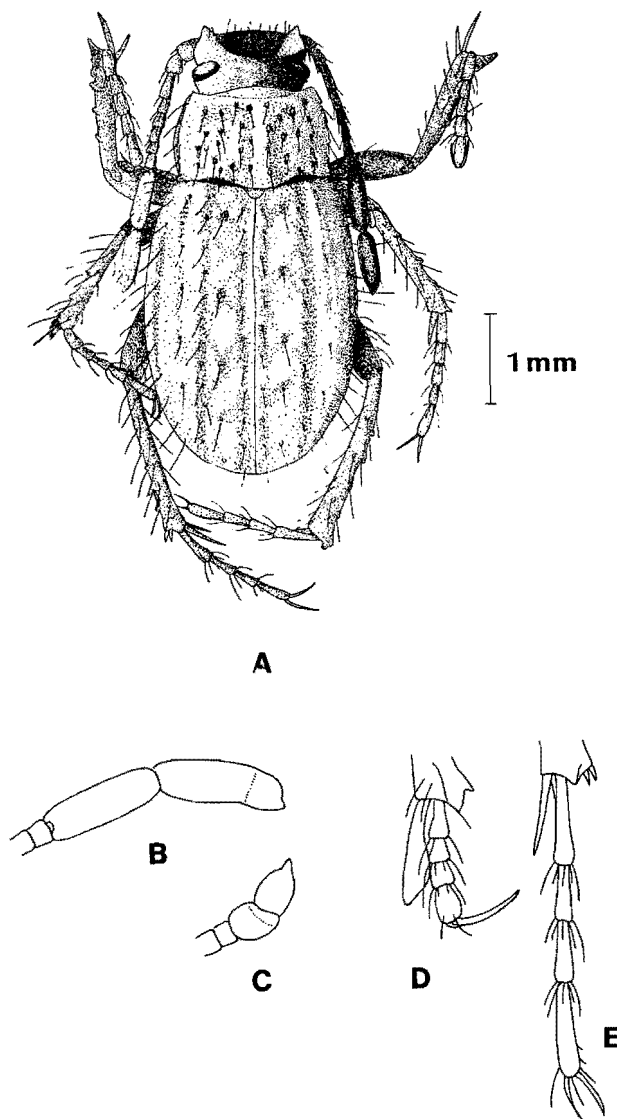


Fig. 30. *Horatoma singularis* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: female antenna, terminal segments; D: female metatarsus; E: male metatarsus.

Horatoma singularis spec. nov., Figs 30, 32

Diagnosis. Elytra with primary rows indicated only by rows of setae borne on minute granules; humeri not produced or denticulate. Mesosternum with an anterior callosity, apophysis almost twice width of mesocoxa. Apical antennal segments enlarged in both sexes, in male very large, subequal in length, penultimate segment as long as preceding four segments together. Male profemur inermous.

Description. Size small to medium, elytral length 3,2–7,0 mm. Integument reddish brown, vestiture of elytra bicoloured, light brown and white, scales of ventral surface and appendages white.

Head moderately large, more than half of pronotal width. Clypeus shallowly emarginate anteriorly, sides straight,

convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, protuberant, with short setae. Antennae with apical two segments enlarged in both sexes, greatly enlarged in male, elongate, penultimate segment as long as preceding four segments together, apical segment as long as penultimate segment, with subconical apex (Fig. 30B,C). Frons with small sparse granules, brown and white scales, and sparse, long procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row of granules; proepisterna not or just visible in dorsal view. Vestiture extensive, scales brownish except for a dense white median stripe and a pair of lateral stripes, latter broadening posteriorly; with sparse, short strioliform granules and long, semi-erect brown setae.

Elytra broader than pronotum, sides weakly rounded; with five primary rows on disc, granules minute, round and widely separated, obscured by vestiture. Colouring variable, but sutural interval usually with dense light brown scales and no secondary granules; two other light brown longitudinal stripes usually present on disc; intervals 2–5 variably interrupted by small secondary granules usually surrounded by a bare patch. Lateral interval with several small secondary granules, not surrounded by bare patches. Lateral margin evanescent, consisting of two moderately approximated rows of granules. Deflected part scaled, white, without distinct secondary sculpture. Epipleural row absent, or indicated by fine strioliform granules posteriorly. Granules of primary rows and secondary granules bearing very long, bristle-like, erect dark setae.

Prosternum in front of procoxa more than half of procoxal length, apophysis narrow, subtruncate. Proepisterna with a few inconspicuous granules. Mesosternum callose anteriorly. Mesosternal apophysis broad, almost twice width of mesocoxa. All sternites scaled, with rather short (male) to long (female abdomen) recumbent setae.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur inermous. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to foliaceous (female), in male as long as first metatarsal segment, in female extending beyond third metatarsal segment. Tarsi slender, with short bristles; metatarsi (Fig. 30D,E) much shorter and slightly stouter in female; first metatarsal segment much shorter than unguis segment.

Aedeagus simple, slender.

Material examined. Holotype ♂, elytral length 3,2 mm (TM): S.W. Afr., Namib, Us Pass 44 km Park, 23.04S 15.56E / 5.6.1975; E-Y:856, groundtrap, 88 day, leg. Endrödy-Younga; groundtraps with faeces bait. Allotype ♀, elytral length 5,8 mm (TM): S.W. Afr., Namib, Us Pass 20 km Park, 23.03S 15.44E / 5.6.1975; E-Y:853, groundtrap: 88 day, leg. Endrödy-Younga / groundtraps with ferm. banana bait. Paratypes: 1♂, 2♀ (TM), 5♂ (SMW): (1) same data as allotype, but faeces bait; (1) S.W. Afr., Namib, Us Pass, 46 km Park, 23.03S 15.58E / 5.6.1975; E-Y:857, groundtrap: 88 day, leg. Endrödy-Younga / groundtraps with ferm. banana bait; (1), cadaver, no head (TM), Koos-Djab, S.W.A., Ill.1961, C. Koch. (1) Kos 28 at 23.16S 16.08E, Windhoek, 28 July 1974 / H 20387 [leg. M.J. &

M.-L. Penrith]; (3) same locality, 20–27 Feb. 1975 / H 30347 [leg. M. & R.E. Griffin]; (1) same locality, 28 Mar.–4 Apr. 1977, M.-L. Penrith, S. Louw / H 34252 [preservative traps].

Season. Summer, autumn and winter (February – July).

Habitat. Under plants on red, vegetated inland sand dunes.

Distribution (Fig. 32). Central escarpment area of the pro-Namib Desert, Namibia.

Remarks. *Horatoma singularis* resembles only *H. rupestris* in the extraordinary development of the male antennae; it differs from that species in the reduced elytral primary rows and details of the male antennae. The dimorphism of the sexes is striking.

Etymology. The name of the new species emphasizes its unusual appearance (Latin, *singularis*, -e, alone, single, individual).

Horatoma minuta spec. nov., Figs 31, 32

Diagnosis. Pronotum less than twice as broad as long, sides indicated by a row of granules. Size small, elytra rounded; primary rows flanked by large and conspicuous punctures. Mesosternal apophysis as broad as mesocoxa. Male profemur with basal compressed tubercle. Apical antennal segments of male very large, penultimate segment oblong, almost as long as preceding three segments together, apical segment slightly shorter.

Description. Size small, elytral length 2,0–4,7 mm. Integument reddish brown to black, vestiture of elytra bicoloured, light brown and white, scales of ventral surface and appendages white.

Head moderately large, about three-fourths of pronotal width. Clypeus emarginate anteriorly, sides straight, weakly convergent, separated from gena; supra-antennal portion of gena distinctly raised. Eye reniform, minutely setose. Antennae with apical two segments enlarged in both sexes, very large in male, oblong, penultimate segment almost as long as preceding three segments together, apical segment slightly shorter, with subconical apex (Fig. 31B,C). Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum transverse, broader in female, sides subparallel, indicated by a row of granules, carinate posterolaterally; proepisterna just visible in dorsal view. Vestiture with scales mostly confined to an interrupted median stripe and a pair of lateral stripes, latter broadening posteriorly, white; with long strioliform granules and short recumbent dark setae.

Elytra broader than pronotum, sides rounded; with five primary granular rows on disc, granules prominent, slightly elongate; flanked by punctures. Humeri embracing elytral base. Sutural interval with dense brownish scales and no secondary granules; intervals 2–5 variably with uni- to bicoloured vestiture, at least intervals 2 and 4 with long, sharply raised strioliform secondary granules. Lateral interval with patches of white setae alternating with bare patches

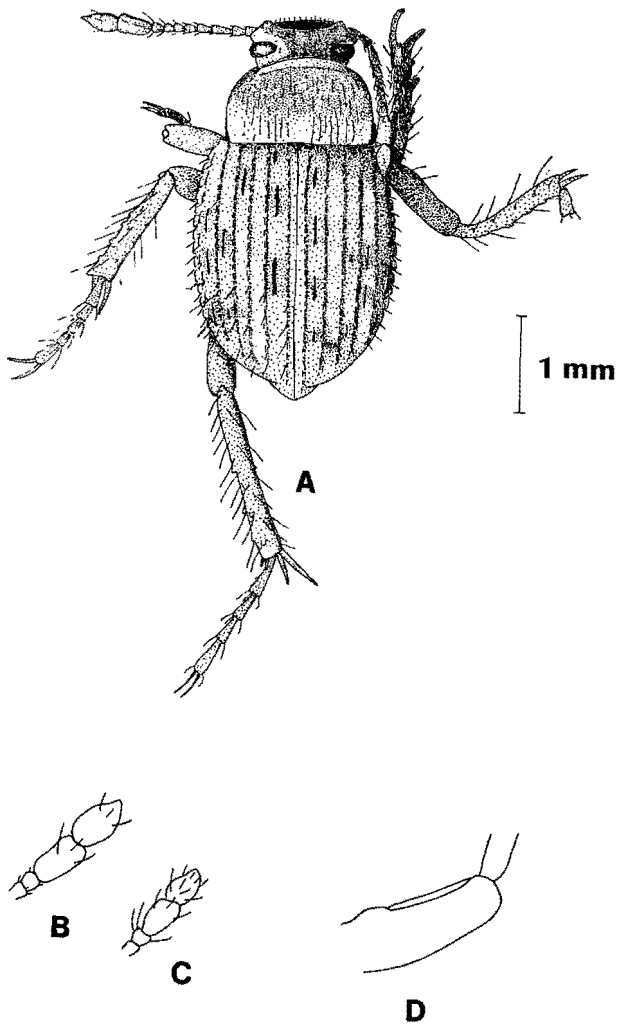


Fig. 31. *Horatoma minuta* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: female antenna, terminal segments; D: male profemur, anteroventral margin.

surrounding long and sharply raised strioliform secondary granules. Lateral margin consisting of two rows of granules, separated by a row of punctures and a varying number of irregular granules. Deflected part scaled, bicoloured brown and white, with a complete or incomplete row of short strioliform granules in upper half, and variable scattered punctures and strioliform granules. Epipleural row consisting of short strioliform granules subtended by a row of punctures. Granules of primary rows bearing moderately long, bristle-like, erect brown setae; secondary granules along midline of intervals bearing short setae.

Prosternum in front of procoxa about one-third of length of procoxa; apophysis narrow, rounded. Proepisterna with small, scattered granules. Mesosternum raised anteriorly. Mesosternal apophysis about as broad as mesocoxa. All sternites scaled, with moderately long semi-recumbent setae emerging from small granules; little sexual dimorphism in length of abdominal setae.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with compressed tubercle at base of anteroventral edge (Fig. 31D).

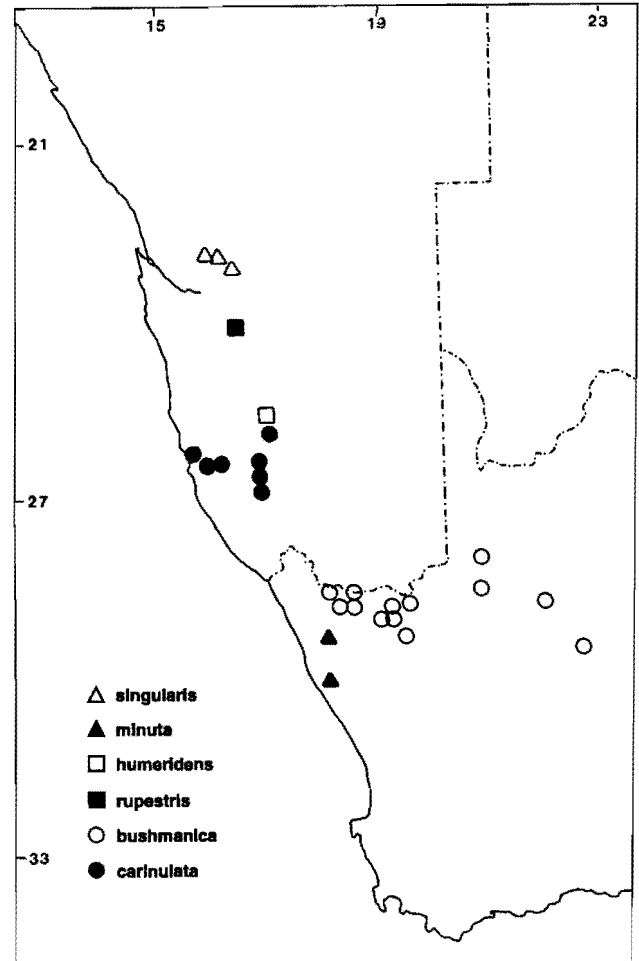


Fig. 32. Distribution of *Horatoma singularis*, *H. minuta*, *H. humeridens*, *H. rupestris*, *H. bushmanica* and *H. carinulata*.

Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to subfoliaceous (female), extending beyond apex of elongate first metatarsal segment. Tarsi slender, with moderately long bristles; first metatarsal segment about as long as ungual segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 2,8 mm (NMBL): S. Africa, C.P., Bynes Krans, Namaqualand, 30.20S 17.32E, 17 Sept. 1982, S. Louw / NMBH 8731. Allotype ♀, elytral length 4,3 mm (SMW): Bynes Krans, Cape, R.S.A., 30.20S 17.32E, 17 Sept. 1982, M.-L. Penrith / H 54649. Paratypes: 7♂, 5♀ (SMW), 7♂, 4♀ (NMBL) (1 pair in TM): (11) same data as holotype; (11) same data as allotype; (1) Spek-takelberg, Cape, R.S.A., 29.41S 17.40E, 13–15 Sept. 1982 / H 54506.

Season. Spring (September).

Habitat. On compact soil among plants.

Distribution (Fig. 32). Namaqualand, South Africa.

Remarks. *Horatoma minuta* differs from the preceding species with 10-segmented antennae and a broadly and roundly emarginate clypeus in having the elytral primary rows flanked by large and conspicuous punctures, combined with a rounded shape.

Etymology. The name of the new species refers to its small size (Latin, *minutus*, -a, -um, small, minute).

***Horatoma bushmanica* (Koch) comb. nov., Fig 32**

Parapachynotela bushmanica Koch, 1952: 62.

Parapachynotela cretacea Koch, 1952: 63. **syn. nov.**

Diagnosis. Pronotum with long fine strioliform ridges, sides indicated by a row of granules, anterior margin bare and raised in middle only. Elytra with five primary rows and three closely approximated lateral rows of granules. Sutural interval with dense white scales and no secondary granules. Mesepisternum without apical callosity; mesosternal apophysis broader than mesocoxa.

Description. Size small to large, elytral length 4,0–9,3 mm. Integument reddish brown to black, vestiture of elytra uni- or bicoloured, white only or light brown and white, scales of ventral surface and appendages white.

Head moderately large, about three-fourths of pronotal width. Clypeus emarginate, sides rounded, weakly convergent, separated from gena; supra-antennal portion of gena slightly raised. Eye reniform, with short stout setae. Antennae with apical two segments slightly enlarged in both sexes, not or scarcely dimorphic, subspherical, with subconical apex. Frons with moderately sparse, elongate granules, white scales, more concentrated laterally, and long semi-erect dark setae.

Pronotum strongly transverse, middle of margin raised, bare, sides subparallel, indicated by a row of granules; proepisterna just visible in dorsal view. Vestiture of scales virtually confined to a median stripe and a pair of lateral stripes, latter broadening posteriorly, white; with long fine strioliform ridges and long, erect or semi-erect dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, granules very fine and sometimes almost obscured by scales. Colouring variable, but sutural interval with dense white scales and no secondary granules; intervals 2–5 variably with uni- to bicoloured vestiture, intervals 2 and 4 with a varying number of bare patches surrounding small to elongate strioliform secondary granules. Lateral interval with patches of white setae alternating with bare patches surrounding strioliform secondary granules. Lateral margin consisting of three rows of closely approximated granules, with punctures and sometimes with vestiture between them. Deflected part mainly or entirely scaled, usually white, less often bicoloured brown and white, with or without a complete or incomplete row of short strioliform granules flanked by punctures. Epipleural row consisting of inconspicuous short strioliform granules below a row of (usually) conspicuous punctures. Granules of primary rows bearing long, bristle-like, erect dark setae.

Prosternal anteprocoxal length less than half of procoxal length; apophysis narrow, bilobed. Proepisterna with small,

scattered granules, upper ones with long dark setae, rest with short, paler setae. Mesosternum with large tubercle anteriorly. Mesosternal apophysis variable, slightly to considerably broader than mesocoxa. All sternites scaled, with short to long semi-erect setae emerging from small granules; setae of abdomen always longer in female than in male, but length of setae variable between populations.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on at least proximal ventral surface. Male profemur usually with small or minute tubercle at base of anteroventral edge, rarely inermous. Tibiae slightly compressed, with long bristles; protibia with dorsal surface feebly toothed. Metatibial calcaria spiniform to subfoliaceous (female), long. Tarsi slender, shorter and stouter in female, with moderately long bristles; first metatarsal segment about as long as unguis segment.

Aedeagus simple, slender.

Material examined. Holotype, *bushmanica*: ♂, elytral length 4,4 mm (TM): Aggeneys, Bushmanld, 27.VIII.50, Koch, v. Son. Allotype ♀, elytral length 7,7 mm (TM): same data as holotype. Paratypes: 26 ex. (TM), 2 ex. (SAM): (17) same data as holotype; (8) 25 mi. SE Pofadder; (1) Putsonderwater, NWC Prov., Mus. Staff, Oct. 1930; (1) Aughrabies, Gordonias, K.H. Barnard, July 1925; (1) Kakamas, Bushmanld, 7.XII.1949, Koch.

Holotype, *cretacea*: ♂, elytral length 5,3 mm (SAM): Bushmanld, Jackals Water, Lightfoot. Allotype ♀, elytral length 8,4 mm (SAM): same data as holotype. Paratypes: 2 ex. (SAM), 2 ex.(TM): (3) same data as holotype; (1) Bushmanld, Henkries, Lightfoot.

Other material: 118 (TM), 4 (SAM), 30 (SMW); localities: Bavianskop; Dabenoris farm; Goodhouse, 11 km S; Henkries turnoff, 12 km E; Henkries valley; Pofadder, 25 km from, 30 km E, 80 km W, 100 km W; Port Nolloth; Vioolsdrif, 10 mi S, 15 km S.

Season. Spring to summer (August – February).

Habitat. Sandy plains with vegetation; vegetated dunes.

Distribution (Fig. 32). Bushmanland and Namaqualand, south of the Orange River, South Africa.

Remarks. According to Koch (1952) the main differences between *bushmanica* and *cretacea* are the presence of tubercles on the male profemur and the richly sculptured deflected parts of the elytra in the former species. However, the male holotype of *cretacea* has a distinct tubercle at the base of the profemur, and the elytral sculpture is, as in most Cryptochilina, very variable. The two species cannot be separated in the long series examined, and as a result are synonymized. All long series contained both uni- and bicoloured specimens.

The width of the mesosternal apophysis tends to be greater in samples from the eastern part of the distribution range, but it is variable within series. The type series of *bushmanica* shows variation from rather narrow to moderately broad; the types of *cretacea* all have the mesosternal apophysis relatively narrow.

In general, specimens from the western part of the distribu-

tion range have shorter sternal setae; those of the type series of *bushmanica* and *cretacea* are similar, but specimens from the Henkries Valley, Dabenoris, and some from 100 km west of Pofadder, have shorter setae in both sexes.

***Horatoma carinulata* (Gebien) comb. nov., Fig. 32**

Horatomodes carinulatus Gebien, 1920: 79, 1937: 193.

Parapachynotela carinulata: Koch, 1952: 61.

Diagnosis. Pronotum with long strioliform ridges. Primary rows of elytra consisting of minute granules, obscured by vestiture of white and/or off-white scales. Proepisterna with coarse dense granules. Mesepisterna entirely scaled. Apical antennal segments of male ovate, penultimate segment not or scarcely longer than preceding two segments together.

Description. Size medium to large, elytral length 5,7–9,3 mm. Integument reddish brown to black, vestiture of elytra uni- or bicoloured, white or off-white or a combination of both colours, scales of ventral surface and appendages white.

Head large, only slightly narrower than pronotum. Clypeus emarginate, sides rounded, convergent, separated from gena; supra-antennal portion of gena distinctly raised. Eye reniform, with short stout setae. Antennae with apical two segments enlarged in both sexes, much larger in male, subspherical, with subconical apex. Frons with elongate granules in middle, white scales, denser laterally, and semi-erect, anteriorly inclined setae.

Pronotum transverse, sides subparallel, indicated by a row of granules; proepisterna visible in dorsal view. Scales concentrated in a median stripe and a pair of lateral stripes, white or off-white; with long strioliform ridges and long, posteriorly inclined, semi-erect dark setae.

Elytra broader than pronotum, sides weakly curved; with five primary granular rows on disc, granules minute and partly obscured by vestiture. Colouring variable, white or off-white or both, but sutural interval usually with dense off-white scales and no secondary granules; intervals 2–5 variably with uni- to bicoloured vestiture, all intervals including (but rarely) fourth with bare patches surrounding small to long strioliform secondary granules. Lateral margin consisting of three rows of subdentiform granules, first two rows visible in dorsal view; with punctures interspersed between granules. Deflected part scaled in lower half and posteriorly, usually unicoloured, white, with one or two complete or incomplete rows of small granules and two or three rows of punctures. Epipleural row consisting of short strioliform granules subtending much larger punctures. Granules of primary rows bearing long, bristle-like, erect dark setae.

Prosternum in front of procoxa less than half of procoxal length; apophysis narrow, weakly bilobed. Proepisterna with coarse dense granules. Mesosternum callose anteriorly. Mesosternal apophysis moderate, slightly broader than meso-coxa. Mesepisternum entirely scaled. All sternites scaled, with moderately long to long semi-erect bristles emerging from small to medium-sized, round granules; abdominal bristles longer in female.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with long bristle-like setae on anterior and ventral surface. Male

profemur with long low basal tubercle. Tibiae with long bristles; straight, weakly compressed, dorsal surface of protibia toothed. Metatibial calcaria spiniform to subfoliaceous (female), long. Tarsi moderately slender, distinctly shorter in female, with moderately long bristles; first metatarsal segment longer than ungual segment.

Aedeagus simple, moderately slender.

Material examined. Syntypes in Eberswalde (not seen).

Other material: 6♂, 4♀ (TM), 12♂, 36♀ (SMW); localities: Arasab Mt.; Augustfelde; Aus; Aus Townlands; Haris, 3 km S; Plateau; Tiras; Tsaukaib Mts. Also 'Namib, bei Lüderitz.'

Season. Autumn and spring (February – April, and August – November).

Habitat. Sandy plains with grass.

Distribution (Fig. 32). Southern pro-Namib Desert, Namibia.

***Horatoma eberlanzi* (Gebien) comb. nov., Fig. 35**

Pachynotelus eberlanzi Gebien, 1938: 82.

Parapachynotela eberlanzi: Koch, 1952: 61.

Diagnosis. Pronotum with scattered round to short strioliform granules. Elytra with five primary rows of minute, widely spaced granules, flanked by rows of large punctures; three lateral rows of dentiform granules with interspersed punctures. Mesepisternum with narrow linear callosity on apicodorsal edge. Male antennae with apical segments enlarged, ovate. Male profemur inermous.

Description. Size small to medium, elytral length 4,7–6,5 mm. Integument reddish brown to black, vestiture of elytra usually unicoloured, white, scales of ventral surface and appendages white.

Head moderately large, more than half of pronotal width. Clypeus emarginate anteriorly, sides convergent, posteriorly meeting gena at a right angle; supra-antennal portion of gena distinctly raised. Eye reniform, with short, scale-like setae. Antennae with apical two segments enlarged in both sexes, much larger and ovate in male, subspherical in female, with subconical apex. Frons with a few somewhat elongate granules in middle, and white scales, more concentrated laterally, and with procumbent setae.

Pronotum strongly transverse, sides weakly rounded, evanescent, indicated by a row of separated dentiform granules; proepisterna visible in dorsal view. Vestiture incomplete in specimens examined, but a median basal patch of scales and a pair of lateral stripes discernible, white; with scattered round to short strioliform granules and short recumbent dark setae.

Elytra broader than pronotum, sides weakly curved; with five primary granular rows on disc, granules very small, and flanked by a row, or a row on either side, of moderately large punctures. Vestiture abraded, apparently white and fairly extensive; intervals 2, 4 and 6 with long strioliform secondary granules. Lateral margin consisting of three rows of dentiform granules, all visible in dorsal view, with punctures between them. Deflected part irregularly punctured, with traces of an

incomplete row of short strioliform granules below marginal rows, and faint traces of a submedian row of small granules. Epipleural row consisting of short, inconspicuous strioliform granules below large punctures. Granules of primary rows without conspicuous setae, but these may have been abraded.

Prosternum in front of procoxa about one-third of procoxal length; apophysis narrow, bilobed. Proepisterna with rather coarse, dense subspherical granules. Mesosternum with large tubercle anteriorly. Mesosternal apophysis slightly broader than mesocoxa. Mesepisternum with narrow linear callosity on apicodorsal edge. All sternites scaled, with moderately long, dark erect setae emerging from round granules, setae not dimorphic in length. Abdomen (under vestiture) with scattered granules.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Male profemur inermous. Tibiae weakly compressed, with moderately long bristles; protibia with dorsal surface toothed. Metatibial calcaria broadly spiniform (male) to subfoliaceous (female), long. Tarsi slender (male) to moderately stout (female), with short bristles; first metatarsal segment about as long as unguis segment.

Aedeagus simple, moderately slender.

Material examined. 2♂, 2♀ (SMW); locality: Haris, 3 km E, 26.34S 15.25E.

Season. Spring (October).

Habitat. Sandy interdune valleys with grass.

Distribution (Fig. 35). Southern part of central Namib Desert, Namibia.

Remarks. The specimens assigned to this species agree well with the original description. The types are presumed lost, together with all Gebien's types of Tenebrionidae that were housed in Hamburg and destroyed during the Second World War.

***Horatoma striolidiscus* (Koch) comb. nov., stat. nov., Fig. 36**

Parapachynotela eberlanzi striolidiscus Koch, 1952: 61.

Diagnosis. Size small to medium, elytral length 5.5–6.7 mm. Description as for *Horatoma eberlanzi*, but differing as follows: clypeus meets gena at an obtuse angle; apical segments of male antenna greatly elongate, oblong, penultimate segment as long as preceding three segments together; pronotal disc with mainly long strioliform ridges; lateral margins of pronotum not indicated by dentiform granules, but by small granules similar to rest of proepisternum; head and pronotum with long, erect setae; primary rows of elytra with flanking rows of punctures sometimes less distinct, punctures further apart; elytral secondary intervals with fewer, more scattered strioliform granules; epipleural row finer; elytra with long, erect setae; abdominal sternites under vestiture densely granular; abdominal setae of female distinctly longer than in male; male metatibial calcaria narrower.

Material examined. Holotype ♂, elytral length 5.5 mm (TM):

10 m W of Haalenberg, Gt. Namaqualand, 23.IX.1950, Koch & van Son. Paratype ♂ (TM): same data as holotype.

Other material: 1♂, 1♀ (SMW); localities: Grillental, 10 km S, 27.05S 15.22E; Klinghardt Mts, 27.15S 15.41 E.

Season. Winter, spring (July, October).

Habitat. Sandy plains with vegetation.

Distribution (Fig. 36). Southern Namib Desert, Namibia.

Remarks. Koch (1952) suggested that his subspecies *striolidiscus* might be specifically distinct from *eberlanzi*. While they are closely related, we do not regard the antennal difference, or most of the other differences listed above, as having less than specific value, and this taxon is therefore elevated to species. *Horatoma striolidiscus* is probably as closely related to *H. tessellata*, with similar antennae, as to *H. eberlanzi*.

***Horatoma tessellata* (Gebien) comb. nov., Fig 35**

Pachynotelus tessellatus Gebien, 1920: 73, 78, 1937: 193.

Parapachynotela tessellata: Koch, 1952: 56.

Diagnosis. Pronotum with long strioliform ridges. Elytra with five primary rows of minute granules obscured by vestiture of scales, and three lateral rows of dentiform granules. Male apical antennal segments greatly elongate, slender, penultimate segment as long as preceding three segments together. Male profemur with a sharp basal tubercle.

Description. Size small to medium, elytral length 4.2–7.2 mm. Integument reddish brown to black, vestiture of elytra usually bicoloured, light brown and white, scales of ventral surface and appendages white.

Head moderately large, slightly narrower than pronotum. Clypeus emarginate anteriorly, sides very weakly convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, with short fine setae. Antennae with apical two segments enlarged in both sexes, strongly dimorphic, slightly elongate in female, extremely elongate in male, penultimate segment as long as preceding three segments together, longer than apical segment, which is oblong with subconical apex. Frons with elongate granules and white scales, and with long semi-erect setae.

Pronotum transverse to strongly transverse, sides subparallel, indicated by a row of granules; proepisterna just visible in dorsal view. Vestiture of scales variable, but an interrupted median stripe and a pair of lateral stripes usually discernible, latter broadening posteriorly, white or brownish; with long strioliform ridges and long, erect or semi-erect dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, granules minute and almost obscured by vestiture. Colouring variable, but sutural interval with dense brown scales and no secondary granules; intervals 2–5 usually with white scales, except at base, and a brown stripe along third primary row; all intervals except fourth with variable bare patches surrounding long strioliform secondary granules. Lateral margin consisting of three rows of dentiform

granules, upper two rows visible in dorsal view. Deflected part scaled, usually bicoloured brown and white, with or without one or two complete or incomplete rows of short strioliform granules. Epipleural row consisting of small granules, usually subtending distinct punctures. Granules of primary rows bearing long, bristle-like, erect dark setae.

Prosternum in front of procoxa about one-third of procoxal length; apophysis narrow, bilobed. Proepisterna with moderately large, sparse granules. Mesosternum with large tubercle anteriorly. Mesosternal apophysis slightly broader than mesocoxa. All sternites scaled, with moderately short (abdomen) to long (prosternum) black semi-recumbent setae emerging from small granules; abdominal setae not distinctly dimorphic in length.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on ventral surface. Male profemur with sharp tubercle near base of anteroventral edge. Tibiae with long bristles, straight, weakly compressed, dorsal surface of protibia toothed. Metatibial calcaria spiniform to subfoliaceous (female), long. Tarsi slender to very slender, with moderately long bristles; metatarsi shorter and thicker in female; first metatarsal segment about as long as unguis segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂ in Eberswalde (not seen).

Other material: 3♂, 3♀ (TM), 5♂, 3♀ (UP), 13♂, 10♀ (SMW), 1♀ (NCI); localities: Annisfontein, 3 mi W; Aurus Mts; Aurus Mts, S; Brandkaross; Buffels R. at 29.35S 17.17E; Doringpoort; Gemsbokvlakte farm; Kaukasib River, 26.53S 15.25E; Namuskluft; Numies/Sendelingsdrif at 28.18S 16.58E; Obib Mts/dunes; Obib dunes, E at 28.02S 16.58E; Oranjemund, NE; Rooilepel.

Season. Winter to spring (July – November).

Habitat. Sandy plains and interdune valleys with vegetation.

Distribution (Fig. 35). Southern Namib Desert, Namibia, into northern Namaqualand, South Africa.

Remarks. The specimens agree well with Gebien's (1920) description and with Koch's (1952) key; it is evident that Koch (1952) examined the holotype.

***Horatoma batesi* (Haag) comb. nov., Fig. 35**

Horatomodes batesi Haag, 1872: 305; Gebien, 1937: 193; Koch, 1952: 81, 82.

Parapachynotela granulata Koch, 1952: 60. **syn. nov.**

Diagnosis. Posterior angle of pronotum carinate; disc with long strioliform ridges. Elytra with five granular primary rows and three raised lateral rows. Epipleural row consisting of large punctures interspersed with small granules. Penultimate segment of male antenna longer than preceding two segments together but shorter than preceding three segments together. Male profemur inermous.

Description. Size small to large, elytral length 4.0–9.1 mm. Integument reddish brown to black, vestiture of elytra unicol-

oured, white, scales of ventral surface and appendages white.

Head large, almost as wide as pronotum. Clypeus emarginate, sides straight, convergent, separated from gena; supra-antennal portion of gena raised. Eye reniform, with short stout setae. Antennae with apical two segments enlarged in both sexes, much larger in male, subspherical in female, ovate in male, penultimate segment slightly longer than preceding two segments together, as long as apical segment; apical segment with subconical apex. Frons with elongate granules and white scales, more concentrated laterally, and with procumbent dark setae.

Pronotum strongly transverse, sides subparallel, indicated by a row of granules, posterior angles laterally carinate; proepisterna just visible in dorsal view. Vestiture white, scales restricted to a pair of posterolateral stripes, a small median patch occasionally developed; with long strioliform ridges and short recumbent dark setae.

Elytra broader than pronotum, sides weakly curved; with five primary granular rows on disc, flanked by punctures, granules strioliform. Sutural interval with dense white scales and no secondary granules; intervals 2–5 variably with bare patches surrounding strioliform secondary granules. Lateral margin consisting of three rows of small granules, not continuous, flanked by punctures. Deflected part sparsely scaled, with three fine and complete or incomplete rows of short strioliform granules and several rows of punctures. Epipleural row consisting of minute granules flanking a row of large punctures. Granules of primary rows bearing moderately long, bristle-like, semi-erect to recumbent dark setae.

Prosternum in front of procoxa about half of procoxal length, apophysis narrow, bilobed. Proepisterna with rather coarse, dense granules. Mesosternum with large callosity anteriorly. Mesosternal apophysis broad, almost twice width of mesocoxa. Apex of mesepisternum bare, sometimes forming a fine linear callosity. All sternites scaled, with moderately long semi-recumbent setae emerging from small granules; length of abdominal setae similar on both sexes.

Legs moderately slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on ventral surface. Tibiae with long bristles; straight, weakly compressed, dorsal surface of protibia toothed. Metatibial calcaria spiniform (male) to foliaceous (female), long. Metatarsi strongly dimorphic, very slender in male, much shorter and stouter in female, with moderately long bristles; first metatarsal segment slightly longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype, *batesi*: ♂, elytral length 5.5 mm (BMNH). Labelled as follows: Type [round, red-bordered, printed] / Damaraland [mauve ink] / *Horatomodes batesi* Haag [handwritten, black ink] / *Horatomodes batesi* Haag, type [in mauve ink] / F. Bates, 81–19.

Holotype, *granulata*: ♂, elytral length 4.6 mm (TM): Kuibis, Gt Nama-nquald [*sic*], 15.IX.50, C. Koch, van Son.

Other material: 3♂, 18♀ (SMW); localities: Huns; Mara.

Season. Spring (September, October).

Distribution (Fig. 35). Southern escarpment area of the pro-Namib Desert, Namibia.

Remarks. Koch (1952) stated that he could not find the type. It is located in The Natural History Museum, London, and compares well with the type of *granulatula* Koch and the series from Huns and Mara. The area from which these specimens come lies well to the south of the area usually designated 'Damaraland,' and the confusion that surrounded this species results from Koch's attempt to relate it to a species from further north. All the related species from the area known as Damaraland have much longer elytral setation. The holotype of *batesi* has short bristles, as stated in Haag's (1872) description, and this is not due to abrasion, for the setae are pointed apically. The apical antennal segments of the male are also much larger than those of any of the more northerly species. The males of the series from Huns have the metatibia and metatarsus more slender than those of Haag's type; however, the thickness and length of the metatibia and tarsi frequently vary intraspecifically in *Cryptochilini*.

***Horatoma richtersveldea* (Koch) comb. nov., Fig. 36**
Parapachynotela richtersveldea Koch, 1952: 60.

Diagnosis. Pronotum with long strioliform ridges, posterior angle distinctly carinate. Elytra with five granular primary rows, and three raised lateral rows consisting of small granules. Epipleural row with granules more prominent than punctures. Apical antennal segments of male slightly enlarged, penultimate segment shorter than preceding two segments together. Male profemur with low basal tubercle.

Description. Size moderate to large, elytral length 5.0–10.6 mm. Integument reddish brown to black, vestiture of elytra usually unicoloured, white or off-white, scales of ventral surface and appendages white.

Head large, almost as wide as pronotum. Clypeus emarginate anteriorly, sides straight, convergent, separated from gena; supra-antennal portion of gena scarcely raised. Eye reniform, with short stout setae. Antennae with apical two segments enlarged in both sexes, larger in male, subspherical, with subconical apex. Frons with elongate granules and white scales, scales more concentrated laterally and anteriorly, and with short procumbent setae.

Pronotum strongly transverse, sides weakly rounded, indicated by a row of granules, posterior angles sharply carinate laterally; proepisterna just visible in dorsal view. Scales usually confined to a pair of narrow lateral stripes, broadening posteriorly, white or off-white, rarely forming a small median linear patch of scales as well; with long strioliform ridges and short recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, granules raised, prominent, adjacent. Colouring white or off-white, sutural interval with dense scales and no secondary granules; intervals 2–5 variably with bare patches surrounding short to long strioliform granules. Lateral margin consisting of three rows of small granules. Deflected part scaled, unicoloured, with or without one or two complete or incomplete rows of round to short strioliform granules. Epipleural row consisting of short strioliform granules. Granules of primary rows bearing moderately short, bristle-like, semi-erect dark setae.

Prosternum in front of procoxa about half of procoxal length;

apophysis narrow, bilobed. Proepisterna with moderately coarse, dense granules. Mesosternum with large tubercle anteriorly. Mesosternal apophysis broad, slightly broader than mesocoxa. Mesepisternum with fine, linear, bare callosity apicoventrally. All sternites scaled, with short, stout to long (female abdomen) recumbent and semi-recumbent setae emerging from granules; abdominal sternites with moderately dense microgranules.

Legs moderately slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on ventral surface. Male profemur with low tubercle at base of anteroventral margin. Tibiae with moderately long bristles; straight, weakly compressed, dorsal surface of protibia toothed. Metatibial calcaria spiniform (male) to foliaceous (female), long. Tarsi slender (female) to very slender (male), much longer in male, with short bristles; first metatarsal segment much longer than ungual segment in male, about equal to it in female.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 6.7 mm (TM): Brakfontein, Richtersveld, 18.IX.1933, G. van Son.

Other material: 7♂, 6♀ (TM), 1♂, 1♀ (UP), 9♂, 6♀ (SMW); localities: Annisfontein; Doornpoort; Ganakom riv. valley; Klein Helskloof; Noordoewer; Numies/Sendelingsdrif; Springbokvlakte, Richtersveld; Violsdrif, 10 mi S.

Season. Spring (September – November).

Habitat. Vegetated sand dunes.

Distribution (Fig. 36). Western inland part of the Orange River, in Namibia and South Africa.

***Horatoma apicalis* spec. nov., Figs 33, 36**

Diagnosis. Pronotum with long strioliform ridges, posterior angle distinctly carinate. Elytra with five primary granular rows, lateral margin consisting of three raised rows of granules. Epipleural row with punctures more prominent than granules. Apical antennal segments of male elongate, penultimate segment longer than preceding three segments together. Male profemur with sharp basal tubercle.

Description (male). Size small, elytral length 4.0–4.2 mm. Integument reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head large, almost as wide as pronotum. Clypeus emarginate, sides short, straight, convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, with short setae. Antennae with apical two segments greatly enlarged in male, oblong, penultimate segment slightly shorter than preceding three segments together, to longer than apical segment, which has a subconical apex (Fig. 33B). Frons with elongate granules, white scales, and procumbent setae.

Pronotum strongly transverse, sides subparallel, indicated by a row of granules, posterior angles carinate; proepisterna just visible in dorsal view. Scales mainly confined to a pair of lateral stripes; with long strioliform ridges and short recumbent setae.

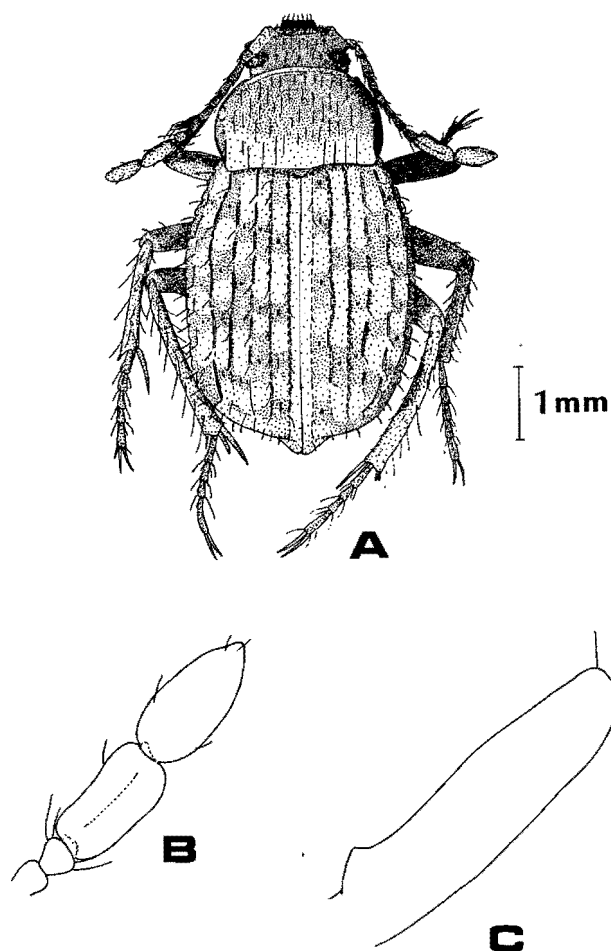


Fig. 33. *Horatoma apicalis* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: male profemur, anteroventral margin.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, granules fine, prominent, flanked by punctures. Humeri embracing elytral base. Sutural interval with dense white scales and no secondary granules; intervals 2–5 and lateral interval with patches of white scales alternating with bare patches with or without small secondary granules. Lateral margin consisting of three approximated rows of granules. Deflected part almost bare in dorsal half, sparsely scaled in ventral half and posteriorly, epipleural area densely scaled; punctate, with a complete row of short strioliform granules near middle. Epipleural row consisting of minute round granules below row of much larger punctures. Granules of primary rows bearing short to moderately long, bristle-like, semi-erect dark setae; sparse granules along midline of intervals bearing short setae.

Prosternum in front of procoxa about half of procoxal length; apophysis narrow, bilobed. Proepisterna with small, moderately dense round granules. Mesosternum with large callosity anteriorly. Mesosternal apophysis very broad, almost twice as wide as mesocoxa. All sternites scaled, with moderate, recumbent setae emerging from round granules.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on at least proximal ventral surface. Male profemur with a sharp tubercle near base of anteroventral edge (Fig. 33C).

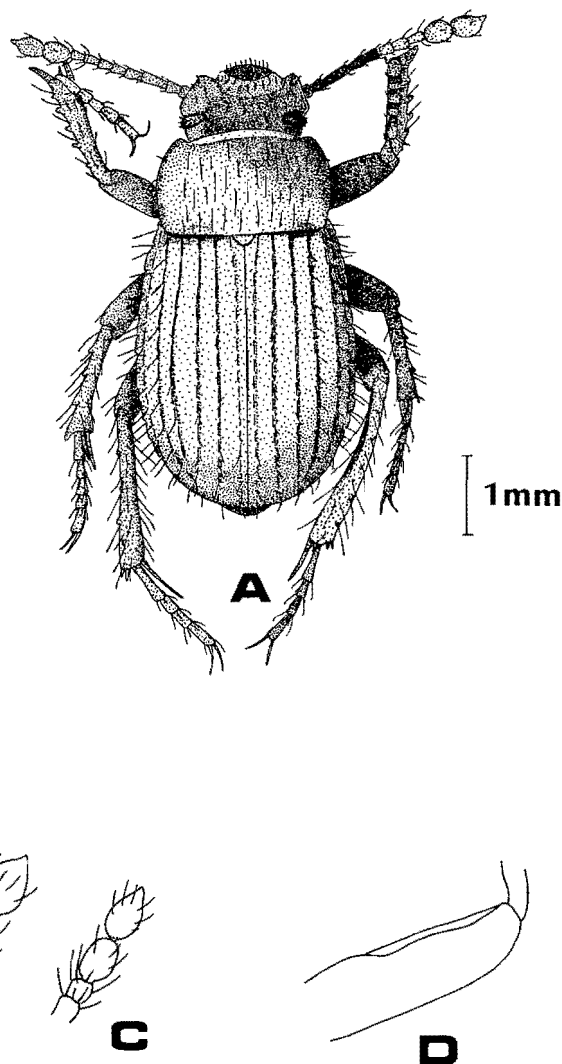


Fig. 34. *Horatoma piscefluminis* spec. nov. A: habitus, male; B: male antennae, terminal segments; C: female antenna, terminal segments; D: male profemur, anteroventral margin.

Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, weakly compressed, bristly. Metatibial calcaria spiniform, about as long as first two metatarsal segments. Metatarsi slender, with long bristles; first metatarsal segment about as long as ungual segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 4,0 mm (SMW): Vogelstrausskluff 87, Bethanien, SE 2717 Ba, 24–29 Sept. 1974 / H 20651 [leg. J.B.U. Tebje]. Paratypes: 2♂ (SMW, TM): same data as holotype.

Season. Spring (September).

Distribution (Fig. 36). Known only from the type locality in the escarpment area of the southern pro-Namib Desert, Namibia.

Remarks. *Horatoma apicalis* differs from *H. batesi* in the more enlarged apical segments of the male antenna. It also has the

anterior angle of the supra-antennal part of the gena much sharper, rectangular, while it is rounded in *H. batesi*. It differs in the same characters from *H. richtersveldea*.

Etymology. The name of the new species refers to the enlarged apical segments of the male antenna (Latin *apex*, *-icis*, m., the top).

***Horatoma piscefluminis* spec. nov., Figs 34, 39**

Diagnosis. Pronotum with fine strioliform ridges, posterolateral angles weakly carinate. Anterior margin of pronotum smooth. Elytral disc with five granular primary rows, two granular lateral rows, secondary intervals without strioliform granules. Apical antennal segments of male ovate, penultimate segment as long as or longer than preceding two segments together. Male profemur with low basal ridge.

Description. Size small, elytral length 3,2–6,4 mm. Integument reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head large, almost as broad as pronotum. Clypeus emarginate, sides short, straight, convergent, meeting gena posteriorly at right angle; supra-antennal portion of gena strongly raised. Eye narrowly reniform, with short stout setae. Antennae with apical two segments enlarged in both sexes, much larger in male, ovate, penultimate segment as long as or longer than preceding two segments together, apical segment about as

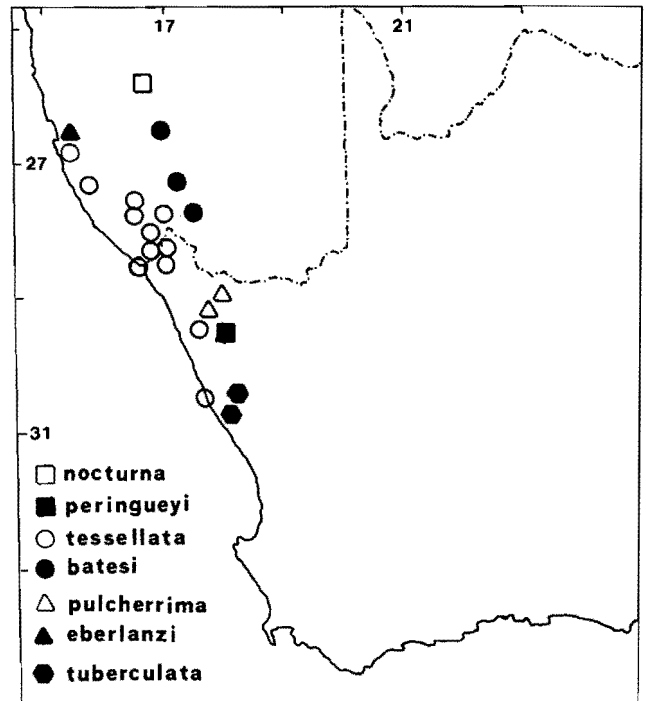


Fig. 35. Distribution of *Horatoma nocturna*, *H. peringueyi*, *H. tessellata*, *H. batesi*, *H. pulcherrima*, *H. eberlanzi* and *H. tuberculata*.

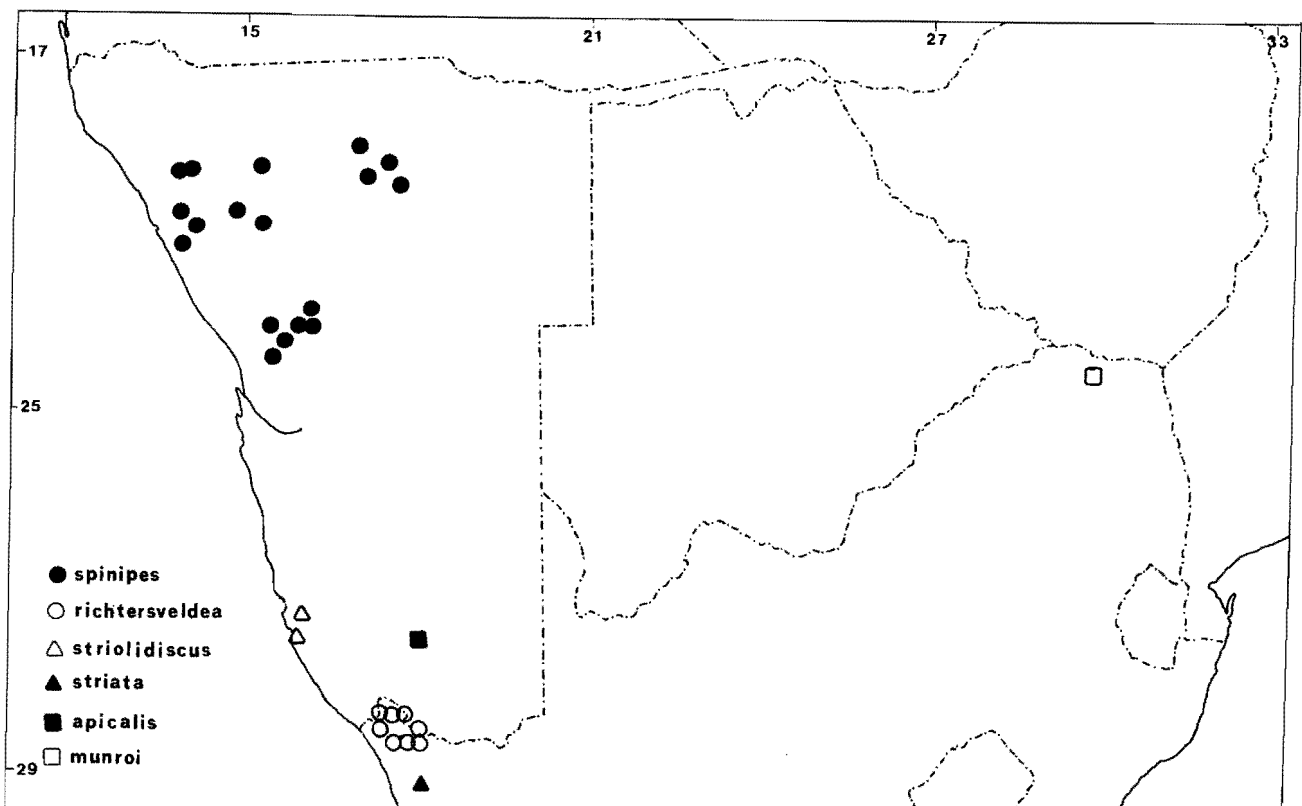


Fig. 36. Distribution of *Horatoma spinipes*, *H. richtersveldea*, *H. striolidiscus*, *H. striata*, *H. apicalis* and *H. munroi*.

long penultimate segment, with subconical apex (Fig. 34B,C). Frons with elongate granules and white scales, and with procumbent setae.

Pronotum strongly transverse, sides subparallel, indicated by a row of granules, posterior angles feebly carinate; proepisterna just visible from above. Vestiture abraded in all specimens examined, but apparently mainly concentrated in a pair of lateral stripes; with long strioliform ridges and moderate recumbent pale setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules elongate, flanked by rows of punctures; intervals with fine, scattered punctures. Sutural interval apparently with dense white scales and no secondary granules; intervals 2–5 and lateral interval with rather sparse vestiture, without strioliform secondary granules. Lateral margin consisting of two rows of granules, flanked by punctures, interval with granules. Deflected part at least partly scaled, extensively punctate, with one complete or incomplete row of short strioliform granules. Epipleural row consisting of short subspherical to strioliform granules, subtended by punctures. Granules of primary rows as well as secondary granules bearing long, bristle-like, erect brownish setae.

Prosternum in front of procoxa more than half of procoxal length; apophysis narrow, bilobed. Proepisterna with rather large, scattered, subspherical granules. Mesosternum callose anteriorly. Mesosternal apophysis broad, about one-and-a-half times as broad as mesocoxa. All sternites scaled, with long, erect setae emerging from small, scattered granules; length of abdominal setae not dimorphic.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on ventral surface. Male profemur with a low ridge on anteroventral surface near base (Fig. 34D). Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, weakly compressed, bristly. Metatibial calcaria spiniform (male) to foliaceous (female). Tarsi slender, with short bristles; metatarsi much shorter in female; first metatarsal segment about as long as ungual segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 4.2 mm (TM): Visrivier Canyon, SWA, SE 2717 Ba, VII.1978, E. Holm. Allotype ♀, elytral length 4.6 mm (TM): same data as holotype. Paratypes: 4♂ (TM), 1♂, 5♀ (SMW): (2) same data as holotype; (2) S.W. Afr., Southern, Fish Riv. canyon, top, 27.36S 17.37E / 7.9.1985; E-Y:2230, from under stones, leg. Endrödy-Younga; (5) Churutabis 108, Bethanien, SE 2717 Ad, 4–12 Oct. 1974 / H 21089 [leg. J.B.U. Tebje]; (1) Geiaus 6, Karasburg, SE 2717 Da, 13–17 Oct. 1974 / H 21308 [leg. J.B.U. Tebje].

Season. Winter to spring (July, September, October).

Habitat. Under stones.

Distribution (Fig. 39). Southern Fish River area, Namibia.

Remarks. In the single male from Churutabis, the apical antennal segments are proportionately longer than the five males from the Fish River canyon, but the difference is slight, and there are no other differences.

Horatoma piscefluminis differs from *H. batesi*, *H. richtersveldeae* and *H. apicalis* in the less distinct carination of the posterior pronotal angles, the longer elytral setation, and details of the male apical antennal segments.

Etymology. The name of the new species is derived from the Fish River, along which it occurs.

Horatoma spinipes (Koch) comb. nov., Fig. 36

Parapachynotela spinipes Koch, 1952: 58.

Parapachynotela spinipes grisea Koch, 1952: 58. **syn. nov.**

Parapachynotela aureosetosa Koch, 1952: 56. **syn. nov.**

Diagnosis. Pronotum strongly transverse, with strong strioliform ridges; posterolateral angles not carinate. Elytra with five primary granular rows, secondary intervals with strioliform granules. Apical antennal segments subspherical, larger in male. Male profemur with low basal ridge.

Description. Size small to medium, elytral length 3.6–8.7 mm. Integument reddish brown to black, vestiture of elytra usually subtly bicoloured, mingled light brown and white, scales of ventral surface and appendages white.

Head large, almost as broad as pronotal base. Clypeus emarginate apically, sides rounded, convergent, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, with short, scale-like setae. Antennae with apical two segments enlarged in both sexes, larger in male, subspherical, with subconical apex. Frons with elongate granules and white scales, and with procumbent setae.

Pronotum strongly transverse, sides slightly rounded, indicated by a row of widely spaced granules; proepisterna just visible in dorsal view. Vestiture often confined to an interrupted median stripe and a pair of lateral stripes of scales, white or off-white, sometimes more extensive; with long strioliform ridges and long semi-erect golden to dark brown setae, particularly long laterally.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, flanked by rows of punctures, sometimes obscured by vestiture. Sutural interval usually with dense scales and no secondary granules; intervals 2–6 variably with bare patches surrounding strioliform secondary granules. Lateral margin consisting of two rows of granules, interval between them about as wide as a discal secondary interval, with a medial row of strioliform granules, these with or without narrow bare surrounding area. Deflected part scaled, white, with a complete or incomplete, somewhat irregular row of strioliform granules below lateral row. Epipleural row consisting of short strioliform granules. Granules of primary rows bearing long, bristle-like, erect or semi-erect golden to brown setae; secondary granules along midline of intervals bearing similar setae.

Prosternum in front of procoxa about half of procoxal length, apophysis narrow, subtruncate. Proepisterna with medium-sized, moderately dense, shiny granules, with long setae. Mesosternum with large tubercle anteriorly. Mesosternal apophysis broad, almost twice width of mesocoxa. Mesepisternum entirely scaled. All sternites scaled, with moderately long, fine setae emerging from minute granules;

abdominal setae slightly longer in female.

Legs moderately slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal, ventral and anterior surfaces. Male profemur with low ridge on anteroventral margin near base. Tibiae with long bristles; protibia compressed, dorsal surface toothed. Meso- and metatibia straight, weakly compressed. Metatibial calcaria spiniform (male) to subfoliaceous or foliaceous (female), moderately long. Metatarsi dimorphic, slender in male, shorter and stouter in female, with short bristles; first metatarsal segment about equal in length to ungual segment.

Aedeagus simple, extremely slender.

Material examined. Holotype, *spinipes*: ♀, elytral length 6,1 mm (TM): Franzfontein, Kaokoveld, 16-V-48, Koch.

Holotype, *grisea*: ♂, elytral length 4,7 mm (TM): Warmquelle (Sesfontein) Kaokoveld; July 1951, H. Hall.

Holotype, *aureosetososa*: ♀, elytral length 6,9 mm (HMNH): D.S.W. Afrika, Karibib.

Other material: 8♂, 10♀, 3 ex. (TM), 38♂, 56♀ (SMW); 1♀ (HMNH); localities: Ameib; Daheim; Ebony; Erongo West; Gaub-Pad; Ghaub; Hoas; Karibib; Moçamedes/Rio Curoca; Namutoni; Otjiguinas; Otjitambi; Palmwag; Rössing Mine; Rössing Mts, Lower Dome Gorge; Sesfontein, 6 km SSE; Spitzkoppe; Torraabaai turnoff, 25 km W, 30 km W.

Season. Summer to winter (February – July); cadavers were collected in September and November.

Habitat. Sandy areas, under stones.

Distribution (Fig. 36). Northern pro-Namib Desert and adjacent inland area, Namibia.

Remarks. Koch (1952) separated *aureosetososa* from *spinipes* by the so-called duplicate pilosity of the elytra (mixed erect and recumbent setae) and the hypertrophied metatibial calcaria. At the time, there were only three specimens: the female holotypes of *aureosetososa* and *spinipes*, and the male holotype of *grisea*. Examination of new material from a number of localities in northern Namibia and Angola indicates that the setation is normally erect, but with poor preservation particularly the thinner setae become adherent, giving the impression that both erect and recumbent setae are present. All the specimens, including the holotypes of *spinipes* and *grisea*, have a mixture of stouter and more slender setae, and the colour of the setae varies in individuals from golden to dark brown. The metatibial calcaria vary considerably in thickness among females, with the extremely broad and foliaceous metatibial calcaria of the holotype of *aureosetososa* at the extreme range of variation. Since specimens compatible with the holotypes of both *aureosetososa* and *spinipes*, as well as intermediates, were found at Karibib and Rössing, the two species are synonymized. The subspecies *grisea* was distinguished from the nominate subspecies mainly by the longer meso- and metatarsi, a sexually dimorphic character. Koch (1952) suggested that the differences between the two specimens on which he based his subspecies might represent sexual dimorphism, and was proved correct by the new material.

***Horatoma munroi* (Koch) comb. nov., Fig. 36**

Parapachynotela munroi Koch, 1952: 58.

Diagnosis. Description as for *Horatoma spinipes*, but anterior pronotal margin peculiar, forming five denticles.

Material examined. Holotype (sex not determined), elytral length 4,0 mm (NCI): Njelele Res., N. Tvl. Sept. 1939, W.H. Ghent / S.N. 3667 / Com. Inst. Ent. Coll. No 11247.

Season. Spring (September).

Distribution (Fig. 36). Known only from the type locality in Northern Transvaal, South Africa.

Remarks. Apart from the denticulate anterior pronotal margin, *H. munroi* is compatible with *H. spinipes*. The thin anterior pronotal margin of the holotype and only known specimen of *H. munroi* may be damaged or malformed. The type locality of *H. munroi*, which is presumed to be correct, is situated in an eastern extension of the Kalahari. A trans-Kalahari distribution of *H. spinipes* could be established by the collection of further specimens.

***Horatoma peringueyi* (Koch) comb. nov., Fig 35**

Parapachynotela peringueyi Koch, 1952: 59.

Diagnosis. Pronotum with lateral margins sinuate, carinate over most of length. Elytra with five primary granular rows on disc, three granular rows forming lateral margin, and three complete rows of strioliform granules on deflected part, as well as epipleural row; all rows flanked by punctures. Apical antennal segments of male subspherical, slightly enlarged. Male profemur with small basal tubercle. Colouring striking, brown and white with tomentose patches.

Description. Size medium, elytral length 4,6–6,8 mm. Integument reddish brown, vestiture of elytra tricoloured, creamy to light brown, dark brown and white, scales of ventral surface and appendages white.

Head large, almost as wide as pronotum. Clypeus emarginate anteriorly, sides straight, convergent, separated from gena; supra-antennal portion of gena slightly raised. Eyes reniform, with short setae. Antennae with apical two segments enlarged in both sexes, larger in male, subspherical, apical segment with subconical apex, penultimate segment of male shorter than preceding two segments together. Frons with elongate granules and white scales, more concentrated laterally, and with long semi-erect to procumbent dark setae.

Pronotum strongly transverse, sides sinuate, diverging anteriorly, carinate from a short distance behind anterior angle; proepisterna visible in dorsal view. Vestiture white, consisting of antero- and posteromedian patches of scales and a pair of medially interrupted lateral stripes; with long strioliform ridges and long semi-erect dark setae.

Elytra broader than pronotum, sides weakly rounded; humeri produced, embracing elytral base; with five primary granular rows on disc, granules elongate and strongly raised. Rows flanked by punctures masked by vestiture of scales.

Colouring variable in detail; sutural interval with dense white and brown scales and a tomentose dark ridge on disc, no secondary granules; intervals 2–4 variably with patches of white and light brown scales, interrupted by dark tomentose areas forming patches or stripes; with strioliform secondary granules partly variably surrounded by bare patches. Fifth and lateral intervals with light brown and white vestiture interrupted by small secondary granules. Lateral margin consisting of three rows of granules, converging anteriorly, with punctures between them. Deflected part bare in upper half, scaled in ventral half, white, with three complete rows of strioliform granules, sometimes interspersed with other strioliform granules; all rows flanked by punctures. Epipleural row consisting of short strioliform granules, each ventral to puncture. Granules of primary rows bearing long, bristle-like, erect dark setae.

Prosternum in front of procoxa about one-third of procoxal length, apophysis narrow, rounded. Proepisterna with large, dense, broad and elongate granules; bare. Mesosternum with large tubercle anteriorly. Mesepisternum variably with apex covered in scales, bare, or weakly callose. Mesosternal apophysis slightly broader than mesocoxa. All sternites scaled, with long, coarse, semi-erect to semi-recumbent bristles, emerging from moderately large (largest on abdominal sternites) round granules; length of abdominal setae not dimorphic.

Legs slender, moderately long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with small tubercle at base of anteroventral edge. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform in male to foliaceous and long in female. Tarsi slender to very slender, compressed, longer in male, with short bristles; first metatarsal segment much longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, not measured (SAM): Namaqual. O'okiep, Sep. 90 [on back of label]. Allotype ♀, elytral length 5.7 mm (SAM): same locality as holotype, Oct. 1885, L.P. Paratypes: 2♂ (SAM), 1♂, 1♀ (TM): (2) same data as holotype, (1) same locality as holotype, 8.11.85, L.P.; (1) Namaqua L., Springbok, 10.90.

Other material: 1♂, 1♀ (TM), 1 cadaver (examined by Koch but excluded from type series) (SAM), 1♂ (NCl), 7♂, 1♀ (NMBL); localities: Eselsfontein; Springbok; Springbok, 15 mi. N, 13 km N.

Season. Spring (September – November).

Distribution (Fig. 35). Namaqualand, South Africa.

***Horatoma pulcherrima* (Koch) comb. nov., Fig. 35**

Saccophorella pulcherrima Koch, 1952: 48.

Diagnosis. Pronotum with very fine long strioliform ridges. Elytra strikingly patterned in white and shades of brown, with long setae, granules of primary rows almost obscured by vestiture of scales. Apex of mesepisternum usually with raised

bare callosity; mesosternum with large anterior tubercle. Penultimate segment of male antenna oblong, as long as preceding two segments together. Male profemur with large oblong basal tubercle.

Description. Size medium, elytral length 4.4–6.6 mm. Integument reddish brown to black, vestiture of elytra tricoloured, light brown, dark brown and white, scales of ventral surface and appendages white.

Head moderately large, about three-fourths of pronotal width. Clypeus emarginate anteriorly, sides parallel, straight, separated from gena; supra-antennal portion of gena strongly raised. Eye reniform, with short stout setae. Antennae with apical two segments enlarged in both sexes, larger in male, with penultimate segment oblong, as long as preceding two segments together, apical segment slightly shorter; subcylindrical in female. Frons with elongate granules and white scales, and with procumbent dark setae.

Pronotum little wider than long, sides subparallel, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture variable, but a median stripe and a pair of lateral stripes usually discernible, former sometimes interrupted, latter broadening posteriorly, white; with long very fine strioliform ridges and long semi-erect to recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, granules minute and almost obscured by vestiture of scales. Sutural interval with dense white scales and no secondary granules; intervals 2 and 3 partly to entirely occupied by an area of light brown scales with a dark edge forming a characteristic pattern, otherwise white, intervals 4 and 5 and lateral interval with white scales, in interval 4 interrupted by extensions of dark scales from interval 3, sometimes surrounding bare patches with secondary granules. Secondary granules variably developed in fifth and consistently developed in sixth interval. Lateral margin consisting of three rows of dentiform granules, approximated, narrow intervals between them with white scales. Deflected part scaled, bicoloured brown and white, with one complete and one incomplete row of short strioliform granules; area between rows brown, areas above and below white. Upper white area interrupted by bare patches surrounding strioliform granules. Epipleural row consisting of short strioliform granules with prominent punctures dorsal to them. Granules of primary rows bearing long, bristle-like, erect dark setae.

Prosternum in front of procoxa about one-third of procoxal length, apophysis narrow, truncate. Proepisterna with small, sparse, round to strioliform granules. Mesosternum with large tubercle anteriorly. Apex of mesepisternum usually with raised bare callosity. Mesosternal apophysis moderately narrow, as broad as mesocoxa. All sternites scaled, with moderately long to long (female abdomen) coarse, semi-recumbent dark setae emerging from small granules.

Legs moderately slender, long. Femora, tibiae and tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on ventral surface. Male profemur with large oblong tubercle near base of anteroventral surface. Tibiae with long bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to long, foliaceous (female). Tarsi moderately slender, with long bristles; meso- and metatarsi

dimorphic, shorter in female; first metatarsal segment longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 5,4 mm (TM): Steinkopf, Namaqualand, 15-XII-1948, Koch & van Son. Paratypes: 2♂ (TM): Steinkopf, Na., 16.XI.1949, C. Koch. (A third paratype mentioned in the original description was not found.)

Other material: 1♂, 3♀ (SMW); locality: Henkries turnoff, 8–12 km E.

Season. Spring and summer (October – December).

Habitat. Sandy plains with vegetation.

Distribution (Fig. 35). Namaqualand to Bushmanland, South Africa.

***Horatoma tuberculata* Haag, Fig 35**

Horatoma tuberculata Haag, 1872: 310; Gebien, 1937: 193.

Saccophorella tuberculata: Koch, 1952: 52.

Diagnosis. Pronotum with long strioliform ridges, posterolateral angle finely carinate. Elytra with unicoloured, greyish scales; tubercles of secondary intervals very large and broad. Mesosternal apex bare and raised; mesosternum with large anterior tubercle. Penultimate segment of male antenna round, shorter than preceding two segments together. Male profemur with small, prominent basal tubercle.

Description. Size medium, elytral length 4,5–5,5 mm. Integument reddish brown to black, vestiture of elytra unicoloured, greyish, scales of ventral surface and appendages white.

Head large, almost as wide as pronotum. Clypeus emarginate, sides straight, very weakly convergent, separated from gena; supra-antennal portion of gena scarcely raised. Eye narrowly reniform, with short setae. Antennae with apical two segments enlarged in both sexes, slightly larger in male, subspherical, penultimate segment of male slightly shorter than preceding two segments together. Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum strongly transverse, sides subparallel, indicated by a row of granules, posterolateral angles finely carinate; proepisterna just visible in dorsal view. Vestiture extensive, but an interrupted median stripe and a pair of lateral stripes usually discernible, latter broadening posteriorly, white; with long strioliform ridges and short recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, granules fine and elongate. Sutural interval with dense white scales and no secondary granules; other intervals with unicoloured vestiture, intervals 2 and 4 and lateral interval with large and broad strioliform secondary granules. Lateral margin consisting of three rows of widely spaced granules. Deflected part scaled, white, with one complete median row of short subspherical granules, ventral to a row of punctures, and with a row of large, spaced, strioliform granules dorsal and ventral to punctures. Epipleural

row consisting of short strioliform granules, ventral to a conspicuous row of punctures. Granules of primary rows bearing short, bristle-like, semi-erect dark setae.

Prosternum in front of procoxa less than one-third of procoxal length; apophysis narrow, truncate. Proepisterna with moderately large dense granules. Mesepisternal apex bare, callose. Mesosternum with large tubercle anteriorly. Mesosternal apophysis distinctly broader than mesocoxa. All sternites scaled, with short (thoracic sternites) to moderately long (abdominal sternites) dark recumbent setae emerging from minute granules, abdominal setae not dimorphic.

Legs moderately long and stout. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with small prominent tubercle at base of anteroventral edge. Tibiae with long bristles; protibia subcylindrical, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to subfoliaceous (female), long. Tarsi slender to very slender, stouter and shorter in female, with short bristles; first metatarsal segment longer than unguis segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♀, elytral length 6,6 mm (SSM): Cap, Kraatz / *Horatoma tuberculata* / Sammlung Haag-Rutenberg / *tuberculata* Haag / Type: *Horatoma tuberculata* Haag-R. [pink].

Other material: 1♂, 1♀ (TM), 1♂ (SAM); localities: Garies, 15 mi. W; Swart Doring R.

Season. Spring and early summer (October, November).

Distribution (Fig. 35). Namaqualand, South Africa.

***Horatoma squamicollis* (Koch) comb. nov., Fig. 38**

Saccophorella squamicollis Koch, 1952: 49.

Diagnosis. Size medium, elytral length 5,7–6,3 mm. Description as for *H. tuberculata* except as follows: vestiture of elytra bicoloured, dark brown and off-white; sides of clypeus rounded; scales of frons more evenly distributed; pronotum with fine strioliform granules, areas between them covered with scales, a pair of lateral, denser stripes just discernible.

Elytra with five primary rows of strongly raised, briefly elongate granules; sutural interval with dense off-white scales and no secondary granules; intervals 2–4 variably with dark tomentose patches and off-white scales, and with small round to large strioliform secondary granules. Lateral two intervals with off-white scales and small secondary granules, more numerous in lateral interval; middle marginal row variably reduced; deflected part scaled, bicoloured, dark brown and white, with one complete median row of short strioliform granules.

Prosternum in front of procoxa less than half of procoxal length; apophysis bilobed; proepisterna with moderately large and dense round granules; mesosternal apophysis much broader than mesocoxa; setae of abdominal sternites dimorphic, much longer in female. Tibial bristles moderate.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 5,7 mm (SAM): Bushmanland, 1907.

Other material: 1♀ (TM); locality: Nieuwoudtville.

Season. Spring (October).

Distribution (Fig. 38). The type locality is vague, and refers to the area of the northern Cape east of Namaqualand. Nieuwoudtville is situated east of the Cedarberg Mountains in the western Cape, South Africa.

***Horatoma horatomoides* (Koch) comb. nov., Fig. 38**

Saccophorella horatomoides Koch, 1952: 54.

Diagnosis. Size medium, elytral length 5,2–6,1 mm. Description as for *H. tuberculata*, except as follows: vestiture of elytra bicoloured, dark brown and greyish white. Pronotal lateral margin sharply raised and carinate at posterolateral angles; most of vestiture concentrated in an interrupted median stripe and a pair of lateral stripes.

Elytra with granules of primary rows strongly raised, ovate, shiny; intervals 2–5 variably with dark brown tomentose patches and off-white scales, largest tomentose patches at base of third interval; intervals with variable sparse small to numerous large secondary granules; lateral interval with large secondary granules and with patches of tomentose dark scales; middle row of lateral margin poorly developed; deflected part bicoloured, white with dark brown subhumeral patch, and with irregular small round granules, not forming distinct rows. Prosternal apophysis weakly bilobed; mesosternal apophysis much broader than mesocoxa; abdominal setation long in female, short in male.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 6,1 mm (TM): Oograbies, L. Namaquald, 30.VIII.50, C. Koch, G. van Son. Paratype ♂ (TM): same data as holotype.

Other material: 1♂ (TM), 1♂, 1♀ (SAM), 1♀ (NMBL); localities: Eksteenfontein; Lekkersing, 5 km on Gemsbokvlei road at 29.03S 17.05E; Oograbies.

Season. Spring (August – October).

Distribution (Fig. 38). Richtersveld, South Africa.

Horatoma striata spec. nov., Figs 36, 60

Diagnosis. Size medium, elytral length 5,3–7,3 mm. Description as for *H. tuberculata* except as follows: vestiture of elytra tricoloured, light brown and white, with black tomentose patches. Scales of pronotum sparse or absent except for an interrupted median stripe and a pair of lateral stripes, the latter broadening posteriorly, white.

Elytra with sides subparallel; granules of primary rows large, elongate and strongly elevated; third primary row sometimes partly double, usually partly flanked by black tomentose scales; pattern striped, sutural interval with dense black tomentose scales and no secondary granules; intervals 2 and 4 with mainly dark vestiture, intervals 3 and 5 usually

particoloured white and light brown; second and third intervals without secondary granules, fourth and fifth usually without secondary granules, but variably with bare patches surrounding small secondary granules, lateral interval with patches of white scales alternating with bare patches surrounding moderately large ovate secondary granules; rows of lateral margin with irregular punctures between them; deflected part with one complete submedian row of subspherical to short strioliform granules. Mesosternum with large double tubercle anteriorly. Abdominal sternites with stout, dark, recumbent setae, much longer in female than in male.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 5,6 mm (SMW): Spektakelberg, Cape, R.S.A., 29.41S 17.40E, 13–15 Sept. 1982, M.-L. Penrith / H 54507. Allotype ♀, elytral length 6,7 mm (SMW): same data as holotype. Paratypes: 2♂, 2♀ (SMW, 1 in TM), 2♂ (NMBL): (4) same data as holotype; (2) S. Africa, C.P., Spektakelberg, on Schaap Rivier 1015, Namaqualand, 29.41S 17.40E, 13–15 Sept. 1982, S. Louw / NMBH 8566.

Season. Spring (September).

Habitat. On compact soil, at base of plants.

Distribution (Fig. 36). Namaqualand, South Africa.

Remarks. This species is distinguished from all other species with a callose mesepisternum by the striped elytral pattern and the entirely black and tomentose vestiture of the sutural interval. The elytra are more rounded than in *H. crenulata*, the only other species that sometimes has a black sutural interval.

Etymology. The name of the new species refers to its striped pattern.

***Horatoma antennalis* (Koch) comb. nov., Fig. 38**

Saccophorella antennalis Koch, 1952: 54.

Diagnosis. Pronotum with long strioliform ridges. Proepisterna with mainly elongate to strioliform granules. Elytra bicoloured, primary rows of fine, elongate, elevated granules. Apex of mesepisternum raised, bare. Male with penultimate segment of antenna oblong, as long as preceding two segments together.

Description. Size small, elytral length 3,8–5,7 mm. Integument reddish brown to black, vestiture of elytra bicoloured, light or dark brown and white, scales of ventral surface and appendages white.

Head moderately large, more than half of pronotal width. Clypeus emarginate anteriorly, sides rounded, weakly convergent, scarcely separated from gena; supra-antennal portion of gena distinctly raised. Eye reniform, with short setae. Antennae with apical two segments enlarged in both sexes, larger in male, penultimate segment oblong, as long as preceding two segments together, longer than apical segment; in female subspherical. Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row

of granules, posterior angles carinate; proepisterna just visible in dorsal view. Vestiture variable, scales concentrated in an interrupted median stripe and a pair of lateral stripes, latter broadening posteriorly, white; with long strioliform ridges and short recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, granules fine, strongly raised and elongate. Sutural interval anteriorly with tomentose brown scales, otherwise with dense white scales and no secondary granules; intervals 2–4 variably with white scales and brown tomentose patches, and with scattered, short, strioliform secondary granules. Fifth and lateral intervals with white scales; one or two secondary granules in fifth interval and several in lateral interval. Lateral margin consisting of three rows of granules, middle row often incomplete. Deflected part scaled, white, with one complete median row of short strioliform granules. Epipleural row consisting of short strioliform granules. Intervals between median row and marginal and epipleural rows variably with sparse granules. Granules of primary rows bearing short, bristle-like, semi-erect pale setae.

Prosternum in front of procoxa less than half of procoxal length, apophysis narrow, subtruncate. Proepisterna with broad, moderately dense strioliform granules. Mesosternum with large tubercle anteriorly. Mesepisterna with apex bare, callose. Mesosternal apophysis slightly broader than mesocoxa. Sternites scaled, with moderately long, semi-erect to semi-recumbent setae emerging from small granules; abdominal setae not dimorphic.

Legs slender, moderately long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with low tubercle at base of anteroventral edge. Tibiae with long bristles; protibia subcylindrical, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to subfoliaceous (female), long. Tarsi slender to very slender, much longer in male, with short bristles; first metatarsal segment slightly longer than unguis segment.

Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 4,8 mm (TM): Klipfontein, 16.11.1933, G. van Son.

Other material: 6♂, 1♀ (SMW), 8♂, 1♀ (NMBL); locality: Spektakelberg.

Season. Spring to early summer (September, November).

Habitat. At the base of plants on fairly compact soil.

Distribution (Fig. 38). Northern Namaqualand, South Africa.

Remarks. The type locality was incorrectly given by Koch (1952) as Lekkersing.

***Horatoma dutoiti* spec. nov., Figs 37, 38**

Diagnosis (male holotype). Size small, elytral length 5,0 mm. Description as for *H. antennalis*, but sides of clypeus more distinctly separated from gena; eye very large, supra-anten-

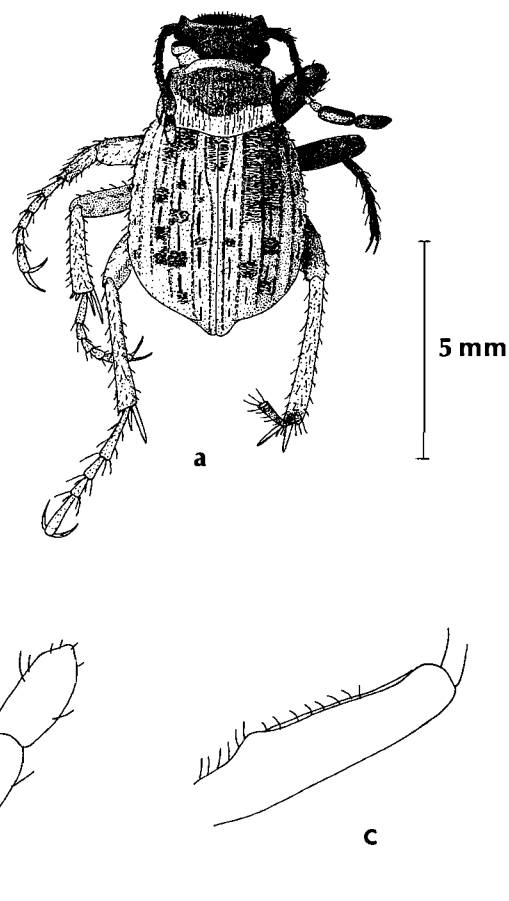


Fig. 37. *Horatoma dutoiti* spec. nov. A: habitus, male; B: male antenna, terminal segments; C: male profemur, anteroventral margin.

nal portion of gena strongly raised; apical antennal segments of male antenna very elongate, penultimate segment longer than preceding three segments together, longer than apical segment (Fig. 37B); primary rows of elytra, median row on deflected part of elytra, and epipleural row flanked by distinct rows of punctures; proepisterna with scattered, round granules; sternites (male) with short, recumbent setae. Male profemur with a small tubercle near base (Fig. 37C).

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 5,0 mm (SAM): Outiep, Garies, Namaqualand / J. du Toit, Sept. 1953 [on back].

Season. Spring (September).

Distribution (Fig. 38). Known only from the type locality in Namaqualand, South Africa.

Remarks. This species differs from all others with a mesepisternal callosity in the strongly enlarged apical segments of the male antennae. The only other species in this group with strongly dimorphic antennae with the apical segments of the male somewhat elongate is *H. antennalis*, but the apical segments of *H. dutoiti* are much longer; it differs also from *H. antennalis* in the characters listed in the diagnosis.

Etymology. The name of the new species is derived from that of the collector, not known to us, whose name is on the label.

***Horatoma convexicollis* spec. nov., Figs 38, 61**

Diagnosis. Pronotal disc with a prominent, raised and rounded convexity in the middle; sculpture consisting of long strioliform ridges. Apical segments of male antennae moderately enlarged, subspherical. Mesepisternum with apex bare, callose.

Description. Size medium, elytral length 4.5–8.1 mm. Integument reddish brown to black, vestiture of elytra weakly bicoloured, cream to light brown and white, scales of ventral surface and appendages white.

Head large, almost as wide as pronotum. Clypeus emarginate anteriorly, sides straight, convergent, separated from gena; supra-antennal portion of gena raised. Eye reniform, with short, scale-like setae. Antennae with apical two segments enlarged in both sexes, larger in male, penultimate segment only slightly longer than preceding segment, subspherical. Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum strongly transverse, sides weakly rounded, indicated by a row of granules; proepisterna just visible in dorsal view. Middle of disc callose (Fig. 61). Vestiture white, an interrupted median stripe and a pair of lateral stripes usually discernible; with long strioliform ridges and very short recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc. Vestiture of mixed creamy to light brown and white scales, without distinct pattern. Sutural interval with dense scales and no secondary granules; intervals 2–5 (especially 2–4) interrupted by large elevated cariniform secondary granules. Lateral interval with vestiture interrupted by numerous short strioliform secondary granules. Lateral margin consisting of three rows of small subdentiform granules, approximated, intervals punctate. Deflected part scaled in lower two-thirds, usually bicoloured as elytral disc, with a few incomplete rows of small granules and punctures in upper half, lower part with some irregular granules and punctures. Epipleural row consisting of small granules subtending distinct punctures. Granules of primary rows bearing very short, bristle-like, recumbent dark setae.

Prosternum in front of procoxa about one-third of procoxal length. Proepisterna with moderately large and dense granules. Mesosternum with low tubercle anteriorly. Mesepisterna with apex bare, callose. Mesosternal apophysis moderately broad, distinctly broader than mesocoxa. All sternites scaled, with short to moderately long, semi-recumbent setae emerging from scattered round granules.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Profemur of male with elongate tubercle on anteroventral edge near base. Tibiae with short bristles; protibia weakly compressed, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to subfoliaceous (female), long. Tarsi slender to very slender, shorter in female, with short bristles;

first metatarsal segment much longer than unguis segment. Aedeagus simple, moderately slender.

Material examined. Holotype ♂, elytral length 5.4 mm (TM): S. Afr., Richtersv., Doringpoort, 28.34S 16.56E / 7.9.1976; E-Y:1230, from under stones, leg. Endrödy-Younga. Allotype ♀, elytral length 5.7 mm (TM): S. Afr., Richtersveld, Upper Holgat, 28.43S 17.07E / 7.9.1976; E-Y:1232, groundtraps, 33 days, leg. Endrödy-Younga / groundtrap with meat bait. Paratypes: 6♂, 4♀, 2 headless ex. (TM), 3♂, 1♀ (SMW), 4♂, 5♀ (SAM), 1♂ (NCI): (5) same data as holotype; (1) S. Afr., Richtersveld, Oranje valley flats, 28.28S 16.51E / 3.9.1976; E-Y:1213, groundtraps, 37 days, leg. Endrödy-Younga / groundtrap with meat bait; (1) Kuboes 14 km W, 28.33S – 16.57E / 29.9.91 leg. Endrödy-Younga, E-Y: 2812, (2) Richtersveld, Kuboes-Ekst, 146 km W, 28.33S – 16.57E / 29.9.91; E-Y:2813, ground & veget., leg. Endrödy-Younga; (1) 9 m. N Dolomite Peaks, Richtersveld, C.P., S. Afr., 29.xi.62, H.D. Brown; (1) 4 m. N Dolomite Peaks, Richtersveld, C. Prov., S. Afr., 11.xi.1961, H. Dick Brown, W. Furst; (2) 10 m W of Kuboes, Richtersveld, 21.XI.1949, C. Koch; (1) Anniskop, Cape, R.S.A., 28.23S 16.53E, 20 Nov. 1975; / H 32081 [leg. M.-L. Penrith, R.E. Griffin, E. Mokgoabone]; (3) Annisfontein, Cape, R.S.A., SE 2816 Bd, 18–23 Nov. 1975 / H 31973 [leg. M.-L. Penrith, R.E. Griffin, E. Mokgoabone]; (7) S. Afr., C.P., Richtersveld, Skouerfontein, 9.X.80, Whitehead; (1) S. Afr., C.P., Jakkalsputs dunes, 8.X.80, Whitehead; (1) Blackie's Prospect, 2 mi. S., Richtersveld, 22.ix.1967, H.D. Brown.

Other material: 1 damaged cadaver (SAM), Bushmanland, 1907; not included in type series.

Season: Spring to early summer (September – November).

Distribution (Fig. 38). Richtersveld, South Africa.

Remarks. This species is distinguished from all other species of *Horatoma* by the raised and rounded convexity in the middle of the pronotum.

Etymology. The name of the new species, originally bestowed by Dr C. Koch on specimens in the collection, refers to the raised and rounded convexity in the middle of the pronotum.

***Horatoma crenulata* (Haag) comb. nov., Fig. 39**

Saccophorus crenulatus Haag, 1872: 304.

Saccophorella crenulata: Strand, 1935: 303; Gebien, 1937: 193; Koch, 1952: 52.

Saccophorella crenulata namaquoides Koch, 1952: 52. **syn. nov.**

Saccophorella namaqua Koch, 1952: 52. **syn. nov.**

Saccophorella namaquula Koch, 1952: 53. **syn. nov.**

Saccophorella fitzsimonsi Koch, 1952: 54. **syn. nov.**

Diagnosis. Pronotum with long strioliform ridges, posterolateral angles not sharply raised. Elytra oblong, bi- or tricoloured, with tessellate pattern and distinct, granular primary rows; broadest in middle third. Head narrower than pronotal base. Apex of mesepisternum bare, raised. Male apical antennal segments enlarged, rounded, shorter than preceding two segments together.

Description. Size medium to large, elytral length 4,3–9,1 mm. Integument reddish brown to black, vestiture of elytra usually tricoloured, greyish to light brown, dark brown and white, scales of ventral surface and appendages white.

Head large, almost as broad as pronotum. Clypeus emarginate, sides convergent, separated from gena; supra-antennal portion of gena scarcely raised. Eye reniform, with short setae. Antennae with apical two segments enlarged in both sexes, slightly larger in male, penultimate segment of male shorter than preceding two segments together, subspherical. Frons with elongate granules and off-white or white scales, slightly more concentrated laterally, and with short procumbent dark setae.

Pronotum strongly to very strongly transverse, sides weakly to distinctly sinuate, indicated by a row of granules, usually weakly carinate at posterior angles; proepisterna visible in dorsal view. Vestiture variable, but an interrupted or complete median stripe and a pair of lateral stripes discernible, latter broadening posteriorly, white or off-white; with long strioliform ridges and very short recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, usually wavy. Colouring variable, but sutural interval usually with dense greyish scales and no secondary granules; intervals 2–5 variably with bi- to tricoloured vestiture, usually with a pattern of dark tomentose patches, and variably interrupted by small round to fine or coarse strioliform secondary granules. Lateral interval with greyish scales interrupted by variable secondary granules. Lateral margin consisting of three rows of granules, middle row sometimes incomplete, intervals scaled. Deflected part scaled, usually bicoloured brown and off-white, often with conspicuous subspherical white patches, with or without a complete or incomplete row of short to long strioliform granules, and with or without irregular granules in upper part. Epipleural row consisting of round to short strioliform granules. Granules of primary rows bearing very short, bristle-like, semi-erect to recumbent dark setae.

Prosternum in front of procoxa about one-fourth of procoxal length, apophysis narrow, subtruncate. Proepisterna with moderately dense, distinct granules. Mesosternum with large double tubercle anteriorly. Mesepisternal apex bare and callose. Mesosternal apophysis broad, clearly broader than mesocoxa. Sternites scaled, with short (male) to moderately long (female) semi-recumbent to recumbent setae emerging from round granules.

Legs moderately slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Pro-, meso- and metafemora with bristle-like setae on proximal ventral surface. Male profemur with small tubercle on anteroventral edge near base. Tibiae with short bristles; protibia subcylindrical, dorsal surface toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria spiniform (male) to long and subfoliaceous (female). Tarsi slender, with moderately long bristles, not conspicuously dimorphic; first metatarsal segment much longer than ungual segment.

Aedeagus simple, moderately slender.

Material examined. Holotype, *crenulata*: ♂, elytral length 6,8 mm (SSM): Cap, Drege, Samml. Haag-Rutenberg.

Holotype, *namaquoides*: ♂, elytral length 8,3 mm (SAM): Namaqual. Spektakel, Nov. 1885, L. Péringuey. Allotype ♀,

elytral length 8,8 mm (SAM): same locality, 22.10.1890.

Holotype, *namaqua*: ♂, elytral length 6,0 mm (TM): betw. Soebatsfont. and Springbok, C.P., 17-XI-48, Koch/Son. Allotype ♀, elytral length 8,8 mm (TM): same data as holotype. Paratypes: 1♂, 1♀ (TM), 3♂, 1♀ (SAM): (2) same data as holotype; (4) Klip Vlei, Garies, Nov. 1931, Museum Staff.

Holotype, *namaquula*: ♂, elytral length 5,6 mm (SAM): Namaqual. O'okiep, Sept. 1890. Paratypes: 1♂ (TM), 1♂ (SAM): (1) O'okiep, 9.10.85; (1) Kamieskroon, Namaqualand, Museum Staff, Sept. 1930.

Holotype, *fitsimoni*: ♂, elytral length 6,0 mm (TM): P. Nolloth, Namaquald, 1-V-37, V. Fitzsimons.

Other material: 30♂, 15♀ (TM), 8♂, 7♀ (SMW), 28♂, 15♀ (NMBL), 14♂, 5♀ (SAM), 1♂ (SSM); localities: Anenous Pass, S; Buffels R. valley at 29.33S 17.27 E and 29.55S 17.40E; Bynes Krans; Eksteenfontein; Eselsfontein; Farquarson; Garies; Grass Flat, 36-mile; Klip Vlei, Garies; Nieuwoudtville; Nuwerust; Nuwerust/Vanrhynsdorp; Oorlog R.; Perdekraal farm; Rietpoort farm; Soebatsfontein – Hondeklipbaai at 29.55S 18.32E; Spektakel; Springbok; Springbok, 5 mi. E, 11 mi. SW on Buffels R.; Springbok, Mesklip; Vanrhynsdorp, E; Vanrhynsdorp, 32 mi. N.

Season. Autumn, and spring to early summer (April, August – November).

Habitat. Under plants on sandy to compact soils.

Distribution (Fig. 39). Throughout Namaqualand, South Africa.

Remarks. Koch (1952) based the species and subspecies here united under the oldest name, *crenulata* Haag, on real differences between the few specimens available to him. Examination of a large amount of new material showed these differences to be inconsistent within populations. We have therefore recognized *H. crenulata* as a single, widespread Namaqualand species that varies in details of colour pattern and sculpture. Three closely related, partly sympatric species, *H. angulata*, *H. cephalica* and *H. callosa*, differ consistently from *H. crenulata* as described below.

Horatoma angulata spec. nov., Figs 38, 62

Diagnosis. Size medium, elytral length 6,5–8,0 mm. Description as for *H. crenulata* except as follows: vestiture light brown, dark brown and white; head very large in all specimens, as broad as pronotal base or slightly broader; apical antennal segments not dimorphic; posterolateral angles of pronotum with sharply raised carinate edge; sides of elytra distinctly rounded; sutural interval with dense whitish scales, as well as a variable row of light brown scales; secondary granules of elytra extremely variable, from minute to very large and tuberculiform.

Material examined. Holotype ♂, elytral length 6,7 mm (TM): S. Afr., Namaq. coast, Hondeklipbay, 12 km E, 30.21S 17.25E / 30.8.1977; E-Y:1359, groundtraps, 58 days, leg. Endrödy-Younga / groundtrap with millipede bait. Allotype ♀, elytral length 7,9 mm (TM): S. Afr., Namaqualand, Rietpoort Farm, 30.59S 18.06E / 25.10.1979, E-Y:1651, on vegetated sand,

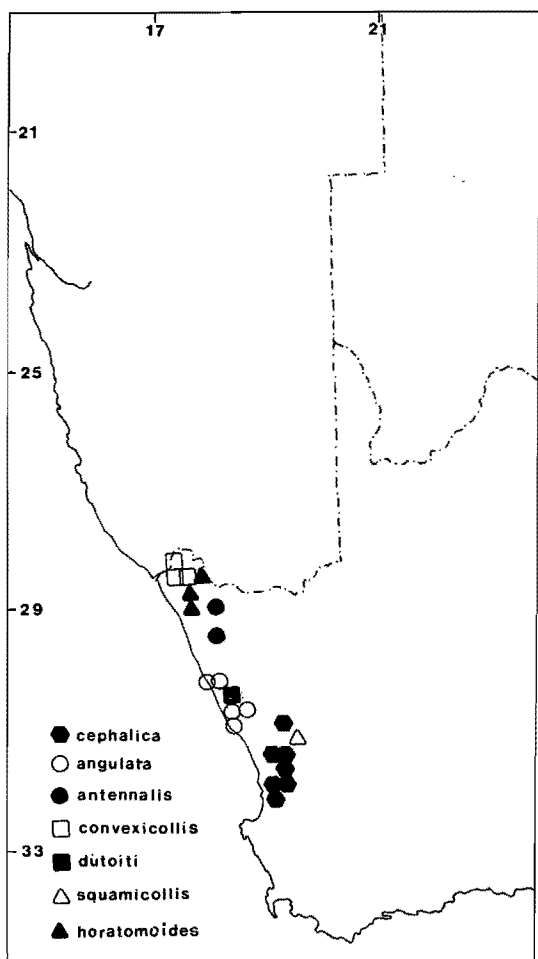


Fig. 38. Distribution of *Horatoma cephalica*, *H. angulata*, *H. antennalis*, *H. convexicollis*, *H. dutoiti*, *H. squamicollis* and *H. horatomoides*.

leg. Endrödy-Younga. Paratypes: 5♂, 5♀ (TM), 4♂, 1♀ (SMW), 2♂ (NMBL); (2) same data as holotype, but 1 with meat bait and 1 with faeces bait; (5) same data as allotype; (1) 11 m. N.E. Hondeklipbaai, C.P., S. Afr., 29.IX.67, H.D. Brown; (1) S. Afr., Namaqualand, Kotzesrus, 30.57S 17.50E / 23.8.1979, E-Y:1581, white dunes, day, leg. Endrödy-Younga; (1) S. Afr., Namaqualand, Katdoringvlei, 11.07S 17.52E / 28.10.1979, E-Y:1664, singled on sand, day, leg. Endrödy-Younga; (5) Bynes Krans, Cape, R.S.A., 30.20S 17.32E, 17 Sept. 1982, M.-L. Penrith / H 54648; (2) same locality and date, but S. Louw, NMBH 8730.

Season. Spring (August – October).

Distribution (Fig. 38). Namaqualand coast, South Africa.

Remarks. This species is distinguished from the similar species *H. crenulata* and *H. cephalica* by the sharply carinate posterior pronotal angles. It is further distinguished from *H. crenulata* by the characters listed in the diagnosis above.

Etymology. The name of the new species refers to the sharply carinate posterior pronotal angles (Latin, *angulus*, -a, -um, angular, cornered).

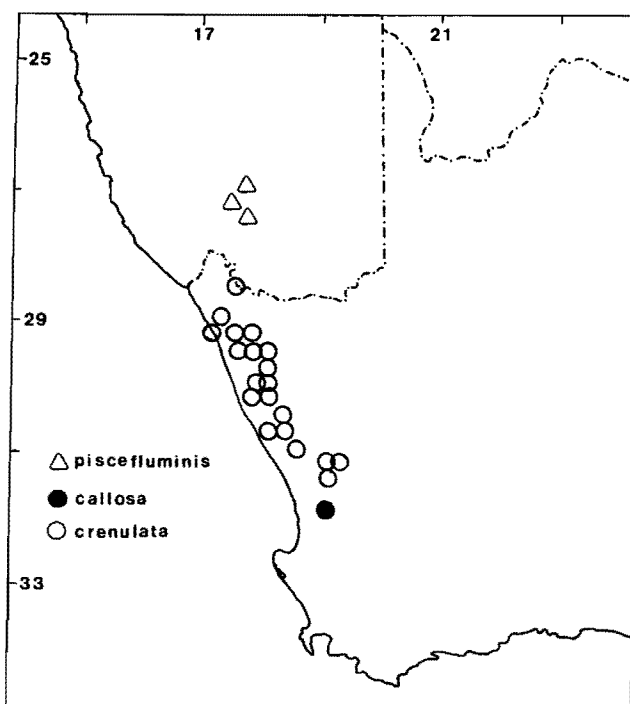


Fig. 39. Distribution of *Horatoma piscefluminis*, *H. callosa* and *H. crenulata*.

***Horatoma cephalica* (Koch) comb. nov., Fig 38**

Saccophorella cephalica Koch, 1952: 50.

Saccophorella cephalica pantherina Koch, 1952: 51. **syn. nov.**

Saccophorella lentiginosa Koch, 1952: 50. **syn. nov.**

Diagnosis. Size medium to large, elytral length 6,3–9,0 mm. Description as for *Horatoma crenulata* except as follows: vestiture of elytra usually tricoloured, light brown, dark brown and white, scales of ventral surface and appendages white or light brown and white. Head very large, as broad as pronotal base or broader; antennae not or slightly dimorphic. Pronotum strongly transverse, sides weakly rounded; strioliform ridges fine. Elytral sides diverging to posterior third, then rounded; sutural interval with dense white or white and light brown scales; lateral interval with patches of white scales alternating with bare patches surrounding secondary granules, or only interrupted by secondary granules; lateral margin consisting of two or three rows of granules, somewhat divergent, middle row varying from complete to absent; epipleural row consisting of short strioliform granules with a dorsal row of punctures. Prosternum in front of procoxa about one-third of procoxal length, apophysis rounded; setae of female abdominal sternites long.

Aedeagus simple, moderately slender.

Material examined. Holotype, *cephalica*: ♂, elytral length 7,1 mm (TM): Clanwilliam, 11-XI-1948, Koch & van Son. Allotype ♀: elytral length 8,1 mm (TM): same data as holotype. Paratypes: 13♂, 9♀ (TM), 1♀ (SAM): (12) same data as holotype; (1) Clanwilliam, Dr Brauns, Cape, Sept. 1928; (3)

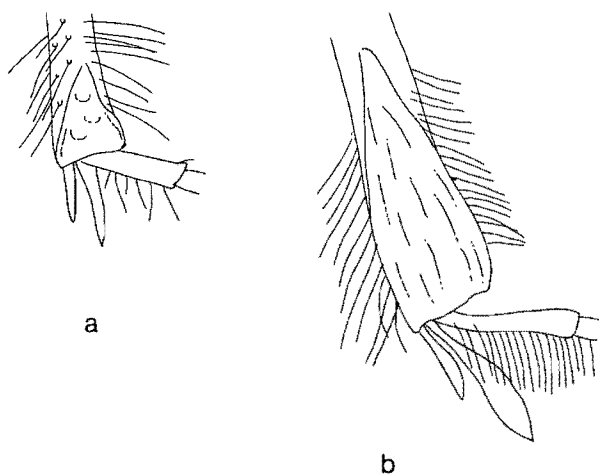


Fig. 40. Apex of metatarsus to show 'specular spot': A: *Pachynotelus damarinus* spec. nov.; B: *P. albonotatus* Haag.

Clanwilliam, 12-XI-49, C. Koch & Malkin; (3) Graafwater – Clanwilliam, IX.1928, Dr Brauns; (2) 12 m. before Klaver, 18-XI-48, C.P., Koch & van Son; (1) Vanrhynsdorp, VIII. 1929, Dr Brauns; (1) Knersvlakte N. of Vanrhynsdorp (S.A.M. Oct. 1950).

Holotype, *pantherina*: ♂, elytral length 7,0 mm (SAM); Leipoldville – Elands Bay, C.P., Mus. Exp., Nov. 1948. Paratypes: 4♂ (TM), 4 ex. (SAM): (8) same data as holotype.

Holotype, *lentiginosa*: ♀, elytral length 6,2 mm (TM); v Rhynsdorp, IX.1928, Dr Brauns. Allotype ♀, elytral length 6,2 mm (TM): same data as holotype. Paratypes: 2♂, 4♀ (TM), 3♂, 1♀ (SAM): (5) same data as holotype; (1) Van Rhynsdorp, 6–8.11.'33, G. van Son; (4) Olifants River bet. Citrusdal & Clanwilliam, C.P., Mus. Staff, Oct.–Nov. 1931.

Other material: 3♂, 7♀ (TM), 2♀ (SMW), 5♂, 1♀ (NMBL), 2♂, 5♀ (SAM); localities: Bulshoek; Clanwilliam; Clanwilliam, 4 mi. S; Klaver; Leipoldville; Olifants R. valley S. Klaver; Olyfheuwel; Vanrhynsdorp; Vredendal; Wiedou.

Season. Winter to spring (July – November).

Distribution (Fig. 38). Southern Namaqualand, South Africa.

Remarks. The differences between *H. cephalica*, the subspecies *pantherina* and the species *lentiginosa* are not significant at any level in the present group, and they are therefore synonymized with *H. cephalica*.

***Horatoma callosa* (Koch) comb. nov., Fig. 39**

Saccophorella callosa Koch, 1952: 49.

Diagnosis. Size medium to large, elytral length 5,9–9,6 mm. Description as for *H. cephalica* except as follows: strioliform ridges of pronotum shorter, mostly granules rather than ridges, more widely spaced than in *H. cephalica*; humeri formed by strong callosities bearing numerous tubercles; submedian granular row on deflected part of elytra fine or absent; median lateral row reduced to a few granules or absent.

Material examined. Holotype ♂, elytral length 8,4 mm (TM); Clanwilliam, C.P., 11-XI-1948, Koch & van Son. Allotype ♀, elytral length 9,6 mm (TM): same data as holotype. Paratypes: 4♂, 4♀ (TM): (5) same data as holotype; (3) 10 m. N of Clanwilliam, Namaquald, 12.XI.1949, Koch.

Season. Early summer (November).

Distribution (Fig. 39). Clanwilliam district, southern Namaqualand, South Africa.

Remarks. This species is similar to *H. cephalica*, with which it occurs sympatrically. The differences between the two species as listed in the diagnosis were consistent in the specimens examined.

Genus PACHYNOTELUS Solier

Pachynotelus Solier, 1840: 267; Haag, 1872: 306; Koch, 1952: 65.

Fossilochile Koch, 1952: 63. **syn. nov.**

Type species: *Pachynotelus albiventris* Solier, 1840 (by monotypy).

Diagnosis. Cryptochilina of small to large size (elytral length 3,2–14,5 mm), integument reddish brown to black, with vestiture of scales variably developed. Head moderately large to large, free, mouthparts not concealed by collar-like extension of prosternum. Mentum small, transverse. Occiput with long stridulatory file. Antennae 10-segmented, with apical segments weakly to strongly dimorphic, enlarged in both sexes. Apical segment entirely sericeous due to development of short, adherent setae.

Pronotum weakly to strongly transverse, lateral margins indicated at least at posterior angles, granular or evanescent. Proepisterna visible in dorsal view, convex. Inner surface of anterior margin with fine stridulatory ridges over a broad median area. Posterior margin straight, usually but not always embraced by humeri of elytra.

Elytra broader than pronotum, humeri usually produced to embrace pronotal base, occasionally evanescent. Disc with 3–5 primary rows of granules, sometimes reduced; lateral margins usually granular and prominent, rarely evanescent. Deflected part of elytra steep; epipleural crest complete or indicated by a row of granules or (exceptionally) punctures.

Prosternal apophysis with apex bilobed, horizontally produced between coxae. Procoxal cavity apparently open behind. Mesosternum with or without discrete anterior callosity, sometimes swollen anteriorly; apophysis about as wide as mesocoxa to twice mesocoxal width.

Legs moderately long, moderately stout to slender. Pro-femora without dimorphic features. All tibiae with long setae. Protibia moderately compressed, outer edge narrow, toothed, outer distal angle produced. Metatibia straight or curved apically, always with a bare specular spot on outer distal surface (Fig. 40A,B). Calcaria long, metatibial pair and occasionally mesotibial pair foliaceous, at least in female. Tarsi with long stiff to silky setae, not markedly dimorphic, at most slightly shorter and thicker in female. Claws long, inner and outer claws equal in length.

Aedeagus slender, simple.

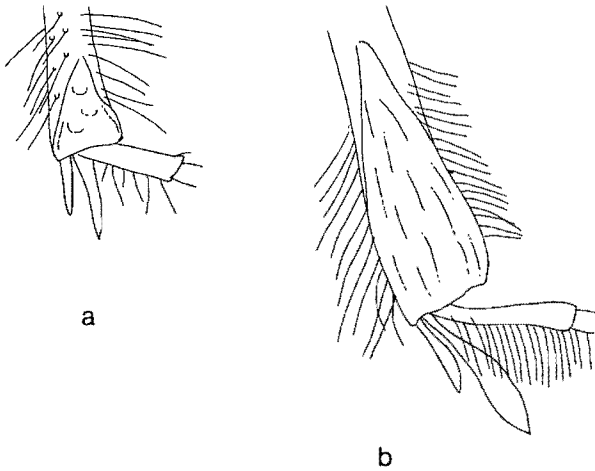


Fig. 40. Apex of metatarsus to show 'specular spot': A: *Pachynotelus damarinus* spec. nov.; B: *P. albonotatus* Haag.

Clanwilliam, 12-XI-49, C. Koch & Malkin; (3) Graafwater – Clanwilliam, IX.1928, Dr Brauns; (2) 12 m. before Klaver, 18-XI-48, C.P., Koch & van Son; (1) Vanrhynsdorp, VIII. 1929, Dr Brauns; (1) Knersvlakte N. of Vanrhynsdorp (S.A.M. Oct. 1950).

Holotype, *pantherina*: ♂, elytral length 7,0 mm (SAM); Leipoldville – Elands Bay, C.P., Mus. Exp., Nov. 1948. Paratypes: 4♂ (TM), 4 ex. (SAM): (8) same data as holotype.

Holotype, *lentiginosa*: ♀, elytral length 6,2 mm (TM); v Rhynsdorp, IX.1928, Dr Brauns. Allotype ♀, elytral length 6,2 mm (TM): same data as holotype. Paratypes: 2♂, 4♀ (TM), 3♂, 1♀ (SAM): (5) same data as holotype; (1) Van Rhynsdorp, 6–8.11.'33, G. van Son; (4) Olifants River bet. Citrusdal & Clanwilliam, C.P., Mus. Staff, Oct.–Nov. 1931.

Other material: 3♂, 7♀ (TM), 2♀ (SMW), 5♂, 1♀ (NMBL), 2♂, 5♀ (SAM); localities: Bulshoek; Clanwilliam; Clanwilliam, 4 mi. S; Klaver; Leipoldville; Olifants R. valley S. Klaver; Olyfheuwel; Vanrhynsdorp; Vredendal; Wiedou.

Season. Winter to spring (July – November).

Distribution (Fig. 38). Southern Namaqualand, South Africa.

Remarks. The differences between *H. cephalica*, the subspecies *pantherina* and the species *lentiginosa* are not significant at any level in the present group, and they are therefore synonymized with *H. cephalica*.

***Horatoma callosa* (Koch) comb. nov., Fig. 39**

Saccophorella callosa Koch, 1952: 49.

Diagnosis. Size medium to large, elytral length 5,9–9,6 mm. Description as for *H. cephalica* except as follows: strioliform ridges of pronotum shorter, mostly granules rather than ridges, more widely spaced than in *H. cephalica*; humeri formed by strong callosities bearing numerous tubercles; submedian granular row on deflected part of elytra fine or absent; median lateral row reduced to a few granules or absent.

Material examined. Holotype ♂, elytral length 8,4 mm (TM); Clanwilliam, C.P., 11-XI-1948, Koch & van Son. Allotype ♀, elytral length 9,6 mm (TM): same data as holotype. Paratypes: 4♂, 4♀ (TM): (5) same data as holotype; (3) 10 m. N of Clanwilliam, Namaquald, 12.XI.1949, Koch.

Season. Early summer (November).

Distribution (Fig. 39). Clanwilliam district, southern Namaqualand, South Africa.

Remarks. This species is similar to *H. cephalica*, with which it occurs sympatrically. The differences between the two species as listed in the diagnosis were consistent in the specimens examined.

Genus PACHYNOTELUS Solier

Pachynotelus Solier, 1840: 267; Haag, 1872: 306; Koch, 1952: 65.

Fossilochile Koch, 1952: 63. **syn. nov.**

Type species: *Pachynotelus albiventris* Solier, 1840 (by monotypy).

Diagnosis. Cryptochilina of small to large size (elytral length 3,2–14,5 mm), integument reddish brown to black, with vestiture of scales variably developed. Head moderately large to large, free, mouthparts not concealed by collar-like extension of prosternum. Mentum small, transverse. Occiput with long stridulatory file. Antennae 10-segmented, with apical segments weakly to strongly dimorphic, enlarged in both sexes. Apical segment entirely sericeous due to development of short, adherent setae.

Pronotum weakly to strongly transverse, lateral margins indicated at least at posterior angles, granular or evanescent. Proepisterna visible in dorsal view, convex. Inner surface of anterior margin with fine stridulatory ridges over a broad median area. Posterior margin straight, usually but not always embraced by humeri of elytra.

Elytra broader than pronotum, humeri usually produced to embrace pronotal base, occasionally evanescent. Disc with 3–5 primary rows of granules, sometimes reduced; lateral margins usually granular and prominent, rarely evanescent. Deflected part of elytra steep; epipleural crest complete or indicated by a row of granules or (exceptionally) punctures.

Prosternal apophysis with apex bilobed, horizontally produced between coxae. Procoxal cavity apparently open behind. Mesosternum with or without discrete anterior callosity, sometimes swollen anteriorly; apophysis about as wide as mesocoxa to twice mesocoxal width.

Legs moderately long, moderately stout to slender. Pro-femora without dimorphic features. All tibiae with long setae. Protibia moderately compressed, outer edge narrow, toothed, outer distal angle produced. Metatibia straight or curved apically, always with a bare specular spot on outer distal surface (Fig. 40A,B). Calcaria long, metatibial pair and occasionally mesotibial pair foliaceous, at least in female. Tarsi with long stiff to silky setae, not markedly dimorphic, at most slightly shorter and thicker in female. Claws long, inner and outer claws equal in length.

Aedeagus slender, simple.

Distribution (Fig. 4). Namib Desert, Namibia, and Namaqualand, South Africa, with one species (*P. scaccarium*) extending into the southwestern Kalahari of Namibia and South Africa.

Remarks. The genus *Pachynotelus* Solier includes some of the most beautiful species of Tenebrionidae. The genus was revised by Koch (1952), who recognized 20 species, of which only four were known from more than 10 specimens. Subsequently Koch (1958, 1962) described two more species, each from a single specimen. Koch (1958) was able to confirm characters in *Pachynotelus machadoi* f.t. 1952, described from a single specimen from a series collected subsequently. Penrith (1974) gave a full description from fresh material of *Pachynotelus kuehnelti* Koch, 1962, originally described from a badly damaged cadaver.

The adult stage of *Pachynotelus* is ephemeral, being present for a short time only after rain, so that residence in or near the area in which they occur is almost essential to finding them. Material of most species collected during the last 16 years in the Namib Desert and Namaqualand has allowed reassessment of variation in species, and has also brought to light five new species.

Pachynotelus is a well-defined genus representing a single distinct, monophyletic lineage of the Cryptochilina. The specular spot on the metatibia is a unique apomorphy shared among all the species. The other diagnostic features, a curved metatibia and long tarsal setae, are less useful since these characters are also found in other genera.

In the present revision 24 species are recognized, including *rufus* Koch, 1952, formerly placed in a monotypical genus *Fossilochile*, and five new species. No subspecies are recognized, as the patterns of geographic variation are considerable, being either irregular or clinal rather than stepped. All the existing subspecies have therefore been placed in synonymy (in one case a subspecies has become a synonym of a species other than the one in which it was originally described), and two species have also become synonyms of others.

The separation of *Fossilochile* from *Pachynotelus* was based on the reduction of the elytral primary rows, the lateral elytral margin, and the lateral margin of the pronotum (Koch, 1952). However, two species of *Pachynotelus*, *P. kuehnelti* and *P. albonotatus*, approach the condition found in *Fossilochile*, and the specular spot is present as in all the species of *Pachynotelus*. In spite of its various peculiar features, in particular the protuberant eyes, the separation of the species *rufa* at generic level is not justified, and *Fossilochile* is placed in synonymy with *Pachynotelus*.

The species of *Pachynotelus* have been arranged in five groups described below, according to shared and probably apomorphic characters or, in the case of the first group, general similarity and a lack of apomorphic characters. Species of the first two groups probably resemble the ancestral *Pachynotelus* in having (usually) five well-developed primary rows on the elytra, the metatibia almost straight, and at most slight antennal dimorphism.

In the first group, which consists of *P. machadoi* Koch, *P. comma* Gebien, *P. granaticollis* Gebien, *P. scaccarium* Koch, *P. streyi* Koch, and *P. albostriatus* Haag, the species might resemble the ancestral species of most of the remaining groups. The three species of the second group, all described

as new below (*P. damarinus*, *P. punctipennis* and *P. ponderosus*), are more plesiomorphic than those of the first group in that the specular spot on the metatibia is less developed and the mesosternum has a callosity anteriorly, but the enlarged head is apomorphic, although it appears in other genera as well (*Cryptochile*, *Horatoma*). The third group includes the species *P. haagi* Péringuey, *P. leucinus* Koch, *P. longipilis* Gebien, *P. namibensis* Koch, and a new species, *P. kochi*, all with the number of elytral primary rows reduced. This group is probably derived from an ancestor similar to *P. scaccarium*, in which the second and fourth primary rows of the elytra are variably reduced. The fourth group includes three species, *P. strigicollis* Gebien, *P. albonotatus* Haag and *P. kuehnelti* Koch, in which the metatibia is strongly curved. The species of the fifth group (*P. albiventris* Solier, *P. catulus* Koch, *P. striolipennis* Koch, *P. dimorphus* Koch, *P. kaszabi* Koch, *P. adamantinus* spec. nov., *P. rufus* (Koch)) all have strongly modified apical antennal segments in the male, and five of the seven species have distinctly curved metatibiae.

Key to the species of *Pachynotelus*

1. Disc of pronotum with distinctly strioliform granules to ridges. 2
- Disc of pronotum with round to slightly elongate granules. 18
2. Primary rows of elytra indicated by distinct granules, which are more prominent than any flanking punctate rows; lateral margin of elytra well developed; humeri of elytra embracing pronotal base. 3
- Primary rows of elytra indicated by rows of long setae emerging from microscopic granules, most prominent longitudinal sculpture of elytra consisting of rows of punctures; lateral margin of elytra not developed, disc evenly curving to deflected parts, with uniform rows of punctures; humeri of elytra not produced to embrace pronotal base *P. rufus* (Koch)
3. Sutural interval on elytra bare and shiny at least posteriorly 4
- Sutural interval on elytra densely covered by scales, rarely with a few secondary granules 6
4. Deflected part of elytra with granules arranged in distinct rows; metatibia not strongly curved, often almost straight, inner surface with rather short, sparse setae; mesotibia normal, moderately compressed but not strongly expanded. 5
- Deflected part of elytra with granules uniformly scattered over surface, not arranged in rows; metatibia strongly curved, stout, with long dense setae on inner surface; mesotibia strongly compressed and broad. *P. albonotatus* Haag
5. Bristles of elytra long; sutural interval not microgranular *P. albostriatus* Haag
- Bristles of elytra short, long only laterally; sutural interval microgranular on disc. *P. strigicollis* Gebien
6. Pronotum distinctly broader than one elytron 7
- Pronotum as broad as one elytron 17

7. Sculpture of pronotum consisting of strioliform granules, some of which may be long, but none extending over almost entire length of pronotum; apical two segments of antennae subspherical in both sexes 8
- Sculpture of pronotum consisting mainly of fine strioliform ridges, some of which may be almost as long as pronotum; apical two segments of antennae slightly to moderately elongate at least in male 14
8. Head of normal size, not extremely large; supra-antennal region distinctly raised, separated from sides of clypeus by a notch; proepisterna with scattered granules; pronotum usually less than twice as wide as long; mesosternal apophysis usually much less than 1,5 times as wide as mesocoxa 9
- Head extremely large; supra-antennal region not raised, continuous with sides of clypeus; proepisterna densely granular; pronotum at least twice as wide as long; mesosternal apophysis at least 1,5 times mesocoxal width, usually wider 12
9. Elytra variably patterned, but always with two narrower, comma-shaped dark bare patches on apical declivity. (Central and southern Namib Desert, and Kalahari) 10
- Elytra variably patterned, but never with dark marks as described above on apical declivity. (Central and northern Namib Desert) *P. machadoi* Koch
10. Lateral margin of elytra never consisting of more than three granular rows; pattern of vestiture of elytra usually tessellate and strikingly bicoloured 11
- Lateral margin of elytra usually quadruple over at least part of its length; vestiture of elytra unicoloured, white, tessellate patches, if present, small *P. comma* Gebien
11. Strioliform granules of pronotum long; sides of pronotum evanescent anteriorly. (Central Namib Desert) *P. streyi* Koch
- Strioliform granules of pronotum short; sides of pronotum represented by a complete, widely spaced row of granules. (Southern Kalahari to southern Namib Desert) *P. scaccarium* Koch
12. Lateral margin of elytra consisting of three virtually equal rows of granules; size small to medium 13
- Lateral margin of elytra consisting of two rows of granules flanking an interval with a few strioliform granules; size medium to large *P. ponderosus* spec. nov.
13. Deflected part of elytra mainly scaled, with two or more distinct rows of granules *P. damarinus* spec. nov.
- Deflected part of elytra mainly bare, with irregular granules, but strongly and moderately densely punctate *P. punctipennis* spec. nov.
14. Elytral intervals with at least some bare patches surrounding strioliform secondary granules; elytral scales uni- or bicoloured. 15
- Elytral intervals entirely scaled, if small bare patches present, without granules or with a small rounded secondary granule; elytral scales tricoloured 16
15. Primary rows of elytra fine, wavy, not flanked by a bare area; elytral scales usually bicoloured, white and yellowish *P. dimorphus* Koch
- Primary rows of elytra coarse, straight, flanked by a bare area; elytral scales unicoloured, whitish *P. striolipennis* Koch
16. Humeri of elytra strongly produced to embrace pronotal base; lateral margin of elytra consisting of strong, dentiform granules; disc of elytra with irregular, dark blotches *P. kaszabi* Koch
- Humeri of elytra slightly produced, just embracing pronotal base; lateral margins of elytra consisting of evanescent granules; disc of elytra, except for suture, uniformly dark *P. adamantinus* spec. nov.
17. Size larger (elytral length 4,9–6,5 mm); deflected part of elytra bare, with rows of granules and punctures *P. albiventris* Solier
- Size smaller (elytral length 3,6–4,1 mm); deflected part of elytra covered with scales, and punctate, without distinct rows of granules *P. catulus* Koch
18. At least three distinct granular primary rows developed on elytra; sides of pronotum faintly indicated by a row of granules and by the presence of white lateral stripes of scales; deflected part of elytra variable, never bare or uniformly and densely granular 19
- Primary rows not distinct on elytra, but smooth scaled areas alternate with bare, densely granular areas; disc of pronotum continuous with proepisterna; deflected part of elytra bare, uniformly and densely granular *P. kuehnelti* Koch
19. Humeri of elytra produced, distinctly embracing pronotal base; size variable. 20
- Humeri of elytra scarcely produced, not embracing pronotal base; size small (elytral length 3,8–4,7 mm) *P. longipilis* Gebien
20. Elytra with five almost equally developed granular primary rows on disc 21
- Elytra with three well-developed primary rows on disc, other rows rudimentary or absent 25
21. Lateral margin of elytra consisting of three granular rows 22
- Lateral margin of elytra consisting of four granular rows over at least part of distance 24
22. At least one or two strioliform granules developed on intervals other than lateral discal interval; sides of elytra not evenly rounded 23
- No strioliform secondary granules developed outside lateral discal interval; sides of elytra evenly rounded; second primary row abbreviated *P. namibensis* Koch
23. Intervals between pronotal granules often less than diameter of granules; primary rows of elytra fine, less elevated. (Central pro-Namib Desert) *P. granaticollis* Gebien

- Intervals between pronotal granules usually equal to or greater than diameter of granules; primary rows of elytra coarser, more elevated. (Orange River area, into southwestern Kalahari)
 - *P. scaccarium* Koch
- 24. Sides of elytra distinctly divergent to level of posterior third; pronotal granules usually scattered
 - *P. comma* Gebien
- Sides of elytra subparallel; pronotal granules dense
 - *P. granaticollis* Gebien
- 25. Middle and outer primary elytral rows unite before top of apical declivity: size larger (elytral length 4,0–8,5 mm); deflected part of elytra entirely scaled 26
- Middle and outer primary elytral rows either do not unite, or unite halfway down apical declivity; size smaller (elytral length 4,2–5,4 mm); deflected part of elytra bare. *P. kochi* spec. nov.
- 26. Scales of elytra usually unicoloured, white; granules of pronotum coarser, granules of primary elytral rows finer *P. leucinus* Koch
- Scales of elytra bicoloured, white and buff to yellowish brown; granules of pronotum very small, granules of primary elytral rows larger
 - *P. haagi* Péringuey

***Pachynotelus damarinus* spec. nov., Figs 40A, 44, 63**

Diagnosis. Pronotum with strioliform granules, not ridges; distinctly broader than one elytron, at least twice as wide as long. Head large, sides of clypeus and supra-antennal part of gena continuous. Elytra with five primary rows of prominent granules, lateral margin consisting of three equal granular rows; deflected part of elytra mostly scaled, with two or more granular rows.

Description. Size small to medium, elytral length 4,9–8,2 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head large; supra-antennal portion of gena scarcely raised. Antennae with apical two segments similarly and slightly enlarged in both sexes, subspherical, subequal in length, penultimate segment shorter than preceding two segments together. Frons with round to elongate granules and white scales, and with short procumbent setae.

Pronotum strongly transverse, sides weakly rounded, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture of white scales virtually confined to a median stripe and a pair of lateral stripes, former usually reduced to antero- and posteromedian patches; exposed areas with rounded to short or moderately long strioliform granules and very short recumbent setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, rows 2–5 sometimes wavy, rows 3 and 5 fused at top of apical declivity, row 4 there abbreviated, all flanked by a row of punctures. Sutural interval

with white scales and with a few small secondary granules; all other intervals including lateral interval with white vestiture of scales interrupted by a varying number of large strioliform secondary granules. Lateral margin consisting of three rows of granules with large foveate punctures in intervals. Deflected part with vestiture incomplete, one incomplete and two complete rows of granules as well as epipleural row, and several rows of punctures. Granules of primary rows bearing long, dark, bristle-like erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular, many granules two- or three-armed. Mesosternal apophysis broad, almost twice width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Mesotibia slightly compressed, not expanded. Metatibia straight, specular spot on outer distal surface usually well developed (Fig. 40A), shorter than first tarsal segment, with dorsal edge sharply raised and compressed. Calcaria long, metatibial pair narrowly to broadly foliaceous in female, spiniform in male. Tarsi slender, with long bristle-like setae; first metatarsal segment longer than unguis segment.

Aedeagus simple, slender.

Material examined. Holotype ♂, elytral length 5,0 mm (TM): S.W. Afr., Damara, Farm Bethanis, 20.25S 14.24E / 17.2.1975, E-Y:671, sandy valley, day, leg. Endrödy & Schulze. Allotype ♀, elytral length 6,3 mm (TM): same data as holotype. Paratypes: 11 (TM), 70 (SMW), 1 (NCI): (2), same data as holotype (TM); (2), same data as holotype but collected in ground traps with banana bait (TM); (1), S.W. Africa, Welwitschia 51 m. W., Jan. 1968, Hamilton (TM); (5), Brandberg Plateau, S.W.A., 6.1955, A. Viereck (TM); (1), Brandberg, 4.5.56 [F. Gaerdes] (TM); (5)1, Bethanis 512, Outjo, SE 2014 Ad, 8–10 May 1973 / H 12822 [M.-L. Penrith, J.B.U. Tebje] (SMW); (3), Bethanis 512, SE 2014 Ad, Damaraland, 12–14 May 1978, M.-L. Penrith, S. Louw / H36146 (SMW); (1), Onverwag 412, Outjo, SE 2014 Dd, 8 May 1973 / H12691 [M.-L. Penrith, J.B.U. Tebje] (SMW); (15), Duineveld 529, SE 2014 Dc, Damaraland, 14–16 May 1978, M.-L. Penrith, S. Louw / H 36365 (SMW); (1), S.W. Africa, Brandberg, ii.1978, S.J. v.Tonder, C. Kok.

Season. Summer to autumn/winter (January – June); most of the specimens were collected in May.

Habitat. Vegetated dunes and sandy interdune valleys.

Distribution (Fig. 44). Northern parts of the central pro-Namib Desert, Namibia.

Remarks This species differs from previously described species of *Pachynotelus* in the large head, the broadly transverse pronotum, and details of the sculpture. From *P. machadoi*, the only previously described species from the northern Namib Desert, it differs also in the broad mesosternal apophysis.

Etymology. The name of the new species is derived from one of the names, Damaraland, given to the area in which it occurs.

***Pachynotelus punctipennis* spec. nov., Figs 44, 64**

Diagnosis. Pronotum with strioliform granules, not ridges; distinctly broader than one elytron, at least twice as wide as long. Head large, sides of clypeus and supra-antennal part of gena continuous. Elytra with five primary rows of prominent granules, lateral margin consisting of three equally developed primary rows; deflected part of elytra mainly bare, punctate, with irregular granules.

Description. Size small to large, elytral length 4.8–10.2 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head large; supra-antennal portion of gena scarcely raised. Antennae slightly longer in male, with apical two segments slightly enlarged in both sexes, subspherical, subequal in length, penultimate segment shorter than preceding two segments together. Frons with elongate granules, white scales, and procumbent setae.

Pronotum strongly transverse, sides weakly rounded, indicated only at posterior angles, otherwise continuous with proepisterna, which are visible in dorsal view. Vestiture virtually confined to a median posterior patch and a pair of variably elongate posterolateral patches of scales, white; exposed areas with long strioliform granules and very short recumbent setae.

Elytra broader than pronotum, sides weakly rounded to subparallel; with five primary granular rows on disc, all flanked by a row of punctures. Sutural interval with dense white scales and no secondary granules; all other intervals including lateral interval with white vestiture interrupted by a varying number of large strioliform secondary granules, some intervals occasionally without secondary granules. Lateral margin consisting of three rows of granules with large foveate punctures in intervals. Deflected part bare at least anteriorly, with a variable number of incomplete rows of granules apart from epipleural row, and several rows of punctures. Granules of primary rows bearing short, dark, bristle-like, erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternal apophysis broad, almost twice width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Mesotibia slightly compressed, not expanded apically. Metatibia straight, specular spot on outer distal surface well developed, shorter than first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, metatibial pair spiniform in male, narrowly foliaceous in female. Tarsi slender, with long bristle-like setae; first metatarsal segment longer than unguis segment.

Aedeagus simple, slender.

Material examined. Holotype ♂, elytral length 5.4 mm (SMW): Bloemhof 109, Karibib, SE 2215 Ad, 11–13 July 1979, S. Louw, M.-L. Penrith / H 39340. Allotype ♀, elytral length 6.0 mm (SMW): same data as holotype. Paratypes: 124 ex. (SMW, 4 in TM), 1 ex. (TM), 1 ex. (AMNH): (7) same data as holotype; (26) Lower Ostrich Gorge, 22.30S 14.58E, Swakopmund Dist.,

13 March – 10 April 1984, J. Irish, H. Liessner / H 58689; (61) same locality but 10 April – 8 May 1984, H 59034, 8 May – 5 June 1984 / H 59374, 11 March – 9 April 1985, J. Irish, H. Rust [nee Liessner] / H 62740, 9 April – 6 May 1985 / H 62907, 12 Feb. – 11 March 1985 / H 62170; (2) Upper Ostrich Gorge, 22.29S 14.59E, Swakopmund Dist., 12 Feb. – 11 March 1985, J. Irish, H. Rust / H 62055; (12) same locality but 11 March – 9 April 1985 / H 62605 and 9 April – 6 May 1985 / H 62808; (8) 6 km N. Arandis, 22.22S 14.59E, Damaraland, 10 April – 8 May 1984, J. Irish, H. Liessner / H 59103; (8) same locality but 3–31 July 1984 / H 58437, 8 May – 5 June 1984 / H 59440, 12 Feb. – 11 March 1985, J. Irish, H. Rust / H 62339, 11 March – 9 April 1985, H 62543; 9 April – 6 May 1985 / H 62971; (1) South West Africa: 46 km W Usakos, March 21, 1976, J.G. & B.L. Rozen (AMNH); (1) Aruab, 24.3.59 [leg. F. Gaerdes] (TM).

Season. Late summer to winter (March – July).

Habitat. Sandblown hills with vegetation.

Distribution (Fig. 44). Central pro-Namib Desert, Namibia.

Remarks. *Pachynotelus punctipennis* differs from *P. damarinus* chiefly in the bare and punctate upper half of the deflected part of the elytra, and the even more broadly transverse pronotum.

Etymology. The name of the new species refers to the punctate sculpture of the elytra (Latin, *punctum*, -i, n., prick, puncture; *pennae*, -arum, f., wings).

***Pachynotelus ponderosus* spec. nov., Figs 41, 65**

Diagnosis. Pronotum with strioliform granules, not ridges; distinctly broader than one elytron, at least twice as wide as long. Head large, sides of clypeus and supra-antennal part of gena continuous. Elytra with five primary rows of prominent granules, lateral margin consisting of two rows of granules with a few strioliform granules between them; deflected part mainly scaled, with three rows of granules and with irregular punctures.

Description. Size medium to large, elytral length 6.7–9.6 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head large; supra-antennal portion of gena not raised. Antennae longer in male, with apical two segments slightly enlarged in both sexes, slightly larger in male, subspherical, subequal in length, penultimate segment shorter than preceding two segments together. Frons with elongate granules, white scales, and procumbent setae.

Pronotum markedly transverse, sides weakly rounded, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture mainly concentrated in a median stripe and a pair of lateral stripes, white; exposed areas with short to moderately long strioliform granules and recumbent golden setae.

Elytra broader than pronotum, sides rounded; with five primary granular rows on disc, often wavy, all flanked by a row of punctures. Sutural interval with dense white scales and no or very few secondary granules; remaining intervals with white

vestiture interrupted by a variable number of large strioliform secondary granules, occasionally absent from some intervals. Lateral margin consisting of two rows of small granules separated by an incomplete row of sparse strioliform granules. Deflected part mainly scaled, with three almost complete rows of granules in addition to epipleural row, and irregular punctures. Granules of primary rows bearing short, bristle-like, semi-erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternal apophysis broad, almost twice width of mesocoxa.

Legs moderately slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on proximal ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Mesotibia weakly compressed. Metatibia slightly curved apically, specular spot on outer distal surface variably developed, much shorter than first tarsal segment, usually with dorsal edge sharply raised and compressed. Calcaria long, metatibial pair narrowly foliaceous in male, broadly foliaceous in female. Tarsi moderately stout, with long silky setae; first metatarsal segment longer than ungual segment.

Aedeagus simple, slender.

Material examined. Holotype ♂, elytral length 7,5 mm (SMW): Duineveld 529, SE 2014Dc, Damaraland, 14–16 May 1978, M.-L. Penrith, S. Louw / H 36265. Paratypes: 26 ex. (SMW, 3 in TM), same data as holotype.

Season. Autumn (May).

Distribution (Fig. 41). Known only from the type locality, in Damaraland, Namibia.

Remarks. This species differs from the preceding two species, which it resembles in the large head and broad mesosternal apophysis, in having the lateral margin of elytra composed of two instead of three rows of granules.

Etymology. The name of the new species refers to its large size and heavy appearance (Latin, *ponderosus*, -a, -um, heavy, weighty).

***Pachynotelus machadoi* Koch, Fig 41**

Pachynotelus machadoi Koch, 1952: 74.

Pachynotelus machadoi machadoi Koch, 1952: 74, 1958: 61.

Pachynotelus machadoi laevimargo Koch, 1952: 75. **syn. nov.**

Pachynotelus machadoi tigrum Koch, 1958: 61. **syn. nov.**

Pachynotelus herminiferus Koch, 1958: 62. **syn. nov.**

Diagnosis. Pronotum distinctly broader than one elytron, with short to elongate strioliform granules. Head of normal size, not enlarged, with supra-antennal region slightly raised and separated from clypeus by a notch. Elytra with sutural interval scaled; with five primary granular rows; never with two black, bare, comma-shaped marks on apical declivity.

Description. Size small to medium, elytral length 4,6–8,2 mm. Integument reddish brown to black, vestiture of elytra unicoloured or bicoloured, white or yellowish white and white, scales

of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena slightly raised. Antennae with apical two segments enlarged, slightly larger in male, subspherical, subequal in length, penultimate segment slightly shorter than preceding two segments together. Frons with elongate granules and procumbent setae; white scales present on clypeus and forming two lateral bands on frons.

Pronotum variable, transverse, sides weakly rounded, indicated by a row of granules; proepisterna just visible in dorsal view. Vestiture mostly confined to a median stripe and a pair of lateral stripes, former often interrupted medially and latter broadening posteriorly; exposed areas with short to moderately long strioliform granules and recumbent golden setae.

Elytra slightly broader than pronotum, sides subparallel; with five primary granular rows on disc, flanked or not by a row of punctures. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with white to creamy vestiture interrupted by a varying number of round to strioliform secondary granules, sometimes forming a row. Lateral interval with patches of white scales alternating with bare patches surrounding small to large strioliform secondary granules, which may be shortened or join to form a supplementary marginal row. Lateral margin consisting of three rows of approximated granules, often supplemented by a fourth row as described. Deflected part entirely scaled, without or with one or two incomplete rows of granules, epipleural row granular. Granules of primary rows bearing moderate, bristle-like semi-recumbent setae.

Sternites as for genus. Proepisterna variably with scattered to moderately dense, subspherical granules. Mesosternal apophysis narrow, as wide as or slightly wider than mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Mesotibia weakly compressed. Metatibia slightly curved apically, specular spot on outer distal surface well developed, longer than first tarsal segment, with dorsal edge raised and compressed. Calcaria long, spiniform in male, narrowly foliaceous in female. Tarsi slender or moderately slender, variable, with long silky setae; first metatarsal segment equal to, to distinctly longer than ungual segment.

Aedeagus slender, simple.

Material examined. Holotype, *machadoi*: ♂, elytral length 5,5 mm (TM): Port Alexandre, S. Angola, Sept. 1951, C. Koch.

Holotype & paratype, *laevimargo* in BMNH (not seen).

Holotype, *tigrum*: ♂, elytral length 5,4 mm (TM): Baio Tigres, S.W. Ang., VI.1954, Vernay-Tvl Mus. Expedition.

Holotype, *herminiferus*: ♀, elytral length 7,8 mm (TM): Roessing Mount, 25 [miles] E. Swakopmund, VIII.1954, Vernay-Tvl Mus. Exp.

Other material: 403 ex. (TM), 118 ex. (SMW), 4 ex. (UP); 1 ex. (HMNH); localities: Cape Cross; Coroca River, S.; Engo River valley, 17.48S 12.24 E.; Ganab; Goanikontes; Gobabeb; Gobabeb, 5 km N.; Gobabeb, 14 mi. E.; Hoarusib River, N. bank, 18.03S 12.36 E.; Homeb; Hope Mine – Homeb; Huab River valley, 20.37S 13.54E; Khumib River; Khumib River 15 mi. from mouth; Kunene River W. Hartmannberge, 17.12S 12.10E; Kunene R., 8 km S.; Messum Mts; Mirabib; Moçamedes; Moçamedes, 3–6 km E.; Moçamedes, 2 km S.;

Namib Park, SE 2215Db; Namib Plain 15 mi. E. Natab; Natab Plains, 23.36S 15.03–5E; Natab, 15 mi. S.; Porto Alexandre; Praia Azul; Rocky Point, S., 19.01S 12.30E; Rostock; Saco Giraúl, 4–6 km E.; Sarusas, N. at 18.48S 12.30E; Sechomib River, 10 km N., 18.47S 12.27 E.; Soutrivier dunes, 23.40S 15.02E; Swakopmund; Swartbank; Swartbank – Gobabeb; Tsondab Plains; Unjab Delta at 20.11S 13.13E; Unjab R. at 20.09S 13.18E; Walvis Bay; Witpoortjieberg, dunes E., SE 2215Cc; Zebra Pan; no locality. Also 'Windhoek.'

Season. Mid-summer to winter/spring (January – August); most frequently collected in April and May, after rain.

Habitat. Sandy plains and vegetated dunes, often collected on grass.

Distribution (Fig. 41). Moçamedes Desert in southern Angola to the central Namib Desert, Namibia.

Remarks. Two species of *Pachynotelus* were previously described from the Namib Desert north of the Swakop River, *P. machadoi* Koch, 1952, and *P. herminiferus* Koch, 1958. The former was known from the southern Angolan coast, and Koch (1952, 1958) described the three different locality samples that he examined as three different subspecies, separated on the grounds of differences in the pattern and colour of the elytral vestiture and the occurrence and distribution of strioliform granules in the elytral secondary intervals. Only four specimens were involved in the original descriptions, but a series of the nominate subspecies collected subsequently from the type locality was described later (Koch, 1958), when *P. herminiferus* was described from a single specimen from the Rössing Mountains. The specimen could easily be distinguished from the Angolan specimens of *P. machadoi* by the extensive vestiture of the elytra and the thicker and differently proportioned metatarsus; in fact, Koch (1958) did not compare *P. herminiferus* with *P. machadoi*, but with various southern Namib Desert species with similarly extensive vestiture. The examination of many specimens of *Pachynotelus* from numerous localities in the northern Namib Desert suggested the identity of the two species, which are here synonymized.

Examination of the new material has shown that characters such as the extent of the dorsal vestiture of scales, the development of strioliform granules on the elytral secondary intervals, and the thickness and relative proportions of the metatarsal segments are all unusually variable, both geographically and often also within populations. For example, in 233 specimens from the Kunene River west of the Hartmann Mountains, the tessellate pattern of the elytra and the tarsal proportions are very consistent, and in the Moçamedes samples (53 specimens) the elytral pattern, with white or cream vestiture virtually confined to the sutural and lateral intervals, and the tarsal proportions, are also very consistent. However, in the Moçamedes sample there is complete overlap in the occurrence of strioliform granules in the elytral intervals between the patterns described by Koch (1952) for the nominate subspecies and the subspecies *laevimargo*. The occurrence of tessellate and median-stripped samples varies considerably throughout the northern Namib Desert, as do the thickness and segmental proportions of the metatarsi, and in

even the relatively small sample of 13 specimens from the Messum Mountains, tessellate, median-stripped and intermediate individuals were found, accompanied by considerable tarsal variation. The series included specimens compatible both with the holotypes of the nominate subspecies and the holotype of *P. herminiferus*, while most of the specimens were intermediate between them. This range of variation was even more striking in the central Namib Desert at Gobabeb and the surrounding area. The only character that shows some geographic consistency is the following: in all the northern Namib Desert populations and in coastal populations as far south as Walvis Bay, the secondary granules of the lateral elytral interval are strioliform and do not unite to form a supplementary marginal row, while in the central Namib Desert populations the lateral interval usually presents, at least in its anterior half, a continuous row of short approximated granules that give the impression of a supplementary lateral row, as found in the related species *P. comma* and *P. granaticollis* in the southern Namib Desert. However, individuals that deviated from this were found, showing separate strioliform granules typical of the northern samples.

***Pachynotelus comma* Gebien, Fig. 41**

Pachynotelus comma Gebien, 1920: 77, 1937: 194.

Pachynotelus comma comma: Koch, 1952: 76.

Pachynotelus comma niveus Koch, 1952: 77. **syn. nov.**

Pachynotelus comma damarensis Koch, 1952: 69. **syn. nov.**

Diagnosis. Pronotum distinctly broader than one elytron, less than twice as wide as long, with round to short strioliform granules. Head of normal size, supra-antennal region slightly raised. Elytra with sutural interval scaled; with five primary granular rows; sides divergent posteriorly; lateral margin comprising four rows of granules over most of length; unicoloured, white, with two bare, black, comma-shaped marks on apical declivity.

Description. Size small to large, elytral length 4.2–8.7 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena scarcely raised. Antennae with apical two segments enlarged, slightly larger in male, subspherical, subequal in length, penultimate segment about as long as preceding two segments together. Frons with elongate granules and white scales, denser laterally and on clypeus, and with inconspicuous procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules; proepisterna visible from above. Vestiture either complete or scales more or less confined to, but always concentrated in, a median stripe and a pair of lateral stripes. Area between lateral stripes with round to short strioliform granules and short recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, rows 3 and 5 united above apical declivity, row 4 ending at top of apical declivity, all flanked by a row of punctures, punctures and sometimes also granular rows obscured by dense scales. All intervals with dense white scales, sutural interval with no secondary

granules; intervals 2–5 and lateral interval without secondary granules or (rarely, in northern specimens) with a variable number of strioliform secondary granules. Lateral margin consisting of four (rarely three) rows of granules, close together, fourth row often abbreviated posteriorly, only rarely absent. Deflected part scaled, with or without an incomplete row of granules in addition to epipleural row. Granules of primary rows bearing short, bristle-like erect setae.

Sternites as for genus. Proepisterna inermous or with a few sparse subspherical granules. Mesosternal apophysis narrow, about as wide as mesocoxa, or slightly wider.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia almost straight, specular spot on outer distal surface well developed, about as long as first tarsal segment, with dorsal edge sharply raised and compressed. Calcaria long, metatibial pair foliaceous in female. Tarsi slender, with long silky setae; first metatarsal segment equal to or longer than unguis segment.

Aedeagus slender, simple.

Material examined. Lectotype, *comma*: ♀, elytral length 7,3 mm (TM), D.S.W. Afr., Sinclair, cotype no. 771 / Sammlung H. Gebien. Paralectotypes with same data in Eberswalde (not seen); 1 in TM.

Holotype, *damarensis*: ♂, elytral length 7,6 mm (TM): Bull-sport, R. Strey, Jan. 1949. Paratype not found.

Holotype, *niveus*: ♂, elytral length 5,3 mm (TM): 10 m. W. of Haalenberg, Gt Namaqualand, 23.1X.1950, Koch & van Son. Allotype ♀, elytral length 5,7 mm (TM): same data as holotype. Paratypes: 8 ex. (TM): same data as holotype. (The original description mentioned 27 specimens, including an allotype).

Other material: 7 ex. (TM), 122 ex. (SMW), 10 ex. (UP), 1 ex. (HMNH); localities: Agate Beach; Awasiib, dunes E. at 25.15S 15.43E; Diamond Area 1 at 26.57S 15.48E; Gorrasis; Grillental; Haris, 3 km E, 26.34S 15.25E; Kanaän; Kanaän, dunes SW at 25.58S 16.02,5E; Kaukasib R. bed, 26,53S 15.25E; Klinghardt Mountains, W. at 27.24S 15.38E; Koichab; Kubub; Lüderitz; betw. Namtib & Helmeringhausen; Numis farm, 26 km W. Neisip; Sesriem.

Season. Summer to late spring (January–October); after rain, most frequently collected in autumn.

Habitat. Sandy plains and vegetated dunes; frequently found on grass.

Distribution (Fig. 41). Southern Namib Desert and pro-Namib, from south of Lüderitz to the Tsauchab River, Namibia.

Remarks. *Pachynotelus comma*, like the closely related *P. machadoi*, is widespread and variable. The three subspecies recognized by Koch (1952) were based on differences in pronotal sculpture and the degree of clarity of the primary rows. While the pronotal sculpture varies geographically from round granules in southern populations to strioliform granules in the north, the gradation is clinal and the variation in the centre of the range great. This is demonstrated by two of the types from Sinclair. The lectotype has mainly strioliform granules, while the paralectotype has round granules. Specimens from the

northern part of the range, at Gorrasis, have a varying number of bare patches with strioliform granules on the elytra, although a vestiture of scales predominates. The degree to which the primary rows are visible is also variable. For these reasons no subspecies are recognized.

All the populations are regarded as belonging to a variable species whose geographical variation is clinal rather than stepped. Northern specimens with strioliform granules on the pronotum can be distinguished from southern populations of *P. machadoi*, with a supplementary marginal row on the elytra, by the presence of a bare, comma-shaped mark on the apical declivity and the denser vestiture of scales, with bare patches, few and small, or absent.

***Pachynotelus granaticollis* Gebien, Fig. 44**

Pachynotelus granaticollis Gebien, 1920: 74, 1937: 194; Koch, 1952: 79.

Diagnosis. Pronotum with dense, mainly round granules, intervals between them often less than diameter of granules. Elytra with five fine granular primary rows, and three to four lateral rows; sutural interval scaled; sides subparallel; with or without two bare, black, comma-shaped marks on apical declivity.

Description. Size medium to large, elytral length 5,7–9,8 mm. Integument reddish brown to black, vestiture of elytra uni- or bicoloured, white or off-white, or both, scales of ventral surface and appendages white or off-white.

Head moderately large; supra-antennal portion of gena slightly raised. Antennae with apical two segments enlarged, slightly larger in male, subspherical, penultimate segment slightly shorter than either apical or preceding two segments. Frons with elongate granules, white scales concentrated in two lateral bands, and procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by an irregular row of granules; proepisterna visible in dorsal view. Vestiture mostly confined to a median stripe and a pair of lateral stripes, white or off-white; exposed areas with predominantly round, dense, polished granules (some granules elongate in some specimens), and very short recumbent golden setae.

Elytra slightly broader than pronotum, sides parallel; with five fine primary granular rows on disc, rows 3 and 5 usually uniting at top of apical declivity, all rows flanked by a row of punctures. All intervals with dense white or whitish scales and a variable number of strioliform secondary granules; secondary granules absent from sutural interval, most frequent on second, fourth and lateral intervals. Number of secondary granules much higher in northern specimens. Lateral margin consisting of three to four closely approximated rows of granules, upper row, if developed, often incomplete. Deflected part densely scaled, with or without a complete or incomplete row of granules in addition to epipleural row. Granules of primary rows bearing moderate, bristle-like semi-erect setae.

Sternites as for genus. Proepisterna with moderately dense, round granules. Mesosternal apophysis variable, almost as broad as, to one-and-one-third times as broad as mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface.

Tibiae with long coarse setae; protibia compressed, dorsal surface toothed. Metatibia weakly curved apically, specular spot on outer distal surface well developed, about equal to first tarsal segment. Calcaria long, metatibial pair foliaceous in female. Tarsi rather stout, with long, rather coarse setae; first metatarsal segment equal to or longer than unguis segment.

Aedeagus simple, slender.

Material examined. Lectotype: in Eberswaide (not seen); Sinclair. A further specimen which was in Gebien's private collection, present location unknown, may be regarded as a paralectotype.

Other material: 4 ex. (TM); 44 ex. (SMW); localities: Aus; betw. Aus and Namtib; Awasib, dunes E. at 25.15S 15.43E; Gorrasis; Kanaän; Kwessiegat; Numabis Pan, 25.31S 15.35E; Sesriem.

Season. Late summer (January – April); also recorded in September.

Habitat. Sandy vegetated plains.

Distribution (Fig. 44). Southern parts of central pro-Namib Desert, Namibia.

Remarks. *Pachynotelus granaticollis* is very similar to *P. comma*, and might have been regarded as falling within the range of variation of that species had the two not been collected together. The body is always narrower and usually slightly more convex. Where the two species occur together they cannot be confused, as they differ in the pronotal sculpture pattern and body shape. Northern specimens (Gorrasis, Sesriem) are more tessellate than southern specimens, which have only a few bare patches, and one Gorrasis specimen is striped, otherwise agreeing with the rest of the sample.

***Pachynotelus streyi* Koch, Fig. 44**

Pachynotelus streyi Koch, 1952: 73.

Diagnosis. Pronotum distinctly broader than one elytron, with long strioliform granules, sides evanescent anteriorly. Elytra with five primary granular rows, three lateral rows, sutural interval scaled; two bare, black, comma-shaped patches on apical declivity. Head of normal size, supra-antennal region raised.

Description. Size small to medium, elytral length 4,2–6,2 mm. Integument reddish brown to black, vestiture of elytra bi-coloured, white and off-white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena strongly raised. Antennae with apical two segments enlarged, slightly larger in male, ovate, subequal in length, penultimate segment about as long as preceding two segments together. Frons with strioliform granules, white scales on clypeus and in two bands laterally, and procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a faint row of granules; proepisterna visible in dorsal view. Vestiture mostly confined to a median stripe and a pair of lateral stripes, white; exposed areas with long strioliform

granules and recumbent golden setae.

Elytra broader than pronotum, sides almost subparallel; with five primary granular rows on disc, all flanked by a row of punctures. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with off-white vestiture interrupted by a varying number of long strioliform secondary granules, especially on second and fourth intervals. Lateral interval with patches of white scales alternating with bare patches surrounding large strioliform secondary granules. Lateral margin consisting of three rows of granules with large foveate punctures in intervals. Deflected part scaled, with one complete exposed median row of granules as well as epipleural row. Granules of primary rows bearing short, recumbent pale setae.

Sternites as for genus. Proepisterna with sparse subspherical to slightly elongate granules. Mesosternal apophysis narrow, about as wide as mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia straight, specular spot on outer distal surface well developed, as long as or longer than first tarsal segment, with dorsal edge compressed. Calcaria long, narrowly spatuliform. Tarsi very slender, with long silky setae; first metatarsal segment equal to or longer than unguis segment.

Aedeagus slender, simple.

Material examined. Holotype ♂, elytral length 5,2 mm (TM): W. of Tsondap Riv., 45 m. NW of Ababis, Damaraland. — V.1949. R. Strey. Paratype ♂, same data as holotype.

Other material: 31 ex. (TM), 5 ex. (SMW), 1 ex. (UP); localities: Dunes at 23.50S 15.10E; Gobabeb; Namib Desert at 23.46S 15.47E; Natab, 10 mi. S.; Natab, 24 km S.; Solitaire; Tsondap.

Season. Autumn to spring (April – September).

Habitat. Sandy plains and interdune valleys.

Distribution (Fig. 44). Central Namib Desert.

Remarks. *Pachynotelus streyi* can always be distinguished from *P. machadoi* by the more transverse pronotum, with rounder and less clearly defined side margins, and, in the area where the two species are sympatric, by the triple, and not quadruple, lateral margin of the elytra.

***Pachynotelus scaccarium* Koch, Fig. 41**

Pachynotelus scaccarium Koch, 1952: 80.

Diagnosis. Pronotum distinctly broader than one elytron, with round to short strioliform granules, intervals between them equal to or greater than diameter of granules; sides indicated by a complete row of granules. Elytra with five granular primary rows, and three closely apposed marginal rows; sutural interval scaled; two bare black comma-shaped marks on apical declivity.

Description. Size medium, elytral length 6,0–7,5 mm. Integument reddish brown to black, vestiture of elytra uni- or

bicoloured, white or off-white to buff and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena scarcely raised. Antennae with apical two segments enlarged, slightly larger in male, subspherical, subequal in length, penultimate segment slightly shorter than preceding two segments together. Frons with elongate granules, white scales, concentrated anteriorly and laterally, and procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules; proepisterna just visible in dorsal view. Vestiture virtually confined to, or scales at least concentrated in, a median stripe and a pair of lateral stripes, white; exposed areas with round to short strioliform granules and recumbent golden setae.

Elytra broader than pronotum, sides weakly rounded; with five primary granular rows on disc, rows 3 and 5 united posteriorly with a bare comma-shaped area behind, row 4 abbreviated. Sutural interval with dense white scales and no secondary granules; intervals 2–5 (especially 2 and 4) with white to buff vestiture interrupted by a variable number of fine strioliform secondary granules. Lateral interval with white scales variably interrupted by bare patches surrounding short strioliform secondary granules. Lateral margin consisting of three rows of approximated granules. Deflected part scaled, with one incomplete row of granules in upper half, as well as epipleural row. Granules of primary rows bearing short, bristle-like semi-erect setae.

Sternites as for genus. Proepisterna sparsely granular. Mesosternal apophysis narrow to broad, as wide as to considerably wider than mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia slightly curved apically, specular spot on outer distal surface well developed, as long as first tarsal segment, with dorsal edge raised and compressed, translucent. Calcaria long, metatibial pair foliaceous. Tarsi moderately slender, with long silky setae; first metatarsal segment equal to or longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♀, elytral length 6,6 mm (TM): Brandkaross, Richtersveld, 9.IX.50, C. Koch, G. van Son.

Other material: 7 ex. (TM), 22 ex. (SMW), 7 ex. (SAM), 1 ex. (NCI); localities: Blinkoog; Bloeddrijf, Orange R., SE 2816 Bd; (?) Koichab Station; Koras; Lorelei/Boom R., SE 2816 Bb; Mata Mata; Noenieput, 15 km N (SE 2720 Ca); Noordoewer at 28.40S 17.40E; Numies/Sendelingsdrijf at 28.18S 16.58E; Rosh Pinah; Rosh Pinah, SE at 28.02S 16.50E; Sandverhaar; Twee Rivieren; Udabib, 22 mi. W; Vogelstrauskluff; Wildheim Ost.

Season. Autumn to spring (April, August – November).

Habitat. Sandy plains and vegetated dunes. We have collected the species on flowering annuals.

Distribution (Fig. 41). Southwestern Kalahari of Namibia and South Africa, and along most of the Orange River to the Richtersveld, South Africa.

Remarks. This species was described from a single female specimen. The species shows at least as much variation as *P. comma* and *P. machadoi*. In general, the eastern specimens have broader mesosternal apophyses, and strioliform pronotal granules. The Kalahari specimens (Mata Mata, Wildheim Ost) show variable colour patterns within short series, but the underlying sculpture is comparable, as are all other characters. The two southernmost specimens, from Koras, have the dorsal sculpture much coarser than the other specimens. The Kalahari specimens are easily separable from the Lower Orange River specimens on pronotal sculpture and the breadth of the mesosternal apophysis, but specimens from intermediate localities (Blinkoog, Sandverhaar, Vogelstrauskluff) are intermediate in these characters. All these specimens have been assigned to *P. scaccarium*. The specimen from Koichab is tentatively assigned to this species, as it clearly has only three marginal elytral rows, but it may be an aberrant specimen of *P. comma* or *P. granaticollis*.

***Pachynotelus albostriatus* Haag, Fig. 42**

Pachynotelus albostriatus Haag, 1872: 308; Gebien, 1937: 194; Koch, 1952: 68.

Pachynotelus lineatus Haag, 1878: 85; Gebien, 1937: 194; Koch, 1952: 68. **syn. nov.**

Pachynotelus strigicollis junior Koch, 1952: 67. **syn. nov.**

Diagnosis. Pronotum with long strioliform granules. Elytra with five primary granular rows and three marginal rows; deflected part with rows of granules; sutural interval bare, smooth, shiny, not microgranular; elytral bristles long. Metatibia slightly curved, with short sparse hairs.

Description. Size small to medium, elytral length 4,5–9,5 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Antennae with apical two segments subspherical, slightly enlarged in both sexes, subequal in length, penultimate segment slightly shorter than preceding two segments together. Frons with elongate granules; with small white scales forming a lateral stripe on either side, larger scattered scales on clypeus and occiput; and procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture virtually confined to a median posterior patch of scales and a pair of lateral stripes, white; exposed areas with long strioliform granules and recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with at least traces of five primary granular rows on disc, row 2 incomplete, row 4 represented by a few granules, rows 3 and 5 united at top of apical declivity; at least rows 1, 3 and 5 flanked by a row of punctures. Sutural interval bare; intervals without secondary granules; intervals 2–5 partly with white vestiture, in rows 4 and 5 terminating at top of apical declivity; primary rows 1, 3 and 5 flanked by a bare area, elytra thus appearing striped. Lateral interval with white scales interrupted occasionally by minute secondary granules. Lateral margin consisting of three rows of granules with large foveate punctures in intervals. Deflected part scaled at least in lower half, with two complete

rows of strioliform granules in upper half, one incomplete row in lower half, and several irregular rows of punctures. Granules of primary rows bearing long, bristle-like, erect setae.

Sternites as for genus. Proepisterna densely granular. Mesosternal apophysis broad, almost one-and-a-half times width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia slightly curved apically, specular spot on outer distal surface well developed, considerably shorter than first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, those of metatibia foliaceous in female. Tarsi slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus slender, simple.

Material examined. Holotype, *albostratus*: in Swedish Museum of Natural History, Stockholm (not seen).

Holotype, *lineatus*: sex not determined, elytral length 6,1 mm (BMNH): Type [round, red-bordered] / 5192 [blue, in ink] / ex coll. Waterh. [Waterhouse] / *Horatomodes lineatus* m. n. sp. type Haag / F. Bates 81–19.

Holotype, *junior*: ♂, elytral length 6,8 mm (TM): Namib Desert, R. Strey, Jan. 1950; paratypes: 2♂ (TM): same data as holotype.

Other material: 50 ex. (TM), 12 ex. (SMW), 5 ex. (NCI), 4 ex. (SAM); localities: Goagas; Gobabeb; Haris; Kuiseb R.; Kuiseb R. at 23.34S 15.03E; Namib Desert Park, SE corner; Swartbank; Walvis Bay. Also Damaraland.

Season. Mainly summer and autumn (January – July; also September).

Habitat. Vegetated dunes and sandy interdune valleys.

Distribution (Fig. 42). Central Namib Desert in the vicinity of Kuiseb River, Namibia.

Remarks. This species, originally described from a single specimen (Haag, 1872), has a complicated synonymy. *Pachynotelus lineatus*, described by the same author (Haag, 1878), is a small specimen of the same species; all the species of *Pachynotelus* show considerable variation in size. The specimens described by Koch (1952) as *P. strigicollis junior* are comparable to typical specimens of *P. albostratus* except in the more extensive vestiture, which is a variable feature in the genus. In *P. strigicollis* the meso- and metatibiae are broader and more compressed, with dense brushes of dark setae on the outer distal surface, the metatibia is more strongly curved, the bristles of the elytral surface are short, and the sutural interval is microgranular. In *P. strigicollis junior*, as in *P. albostratus*, the meso- and metatibiae are less compressed, the metatibia is straight except for a slight curve at the apex, the dorsal setae are lighter and not concentrated distally, the dorsal elytral surface has long bristles, and the sutural interval lacks microgranules. These differences between *P. strigicollis* and the subspecies *junior* are of importance at the species level, while the subspecies *junior* shows no significant differences from *P. albostratus*, and cannot be separated from it. *Pachynotelus strigicollis junior* therefore

becomes a synonym of *P. albostratus*. No subspecies are recognized, as specimens with more extensive and less extensive vestiture are sympatric, although striped specimens are more common in the western parts of the distribution area. *Pachynotelus lineatus* is also synonymized with *P. albostratus*, as the size difference and slight sculptural differences described by Haag (1878) are well within the range of intra-specific variation in the genus *Pachynotelus*.

***Pachynotelus strigicollis* Gebien, Fig. 42**

Pachynotelus strigicollis Gebien, 1920: 71, 1937: 193; Koch, 1952: 30.

Diagnosis. Pronotum with long strioliform ridges. Elytra with five primary granular rows and three marginal rows; deflected part with rows of granules; sutural interval bare, microgranular on disc; elytral bristles short. Metatibia moderately curved, with short, sparse hairs.

Description. Size large, elytral length of single specimen examined 10,8 mm (total lengths of types 14,5; 14,8 mm: Gebien, 1920). Integument black, appendages partly reddish brown, vestiture of elytra unicoloured, greyish white, scales of ventral surface and appendages greyish white.

Head moderately large; supra-antennal portion of gena scarcely raised. Antennae with apical two segments in female slightly enlarged (known only from females), ovate, subequal in length, penultimate segment slightly shorter than preceding two segments. Frons with elongate granules, white scales, concentrated to form a faint white stripe laterally, and procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture mostly confined to a median interrupted patch of scales and a pair of lateral stripes, broadening posteriorly, white; exposed areas with long strioliform ridges and recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with five primary granular rows on disc, first row double in scutellar region. Sutural interval bare, with numerous small round secondary granules anteriorly; intervals 2–5 with whitish vestiture interrupted by a number of small subspherical to elongate secondary granules. Lateral interval with whitish scales interrupted by small subspherical to slightly elongate secondary granules. Lateral margin consisting of three rows of granules. Deflected part scaled, with one incomplete and two complete rows of granules as well as some irregularly scattered granules; epipleural row granular. Granules of primary rows bearing short, bristle-like semi-erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternal apophysis about one-and-one-third times width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with whitish scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Mesotibia strongly compressed, slightly expanded apically, with long dark setae concentrated on distal part of upper edge. Metatibia curved, specular spot on outer distal surface well developed, longer than first tarsal segment, with dorsal edge sharply raised and compressed, translucent; long,

dense, dark setae concentrated to form a brush at upper end of specular spot. Calcaria long, metatibial pair foliaceous. Tarsi stout, with long dark silky setae; first metatarsal segment much longer than ungual segment.

Aedeagus not examined.

Material examined. Lectotype and paralectotype: Museum Frey, Sinclair (not seen).

Other material: 1♀ (UP, in TM); locality: Helmeringhausen, S.W.

Season. Winter (July).

Distribution (Fig. 42). Southern pro-Namib Desert, Namibia.

Remarks. The specimen examined agrees well with Gebien's (1920) description of the types, and Koch's (1952) diagnosis in the key. Comparison with the types of Koch's (1952) subspecies *P. strigicollis junior* showed that while the differences were consistent, they were the same as the differences between *P. strigicollis s. str.* and *P. albostriatatus*. *Pachynotelus strigicollis* is related to the apomorphic dune species *P. albonotatus* and *P. kuehnelti* by the strongly curved metatibia and the expanded and compressed mesotibia, both with setose brushes.

***Pachynotelus albonotatus* Haag, Figs 40B, 45**

Pachynotelus albonotatus Haag, 1872: 308; Gebien, 1937: 193; Koch, 1952: 68.

Diagnosis. Pronotum with long strioliform granules and ridges. Elytra with poorly developed granular rows, only first row complete and distinct; deflected part with uniformly scattered granules, mainly bare; sutural interval bare. Metatibia strongly curved, stout, inner surface with long dense hair. Mesotibia strongly compressed, broad.

Description. Size medium to large, elytral length 5.7–14.5 mm. Integument black, appendages reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena scarcely raised. Antennae with apical two segments subspherical, slightly larger in male, penultimate segment slightly larger than apical segment, slightly longer than preceding two segments. Frons with elongate granules; two lateral white stripes formed by scales; with procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture confined to a pair of lateral stripes, broadening posteriorly, white; exposed areas with long strioliform granules and ridges and recumbent dark setae.

Elytra broader than pronotum, sides subparallel; with at most traces of five primary granular rows on disc, only first row complete and distinct, remaining rows represented by irregular granules, but flanked by a row of punctures. Sutural interval bare, without secondary granules; intervals 2–5 with patches or (occasionally) lines of white scales, and with small, sparse, subspherical secondary granules. Lateral interval with

patches or (occasionally) complete vestiture of white scales; alternating, if patchy, with bare patches with or without small secondary granules. Lateral margin consisting of three rows of granules. Deflected part bare except for a band of scales adjacent to epipleural crest; with moderately dense irregular granulation. Granules of primary rows bearing long, erect setae.

Sternites as for genus. Proepisterna subreticulate, with three-armed granules. Mesosternal apophysis narrow, only slightly wider than mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia curved, specular spot on outer distal surface well developed, longer than first tarsal segment, with dorsal edge sharply raised and compressed, translucent (Fig. 40B). Calcaria long, meso- and metatibial pairs foliaceous. Tarsi very slender, with long silky setae; first metatarsal segment much longer than ungual segment.

Aedeagus slender, simple.

Material examined. Holotype, in Swedish Museum of Natural History (not seen): Kuisip, Wahlberg.

Other material: 45 ex. (TM), 124 ex. (SMW), 11 ex. (UP); localities: Awasiib dunes, E. at 25.15S 15.43E; Awasiib Mt; Awasiib sand dunes; Awasiib, 9 km W. at 25.26S 15.24E; Diamond Area 2 at 25.28S 15.24E; Gobabeb; Gobabeb, S.; Gobabeb, 13 mi. S.; Gobabeb, 15 km S at 23.44S 15.04E; Gorrasis; Guiniasib Mt, N; Guiniasib Mt, SE; Kanaän; Koichab; Namib Plain 15 mi. S. Natab; Namtib; Sesriem; Sesriem canyon, 28 mi. W.; Sesriem dunes; Sossusvlei; Sossusvlei, 6 mi. W.; Tsondab Plains; Tsondab Vlei; Ururas, 50 & 90 km SSE; Walvis Bay; Witberg.

Season. After rain; mainly in autumn (March – July); also January, October, December.

Habitat. Large dunes with sparse vegetation.

Distribution (Fig. 45). Southern part of the central Namib Desert from Kuiseb to Koichab Rivers, Namibia.

Remarks. *Pachynotelus albonotatus* is always easily distinguished by the sculpture of the deflected part of the elytra. The striped pattern of specimens from the Sossusvlei area closely resembles the pattern of *P. albostriatatus*. *Pachynotelus albonotatus* has been found to be active on dunes at night as well as during the day.

***Pachynotelus kuehnelti* Koch, Fig. 42**

Pachynotelus kuehnelti Koch, 1962: 126; Penrith, 1973: 126.

Diagnosis. Pronotum with dense, rugose, round to elongate granules; lateral margins not indicated, disc and proepisterna continuous. Elytra without distinct primary rows, but with smooth, scaled areas alternating with bare granular areas; deflected part bare, densely and uniformly granular. Metatibia strongly curved, with long dense hair.

Description. Size medium to large, elytral length 8.0–13.5 mm. Integument black, appendages reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena scarcely raised. Antennae with apical two segments enlarged, slightly elongate in male, penultimate segment oblong, longer than apical segment, slightly shorter than two preceding segments together. Frons with elongate and rugose granules, sparse white scales, and procumbent setae.

Pronotum transverse, callose, sides weakly rounded, not separated from proepisterna, which are visible in dorsal view. Vestiture confined to a minute median posterior patch of scales, white; exposed areas with dense rugose round and elongate granules and short semi-erect setae.

Elytra strongly convex, broader than pronotum, sides sub-parallel; without distinct primary granular rows on disc, but with two intervals (possibly 3 and 5) and lateral interval indicated by smooth scaled areas interrupted by small granules arranged in rows (possibly representing traces of primary rows). Sutural interval and remaining intervals with dense round granules; bare. Lateral interval separated from fifth interval by a row of granules. Lateral margin consisting of two poorly indicated rows of granules. Deflected part bare, densely granular, no distinct epipleural row. Granules of disc bearing moderate, semi-recumbent dark setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternal apophysis about one-and-one-third times width of mesocoxa.

Legs stout, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface crenulate. Metatibia strongly curved, specular spot on outer distal surface well developed, as long as or longer than first tarsal segment, with dorsal edge compressed. Calcaria foliaceous. Tarsi very slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus slender, simple. In the illustration in Penrith (1973) the orientation is incorrect; 'dorsal' should read 'ventral' and vice versa.

Material examined. Holotype (sex not determined): partial cadaver, elytral length 13.5 mm (TM): Tsauchab Riv. (dunes 30 mi. W. Sesriem), X.1957, C. Koch.

Other material (1973 and present revision): 7 ex. (TM), 19 ex. (SMW), 53 ex. (BMNH), 2 ex. (UP); localities: Awasis sand dunes; Gunias; Harus, dunes W.; Koichab Pan; Namib, SE 2515 Cd; Sesriem; Tsondeb Vlei.

Season. Active briefly after rain (January, April, May).

Habitat. Vegetated sand dunes.

Distribution (Fig. 42). Southern parts of the central Namib Desert, Namibia.

Remarks. *Pachynotelus kuehnelti* is a rarely collected, highly apomorphic species. It agrees with *P. albonotatus* in the disorganized elytral sculpture, the uniformly granular deflected part of the elytra, and the structure of the tibiae.

***Pachynotelus albiventris* Solier, Fig. 42**

Pachynotelus albiventris Solier, 1840: 267; Haag, 1872: 308; Gebien, 1937: 194; Koch, 1952: 71.

Pachynotelus leopardinus Koch, 1952: 71. **syn. nov.**

Diagnosis. Pronotum with short strioliform granules; transverse, narrow, about as wide as one elytron. Elytra with five primary rows and three lateral rows; deflected part bare, with distinct rows of granules and punctures.

Description. Size small to medium, elytral length 4.9–6.5 mm. Integument reddish brown to black, vestiture of elytra bicoloured, yellowish brown and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena strongly raised. Antennae with apical two segments elongate in male (known only from males), enlarged; penultimate segment about as long as preceding two segments together, slightly longer than apical segment. Frons with elongate granules and white scales, and with recumbent and procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture virtually confined to a median stripe and a pair of lateral stripes, latter broadening posteriorly, white; exposed areas with short strioliform granules and semi-erect golden setae.

Elytra much broader than pronotum, sides rounded; with five primary granular rows on disc, rows 2–4 wavy and sometimes incomplete, all flanked by a row of punctures. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with brownish vestiture interrupted by a varying number of large strioliform secondary granules. Lateral interval with patches of white scales alternating with bare patches surrounding large dentiform to strioliform secondary granules. Lateral margin consisting of three rows of granules with large foveate punctures in intervals. Deflected part bare, with one complete and two incomplete rows of granules and several rows of punctures. Epipleural crest complete, with long setae. Granules of primary rows bearing short, bristle-like, erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternal apophysis broad, almost twice width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on at least proximal ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia slightly curved at apex, specular spot on outer distal surface well developed, shorter than first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, metatibial pair foliaceous. Tarsi very slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype, *albiventris*: ♂, elytral length 5.7 mm (MHNG): Typus [printed on pink] / *albiventris* Sol., Cap B.E., Colln. Gory (Solier); 17 [red ink] / Musée de Genève, No. 17.

Holotype, *leopardinus*: ♂, elytral length 4.9 mm (TM): Holgat, L. Namaquald, 2.IX.1950, C. Koch, G. van Son. Paratypes: 2♂ (TM): same data as holotype. (Koch, 1958, mentioned 4 males as constituting the type series, but only three were found).

Season. Date of collection recorded once (November).

Distribution (Fig. 42). Known only from the type locality in the Richtersveld, South Africa.

Remarks. The types of *P. leopardinus* are compatible with the holotype of *P. albiventris*, which Koch (1952) did not examine. Following the description of Haag (1872), Koch (1952) stated that the pronotum of *P. albiventris* was longitudinally rugose, and the primary elytral rows punctate. The pronotum of the holotype is not longitudinally rugose, but has strioliform granules, and the primary rows of the elytra are, as usual, granular, but flanked by punctate rows, as in most species of *Pachynotelus*. The two species are therefore synonymized.

***Pachynotelus catulus* Koch, Fig. 42**

Pachynotelus catulus Koch, 1952: 73.

Diagnosis. Size small. Pronotum transverse, narrow, about as wide as one elytron, with moderately long strioliform granules. Elytra with five primary granular rows and three lateral rows, deflected part scaled, with several rows of punctures but without distinct granular rows.

Description. Size small, elytral length 3,6–4,1 mm. Integument reddish brown to black, vestiture of elytra bicoloured, pale buff and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena strongly raised, but outline continuous with sides of clypeus. Antennae with apical two segments elongate (known only from males), enlarged, about equal in length, as long as preceding two segments together. Frons with elongate granules and white scales, and with recumbent and procumbent setae.

Pronotum transverse, sides straight, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture mostly confined to a median stripe and a pair of lateral stripes, latter broadening posteriorly, white; exposed areas with moderately long strioliform granules and recumbent golden setae.

Elytra much broader than pronotum, sides weakly rounded; with five primary granular rows on disc, all flanked by a row of punctures. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with buff vestiture interrupted by a varying number of large strioliform secondary granules on intervals 2 and 4. Lateral interval with patches of white scales alternating with bare patches surrounding strioliform secondary granules. Lateral margin consisting of three rows of granules with large foveate punctures in intervals. Deflected part scaled, with several rows of punctures. Granules of primary rows bearing short, bristle-like erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular, appearing reticulate owing to scales between granules. Mesosternal apophysis broad, almost twice width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia slightly curved, specular spot on outer distal surface well developed, shorter than first tarsal segment, with

dorsal edge sharply raised and compressed, translucent. Calcaria long, metatibial pair foliaceous. Tarsi very slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 4,0 mm (TM): Gt. Namaquald, 12 m. S. of Grootderm, 12 Sept. 1950, C. Koch, G. van Son.

Other material: 1 ex. (TM), 2 ex. (SMW); localities: Bogenfels, E.; Grootderm, 10 km S.

Season. Winter to spring (July, September).

Habitat. Sandy plains with vegetation.

Distribution (Fig. 42). Lower Orange River area of northern Namaqualand, South Africa, and southern Namib Desert, Namibia.

Remarks. *Pachynotelus catulus* differs from *P. albiventris* only in the sculpture and vestiture of the deflected parts of the elytra; the smaller size and paler colour may be within the range of variation of *P. albiventris*, as so few specimens of both species are known.

***Pachynotelus striolipennis* Koch, Fig. 45**

Pachynotelus striolipennis Koch, 1952: 71.

Diagnosis. Pronotum broader than one elytron, with very long, fine strioliform ridges. Elytra with five well-defined straight rows of primary granules, flanked by a bare area, scales white, secondary intervals with at least some bare patches with strioliform secondary granules. Apical antennal segments of male strongly enlarged, elongate, penultimate segment as long as preceding three segments together.

Description. Size small to medium, elytral length 5,6–10,2 mm. Integument black, appendages reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Antennae with apical two segments enlarged, elongate in male, penultimate segment as long as preceding three segments together, slightly longer than apical segment. Female with apical two segments subspherical, subequal in length, penultimate segment slightly shorter than preceding two segments together. Frons with elongate granules and white scales, and with semi-erect setae inclined both anteriorly and posteriorly.

Pronotum transverse, sides parallel, indicated posteriorly by a few granules, otherwise only by position of lateral stripes; proepisterna visible in dorsal view. Vestiture of scales mostly confined to a median stripe and a pair of lateral stripes, white; exposed areas with very long fine strioliform ridges and semi-recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded (male) or subparallel (female); with five primary granular rows on disc, usually straight and well marked, rows 2 and 3 occasionally wavy and incomplete. Scutellar region of first primary row

double or multiple. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with white vestiture interrupted by a varying number of large strioliform secondary granules. Lateral interval with white scales interrupted by small subspherical secondary granules. Primary rows flanked by bare areas of varying width, giving elytra a striped appearance. Lateral margin consisting of three rows of granules. Deflected part mostly covered by scales, with two complete rows of granules in upper half, scattered granules, sometimes forming an ill-defined row in lower half. Epipleural crest consisting of a row of elongate granules. Granules of primary rows bearing long, bristle-like, erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternum weakly callose anteriorly. Mesosternal apophysis broad, about one-and-a-half times width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on proximal ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia curved, specular spot on outer distal surface well developed, only slightly shorter than first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, meso- and metatibial pairs foliaceous. Tarsi slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus simple, slender.

Material examined. Holotype ♂, elytral length 6,6 mm (TM): Port Nolloth, C.P., 22-IX-1948, Koch & van Son. Paratypes (not examined): 1 (HMNH), "Klein Namaqualand"; 1 (stated to be in TM, but not found), Oograbies.

Other material: 57 ex. (TM), 24 ex. (SMW), 14 ex. (SAM), 5 ex. (NMBL); localities: Buffels R. valley; Jakkalspuit; Manganese Mine.

Season. Spring (September – November).

Habitat. Vegetated sand dunes.

Distribution (Fig. 45). Northern Namaqualand (Richtersveld), South Africa.

Remarks. The long series examined confirmed that the unicoloured elytral vestiture and relatively coarse elytral granulation are consistent. These characters serve to differentiate the species from the closely related *P. dimorphus*.

***Pachynotelus dimorphus* Koch, Fig. 45**

Pachynotelus dimorphus Koch, 1952: 71.

Diagnosis. Pronotum broader than one elytron, with long strioliform ridges. Elytra with five fine, wavy primary rows not flanked by a bare area, elytral scales bicoloured; secondary intervals with bare patches surrounding strioliform secondary granules. Apical antennal segments of male elongate, penultimate segment longer than preceding three segments together.

Description. Size medium to large, elytral length 5,3–10,2 mm. Integument reddish brown to black, vestiture of elytra bicoloured, pale buff and white, scales of ventral surface and

appendages white.

Head moderately large; supra-antennal portion of gena slightly raised. Antennae with apical two segments enlarged in both sexes, elongate in male, penultimate segment longer than preceding three segments together, slightly longer than apical segment. Female with penultimate segment squarish, as long as preceding two segments together, slightly longer than subspherical apical segment. Frons with elongate granules, white scales, and long, semi-erect setae, inclined anteriorly and posteriorly.

Pronotum strongly transverse, sides weakly rounded, indicated by a few granules posteriorly, otherwise only by position of lateral stripes; proepisterna visible in dorsal view. Vestiture mostly confined to a broad median stripe and a pair of broad lateral stripes, white; exposed areas with long strioliform ridges and very long recumbent golden setae.

Elytra slightly broader than pronotum, sides subparallel to slightly rounded; with five primary granular rows on disc, rows 2–4 wavy and sometimes incomplete. Sutural interval with dense, small white scales and no secondary granules; intervals 2–5 with buff vestiture interrupted on intervals 2–4 by a variable number of long strioliform secondary granules. Lateral interval with white scales interrupted by small subspherical secondary granules; usually two elongate bare patches on apical declivity. Lateral margin consisting of three rows of granules with large foveate punctures in intervals between rows. Deflected part densely scaled, with two incomplete rows of granules. Granules of primary rows bearing long, bristle-like, erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternal apophysis broad, almost twice width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales, femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia distinctly curved, specular spot on outer distal surface well developed, as long as first tarsal segment, with dorsal edge sharply raised and compressed, Calcaria long, metatibial pair foliaceous. Tarsi slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus slender, simple.

Material examined. Holotype ♂, elytral length 5,5 mm (TM): Brandkaross, Richtersveld, 9.IX.50, C. Koch, G. van Son. Allotype ♀, elytral length 9,0 mm (TM): same data as holotype. Paratypes: 107 ex. (TM), 2 ex. (SMW): same data as holotype.

Other material: 3 ex. (TM), 12 ex. (SMW); localities: Grootderm; Klinghardt Mts; Tsaus Mt. and dunes, 27.11S 16.13 E.

Season. Spring (September, October).

Habitat. Vegetated sand dunes.

Distribution (Fig. 45). Northern Richtersveld (Orange River), South Africa, and southern Namib Desert, Namibia.

Remarks. The specimens from the Klinghardt and Tsaus Mountains concur with the long type series from Brandkaross and the specimens from Grootderm in elytral vestiture and sculpture.

Pachynotelus kaszabi* Koch, Fig. 45Pachynotelus kaszabi* Koch, 1952: 70.

Diagnosis. Pronotum broader than one elytron, with fine, long strioliform ridges. Elytra entirely scaled, with five primary granular rows; secondary granules if present small and rounded; scales tricoloured, irregular dark blotches on disc; lateral margin of elytra formed by three rows of strong dentiform granules; humeri strongly produced.

Description. Size small to large, elytral length 4,8–12,2 mm. Integument reddish brown to black, vestiture of elytra tricoloured, dark brown, light brown and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Antennae with apical two segments enlarged, elongate in male, penultimate segment slightly shorter than preceding three segments together, slightly longer than apical segment; in female apical two segments subequal in length, subspherical, penultimate segment slightly shorter than preceding two segments together. Frons with elongate granules, white scales, and long semi-erect setae.

Pronotum transverse, sides subparallel, indicated by a row of sparse granules; proepisterna visible in dorsal view. Vestiture extensive, white, with a broad median stripe and a pair of broad lateral denser and more clearly defined stripes; exposed areas with fine, long, strioliform ridges and long, semi-erect setae.

Elytra broader than pronotum, sides weakly rounded (male) to subparallel (female); with five primary granular rows on disc. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with white, light brown and dark brown vestiture; dark scaled areas forming indeterminate and variable patterns, sometimes surrounding small bare patches with or without small subspherical secondary granules. Lateral interval with white scales interrupted by small subspherical secondary granules. Lateral margin consisting of three rows of granules separated by large foveate punctures in intervals. Deflected part scaled, bicoloured, with one incomplete row of granules. Granules of primary rows bearing long, bristle-like, erect setae.

Sternites as for genus. Proepisterna coarsely and densely granular. Mesosternal apophysis broad, one-and-a-half times to almost twice width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia distinctly curved, specular spot on outer distal surface well developed, as long as first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, metatibial pair broadly foliaceous. Tarsi slender, with long silky setae; first metatarsal segment much longer than ungual segment.

Aedeagus slender, simple.

Material examined. Holotype ♂, elytral length 4,8 mm (HMNH): D.S.W. Afrika, Oranje.

Other material: 62 ex. (TM), 94 ex. (SMW), 29 ex. (UP, in TM), 1 ex. (SAM); localities: Daberas dunes; Lower Orange River; Obib dunes; Schakalsberge.

Season. Spring (September – November); recorded once in May.

Habitat. Sparsely vegetated large dunes.

Distribution (Fig. 45). Southern Namib Desert along the Orange River, Namibia.

Remarks. This species, described from a single specimen with a vague locality, has been rediscovered in large numbers from a limited area on the north bank of the Orange River. The specimens examined are very uniform and agree well with the type.

***Pachynotelus adamantinus* spec. nov., Figs 42, 66**

Diagnosis. Pronotum broader than one elytron, with long strioliform granules. Elytra with five primary granular rows, sides rounded, poorly indicated by three rows of evanescent granules; sutural and lateral intervals scaled, white, disc otherwise uniformly dark; no strioliform secondary granules except in lateral interval. Penultimate antennal segment of male about as long as preceding two segments together.

Description. Size small, elytral length 3,6–5,9 mm. Integument reddish brown to black, vestiture of elytra tricoloured, yellowish brown, reddish brown and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Antennae with apical two segments enlarged, ovate in male, subequal in length, penultimate segment about as long as preceding two segments together. Frons with elongate granules and white scales, more concentrated laterally, and with procumbent setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture virtually confined to a median stripe and a pair of lateral stripes, former interrupted medially, latter evanescent anteriorly, white; exposed areas with long strioliform granules and recumbent golden setae.

Elytra broader than pronotum, sides rounded; with five primary granular rows on disc, rows 3 and 5 uniting, row 4 abbreviated above apical declivity. Sutural interval with dense white scales and no secondary granules; intervals 2 and 3 with brownish or brown and buff (brown at least in the middle) vestiture, without secondary granules. Lateral interval with white scales interrupted by a varying number of bare patches surrounding small secondary granules. Lateral margin consisting of three rows of granules. Deflected part bare at least in upper half, with two or three complete or incomplete rows of granules and a few irregular punctures. Granules of primary rows bearing short, bristle-like, semi-erect setae.

Sternites as for genus. Proepisterna bare, coarsely and densely granular. Mesosternal apophysis broad, almost twice width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia weakly curved apically, specular spot on outer distal surface well developed, often smooth and callose, about as long as first tarsal segment, with dorsal edge sharply

raised and compressed. Calcaria long, metatibial pair foliaceous. Tarsi slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus simple, slender.

Material examined. Holotype ♂, elytral length 4,0 mm (TM): S.W.Afr., S. Namib, Obib dunes, 28.02S 16.37E / 20.9.1973, E-Y:126, sifted grass tuss. [tussock], leg. Endrödy-Younga. Allotype ♀, elytral length 5,5 mm (TM): locality and collector same as holotype, but 18.9.1973, E-Y:117, on dunes, diurnal. Paratypes: 12 ex. (TM), 40 ex. (SMW), 4 ex. (SAM): (2) same data as holotype; (7) same data as allotype; (3) South West Africa: Diamond Area No 1, Klinghardtsberge, Spitskuppe Sud, 19.10.1974, H.D. Brown; (2) Obib dunes, W. at 28.03S 16.28E, Diamond Area 1, 7–8 Sept. 1980, S. Louw, M.-L. Penrith / H 42525; (7) Sargdeckel, Klinghardt Mts, 27.24S 15.41E, Diamond Area 1, 1–2 Oct. 1982, M.-L. Penrith, J. Irish / H 54032; (3) Klinghardt Mts at 27.20S 15.45E, Diamond Area 1, 3–6 Sept. 1980, S. Louw, M.-L. Penrith / H 42462; (5) Obib dunes, S. at 28.10S 16.48E, 17 Sept. 1973 / H 14483 [M.-L. Penrith, J.B.U. Tebje]; (18) Obib dunes, E. at 28.02S 16.32E, 16–20 Sept. 1973 / H 14426 [M.-L. Penrith, J.B.U. Tebje]; (2) Buchuberg, Lüderitz, SE 2715 Bd, 1972, C.J.C.; (4) Klinghardt Mts, 1 Oct. 1982, V.B. Whitehead.

Season. Spring (September, October).

Habitat. Vegetated sandy interdune valleys, usually with some gravel or calcrete; most of the specimens in SMW from the Obib dunes were collected in the vicinity of an old ostrich skeleton.

Distribution (Fig. 42). Southern Namib Desert, Namibia.

Remarks. This species is macroscopically indistinguishable from the partly sympatric species *P. namibensis*, but differs from that species in the strongly dimorphic antennae, with the apical segments elongate in the male, and the strioliform ridges on the pronotum. The same characters distinguish it from *P. scaccarium*, some of whose Kalahari specimens resemble it in colour pattern. It differs as follows from the other species with elongate apical antennal segments in the male: from all of them in the reduced lateral elytral margin and smoothed specular spot (which is, however, slightly variable), as well as in colouring and elytral sculpture. From *P. dimorphus*, *P. kaszabi* and *P. striolipennis* it differs also in the small size and rounded shape of the elytra, partly bare deflected part of the elytra, and less produced humeri.

Etymology. The name of the new species is derived from the Diamond Area in which it occurs (Latin, *adamantinus*, -a, -um, adamantine; used in reference to diamonds owing to their hardness).

***Pachynotelus rufus* (Koch) comb. nov., Fig. 42**

Fossilochile rufa Koch, 1952: 63.

Diagnosis. Pronotum with short fine strioliform granules; sides rounded, continuous with proepisterna. Humeri of elytra not embracing pronotal base. Primary rows of elytra indicated

by long setae emerging from minute granules; disc with about ten irregular punctate rows. Sides rounded, lateral margins of elytra not indicated; deflected parts with rows of punctures. Apical antennal segments very elongate in male, penultimate segment as long as preceding three segments together.

Description. Size small to medium, elytral length 4,8–6,8 mm. Integument reddish brown, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Eyes protuberant. Antennae with apical two segments very elongate in male, enlarged, penultimate segment longer than preceding three segments together, slightly longer than apical segment; in female ovate, subequal, penultimate segment as long as preceding two segments together. Frons with fine elongate granules and white scales, and with procumbent setae.

Pronotum transverse, sides not indicated in front of posterior angles, continuous with proepisterna; proepisterna visible in dorsal view. Vestiture mostly concentrated in a median stripe and a pair of lateral stripes, area between lateral stripes with short fine strioliform granules and recumbent golden setae.

Elytra broader than pronotum, sides weakly rounded; with about ten irregular punctate rows on disc. Primary rows represented by rows of long, erect golden setae. All intervals with white scales and no secondary granules. Lateral margin not defined, punctate rows continue onto deflected part, which is sparsely scaled. Epipleural row punctate.

Sternites as for genus. Proepisterna scaled, without secondary sculpture. Mesosternal apophysis moderately broad, about one-and-one-third times width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia weakly curved apically, specular spot on outer distal surface well developed, shorter than elongate first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, metatibial pair of female foliaceous. Tarsi very slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus not examined.

Material examined. Holotype ♀, elytral length 6,8 mm (TM): Namib, 70 km NW of Aus, Gt. Namaqualand, C. Koch, G. van Son. Paratype: ♀ (TM), same data as holotype.

Other material: 1♂, 1♀ (SMW); localities: Kanaän; Koichab R. at 26.13S 16.05 E.

Season. After rain; February, October.

Habitat. Under plants on sparsely vegetated dunes.

Distribution (Fig. 42). Southern parts of the central Namib Desert, Namibia.

Remarks. Koch (1952) believed his specimens to be males, but the discovery of a conspecific specimen with modified antennae indicates that both types are female. The female specimen from Kanaän differs from the other specimens in that the humeri and the marginal edge of the elytra are more clearly defined, but we believe it to be conspecific with the others.

***Pachynotelus kochi* spec. nov., Figs 44, 67**

Diagnosis. Pronotum with slightly elongate granules, sides indicated by a row of granules. Elytra with three distinct primary granular rows on disc; middle and outer rows not united before middle of apical declivity. Humeri of elytra produced, embracing elytral base. Deflected part of elytra bare.

Description. Size small, elytral length 4,2–5,4 mm. Integument reddish brown to black, vestiture of elytra more or less unicoloured, dirty white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Antennae with apical two segments slightly enlarged in male, subspherical, penultimate segment slightly shorter than either apical or preceding two segments together. Frons with elongate granules, white scales forming two lateral bands but scattered on clypeus, and procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row of granules; proepisterna visible in dorsal view. Vestiture virtually confined to a median stripe and a pair of lateral stripes, latter broadening posteriorly; exposed areas with slightly elongate granules and very short, semi-erect, dark setae.

Elytra broader than pronotum, sides rounded; with three primary granular rows on disc, remaining rows indicated by rows of smaller granules on intervals; complete rows flanked by a row of punctures and a bare area; outer two rows join, or almost join, halfway down apical declivity. Sutural interval with dense white scales and no secondary granules; two inner intervals with whitish vestiture interrupted by a variable row of smaller granules. Lateral interval with white scales variably interrupted by short strioliform secondary granules. Lateral margin consisting of three rows of granules. Deflected part scaled in lower half, upper half bare, with one or two incomplete rows of granules and several rows of punctures. Granules of primary rows bearing short, bristle-like, semi-erect setae.

Sternites as for genus. Proepisterna sparsely granular. Mesosternal apophysis one-and-one-third to one-and-a-half times width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia straight, specular spot on outer distal surface well developed, shorter than first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, narrow in male, slightly foliaceous in female. Tarsi very slender, with long silky setae; first metatarsal segment much longer than unguis segment.

Aedeagus slender, simple, as for genus.

Material examined. Holotype ♂, elytral length 5,0 mm (SMW): Obib dunes E. at 28.02S 16.37E, Lüderitz, 16–20 Sept. 1973 / H 14428 [coll. M.-L. Penrith, J.B.U. Tebje]. Allotype ♀, elytral length 5,0 mm (SMW): same data as holotype. Paratypes: 16 ex., same data as holotype (SMW, 2 in TM): 1 ex., Obib Mts/dunes, SE 2816Ba, Diamond Area 1, 28–30 Oct. 1977, coll. S. Louw, M.-L. Penrith / H 35136.

Season. Spring (September, October).

Habitat. Vegetated dunes and sandy interdune valleys.

Distribution (Fig. 44). Southern Namib Desert, Namibia.

Remarks. This species differs from *P. leucinus* and *P. garipepinus*, which also have three elytral primary rows, in the position of the junction of the two outer primary rows, the sculpture and vestiture of the deflected part of the elytra, the broader mesosternal apophysis, and metatarsal proportions.

Etymology. The new species is named in honour of Dr C. Koch, to commemorate the pioneer work he did on these beautiful beetles.

***Pachynotelus haagi* Péringuey, Fig. 43**

Pachynotelus haagi Péringuey, 1899: 250; Gebien, 1937: 193; Koch, 1952: 78.

Pachynotelus garipepinus Koch, 1952: 78. **syn. nov.**

Diagnosis. Pronotum with small round granules, sides indicated by a row of granules. Elytra with three distinct primary granular rows on disc, middle and outer rows uniting before top of apical declivity. Humeri of elytra produced, embracing pronotal base. Deflected part of elytra scaled. Elytral vestiture bicoloured, white and buff to yellowish.

Description. Size small to medium, elytral length 4,7–8,5 mm. Integument reddish brown to black, vestiture of elytra bicoloured, pale yellowish to reddish brown and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Antennae with apical two segments enlarged in male, subspherical, penultimate segment slightly shorter than apical segment, shorter than preceding two segments together. Frons with elongate granules, white scales on clypeus and forming two broad lateral bands, and procumbent setae.

Pronotum transverse, sides almost straight, indicated by a row of granules, often double; proepisterna just visible in dorsal view. Vestiture variable, scales virtually confined to a median band or patch and a pair of lateral stripes, latter broadening posteriorly, white, or extensive but denser in median and lateral bands; exposed or less scaled areas with round granules bearing recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded, almost subparallel; with three primary granular rows on disc, flanked by a row of punctures and a bare area, outer two rows uniting above apical declivity. Sutural interval with dense white scales and no secondary granules; two inner intervals with pale yellowish to reddish brown vestiture, usually without secondary granules, occasionally interrupted by a varying number of small round secondary granules, rarely forming short rows. Lateral interval with white scales and (rarely) one or more round secondary granules. Lateral margin consisting of three rows of granules. Deflected part scaled, with or without one complete or incomplete row of granules. Granules of primary rows bearing short, bristle-like, semi-recumbent setae.

Sternites as for genus. Proepisterna with a varying number of sparse, small granules. Mesosternal apophysis narrow, not or only slightly wider than mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi

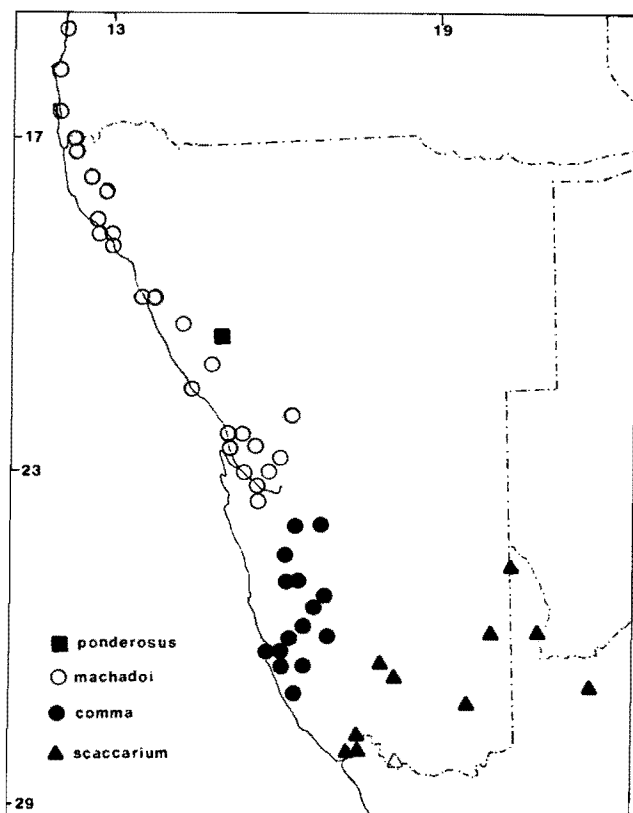


Fig. 41. Distribution of *Pachynotelus ponderosus*, *P. machadoi*, *P. comma* and *P. scaccarium*.

with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia almost straight, specular spot on outer distal surface well developed, shorter than or about equal in length to first tarsal segment, with dorsal edge sharply raised and compressed, translucent. Calcaria long, those of metatibia foliaceous. Tarsi slender, with long silky setae; first metatarsal segment about as long as ungual segment.

Aedeagus slender, as for genus.

Material examined. Holotype, *haagi*, sex not determined (SAM) (not seen); paratypes: (SAM) (not seen); 1♂, elytral length 6,0 mm (TM): Namaqualand / 35 / *Pachynotelus haagi* Per. [in red ink].

Lectotype, *garipepinus*, ♂, elytral length 6,0 mm (TM): Brandkaross, Richtersveld, 9.IX.50, C. Koch, G. van Son. Allolectotype ♀, elytral length 7,9 mm (TM): same data as lectotype. Paralectotypes: 9 ex. (TM): same data as lectotype.

Other material: 53 ex. (TM), 62 ex. (SMW), 25 ex. (UP, in TM), 48 ex. (NMBL), 57 ex. (SAM), 1 ex. (NCI); localities: Agub Mt; Annisfontein, 11 mi NW; Anniskop; Anniskop, SW at 28.25S 16.51E; Aurus Mts, S.; Brandkaross; Buffels River valley; Daberas dunes; Doringpoort; Farquarson; Jakkalsputs; Komaan; Manganese Mine; Obib dunes; Obib dunes, S. at 28.10S 16.48E, W. at 28.11S 16.36E, E. at 28.02S 16.37E; Oranjemund; Oranjemund, 10 km NE, NE; Port Nolloth; Port Nolloth – Steinkopf, at 29.20S 17.06E; Rosh Pinah; Schakalsberge; Sendelingsdrif, 1 mi S.; Upper Holgat; no locality.

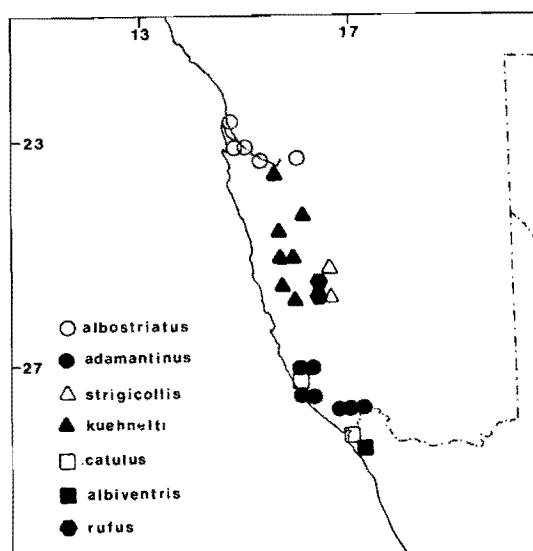


Fig. 42. Distribution of *Pachynotelus albostriatus*, *P. adamantinus*, *P. strigicollis*, *P. kuehnelti*, *P. catulus*, *P. albiventris* and *P. rufus*.

Season. Mainly spring (August – November); also recorded in May.

Habitat. Vegetated dunes and sandy interdune valleys.

Distribution (Fig. 43). Northern Namaqualand (Richtersveld), South Africa, and southern Namib Desert along northern bank of Orange River, Namibia.

Remarks. *Pachynotelus garipepinus* cannot be separated from *P. haagi*; long series indicated that all characters listed by Koch (1952) are variable. Southern specimens more frequently have secondary granules in the elytral intervals and the interval between the marginal rows, and a row of granules on the middle of the deflected part of the elytra, than do northern (Orange River area) specimens.

***Pachynotelus leucinus* Koch, Fig. 43**

Pachynotelus leucinus Koch, 1952: 78.

Diagnosis. Pronotum with round granules, larger than granules of primary elytral rows; sides indicated by a row of granules. Elytra with three distinct primary granular rows on disc, middle and outer rows uniting before top of apical declivity. Humeri of elytra produced, embracing pronotal base. Deflected part of elytra scaled. Elytral vestiture unicoloured, white.

Description. Size small to medium, elytral length 4,0–7,1 mm. Integument reddish brown to black, vestiture of elytra unicoloured, white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena strongly raised. Antennae with apical two segments slightly enlarged in male, subspherical, penultimate segment shorter than either preceding two segments together or apical segment. Frons with elongate granules and white scales, concen-

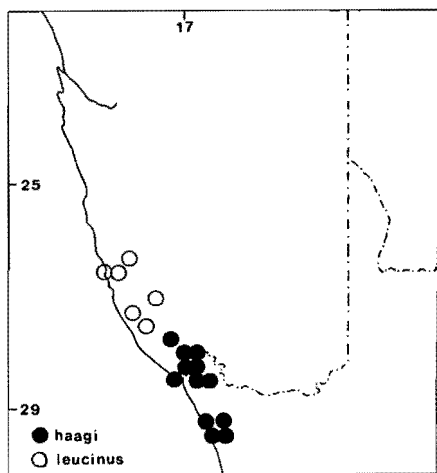


Fig. 43. Distribution of *Pachynotelus haagi* and *P. leucinus*.

trated laterally and on clypeus, and anteriorly inclined, semi-recumbent dark setae.

Pronotum transverse, sides weakly rounded, indicated by a row of granules at least posteriorly, usually evanescent anteriorly; proepisterna just visible in dorsal view. Vestiture usually virtually confined to broad median and lateral stripes, latter broadening posteriorly, former sometimes divided into anterior and posterior patches; exposed areas with round granules and short recumbent dark setae.

Elytra broader than pronotum, sides weakly rounded, almost subparallel; with three primary granular rows on disc, flanked by a row of punctures and a bare area; outer two rows uniting above apical declivity. Sutural interval with dense white scales and no secondary granules; two inner intervals with white vestiture sometimes interrupted by a varying number of round secondary granules which may form a distinct row. Lateral interval with white scales, rarely interrupted by small round secondary granules. Lateral margin consisting of three rows of granules with foveate punctures in intervals. Deflected part scaled, without any rows of granules, but usually with a few variable granules and irregular punctures. Granules of primary rows bearing moderately long, bristle-like, semi-erect setae.

Sternites as for genus. Proepisterna with very sparse small granules. Mesosternal apophysis narrow, about as wide as or slightly wider than mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia straight, specular spot on outer distal surface well developed, slightly shorter than, as long as, or longer than first tarsal segment, with dorsal edge raised and compressed. Calcaria long, metatibial pair foliaceous. Tarsi moderately slender, with long silky setae; first metatarsal segment slightly longer than unguis segment.

Aedeagus slender, simple, as for genus.

Material examined. Holotype ♂, elytral length 6,8 mm (TM): Namib, Lüderitz, Eberlanz. Allotype ♀ (TM): same data as holotype. Paratypes: 1♂, 2 ex. (TM): (1) same data as holotype, (2) 10 m. W. Haalenberg, Gt Namaqualand, 25.IX.1950, Koch & van Son.

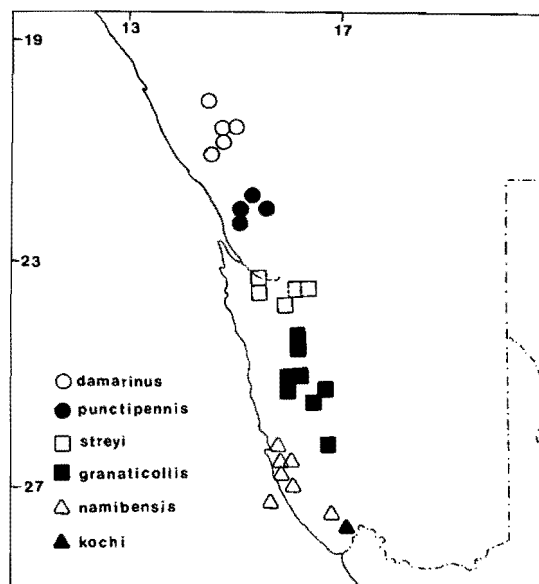


Fig. 44. Distribution of *Pachynotelus damarinus*, *P. punctipennis*, *P. streyi*, *P. granaticollis*, *P. namibensis* and *P. kochi*.

Other material: 75 ex. (SMW), 6 ex. (UP, in TM), 9 ex. (SAM); localities: Haris, 3 km S, 26.34S 15.25E; Klinghardt Mts; Koichab; Rotkop/Haalenberg; Tsaus Mt, 27.11S 16.13 E.

Season. Irregular, after rain (January, July, October).

Habitat. Sandy plains with grass.

Distribution (Fig. 43). Southern Namib Desert, Namibia.

Remarks. This species closely resembles *P. haagi*, but differs from it, as well as *P. namibensis*, in the unicoloured elytra; from *P. kochi* in the position of the junction of the two outer primary rows of the elytra, and from *P. longipilis* in the well-developed humeri.

***Pachynotelus namibensis* Koch, Fig. 44**

Pachynotelus namibensis Koch, 1952: 77.

Diagnosis. Pronotum with subspherical granules, sides indicated by a row of fine sparse granules. Elytra with five granular rows on disc, second row abbreviated; lateral margin rounded, formed by three rows of evanescent granules; no strioliform secondary granules on disc except in lateral interval. Humeri of elytra embracing pronotal base. Sutural interval with dense white scales; intervals 2–4 reddish.

Description. Size small to medium, elytral length 3,2–7,2 mm. Integument reddish brown to black, vestiture of elytra bicoloured, yellowish to reddish brown and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena raised. Antennae with apical two segments slightly enlarged in male, subspherical. Penultimate segment shorter than preceding two segments together; apical segment longer than penultimate segment. Frons with slightly elongate granules,

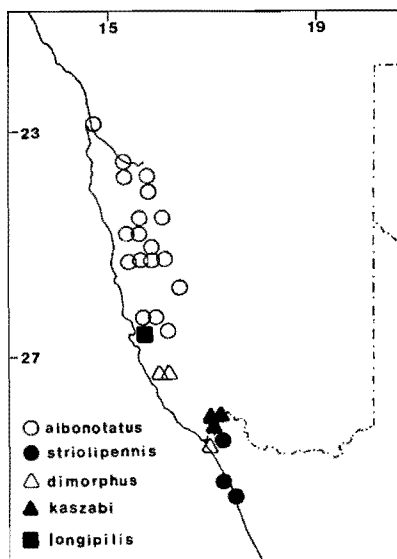


Fig. 45. Distribution of *Pachynotelus albonotatus*, *P. striolipennis*, *P. dimorphus*, *P. kaszabi* and *P. longipilis*.

white scales concentrated on clypeus and in two lateral bands, and procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row of fine, sparse granules; proepisterna visible in dorsal view. Vestiture virtually confined to a median stripe and a pair of lateral stripes, white; exposed areas with subspherical granules and short semi-erect golden setae.

Elytra broader than pronotum, sides subparallel to weakly rounded; with five primary granular rows on disc, rows 3 and 5 uniting above apical declivity, row 4 incomplete, all flanked by a row of punctures. Sutural interval with dense white scales and no secondary granules; intervals 2–4 with brownish to reddish vestiture; without secondary granules. Lateral interval with white scales, sometimes interrupted by a few small round secondary granules. Lateral margin consisting of three rows of evanescent granules with large foveate punctures in intervals. Deflected part scaled in lower half, upper half bare, with several irregular rows of punctures. Granules of primary rows bearing short, bristle-like, erect setae.

Sternites as for genus. Proepisterna with scattered round granules. Mesosternal apophysis about one-and-one-third times width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia very weakly curved at apex, specular spot on outer distal surface well developed, shorter than or equal in length to first tarsal segment, with dorsal edge compressed. Calcaria long, metatibial pair foliaceous. Tarsi moderately slender, with long silky setae; first metatarsal segment about as long as or longer than ungual segment.

Aedeagus slender, simple.

Material examined. Holotype ♂, elytral length 5,0 mm (TM): 10 m W of Haalenberg, Gt Namaqualand, 25.IX.1950, Koch & van Son. Paratypes: 5 (TM): same data as holotype (including one incomplete specimen evidently collected as a cadaver).

Other material: 1 ex. (TM), 1 ex. (AMNH), 86 ex. (SMW), 1 ex. (SAM); localities: Aurus Mts S.; Diamond Area 1 at 26.46S 15.35E; Dreizackberg, 2 km N; Grillental; Grillental, 2 km N, 10 km S; Klinghardt Mts; Pomona Island.

Season. Mainly in spring (July, September, October).

Habitat. Interdune valleys with vegetation; vegetated dunes.

Distribution (Fig. 44). Southern Namib Desert, Namibia.

Pachynotelus longipilis Gebien, Fig. 45

Pachynotelus longipilis Gebien, 1920: 75, 1937: 193; Koch, 1952: 76.

Diagnosis. Size small. Pronotum with small subspherical granules, sides indicated by a row of widely spaced granules. Elytra with five granular rows on disc, lateral margin consisting of two indistinct rows of granules. Humeri of elytra scarcely produced, not embracing pronotal base. Setae long.

Description. Size small, elytral length 3,8–4,1 mm. Integument reddish brown to black, vestiture of elytra bicoloured, pale cream to reddish brown and white, scales of ventral surface and appendages white.

Head moderately large; supra-antennal portion of gena slightly raised. Antennae with apical two segments slightly enlarged in male, subspherical, subequal in length, penultimate segment about as long as preceding two segments together. Frons with briefly elongate granules and white scales, denser laterally, and with procumbent setae.

Pronotum transverse, sides subparallel, indicated by a row of widely spaced granules; proepisterna just visible in dorsal view. Vestiture almost complete, bicoloured, pale and denser in a median stripe and a pair of lateral stripes. Area between lateral stripes with small subspherical granules bearing recumbent golden setae. Posterior angles not enclosed in elytral base, and bearing a patch of dark bristles.

Elytra broader than pronotum, sides rounded, humeri not developed; with five primary granular rows on disc, rows 1, 3 and 5 complete, rows 3 and 5 uniting above apical declivity, rows 2 and 4 represented by variable and abbreviated rows of granules, rows 1, 3 and 5 flanked by a row of punctures, covered with scales. Sutural interval with dense white scales and no secondary granules; intervals 2–5 with cream to brownish vestiture, without secondary granules. Lateral interval with white scales and no secondary granules. Lateral margin consisting of two indistinct rows of granules, interval separating them with large foveate punctures. Deflected part scaled, without distinct granules or punctures visible. Granules of primary rows bearing bristle-like, semi-erect setae.

Sternites as for genus. Proepisterna very sparsely granular. Mesosternal apophysis about one-and-one-third times width of mesocoxa.

Legs slender, long. Femora, tibiae and dorsal surface of tarsi with white scales. Femora with long setae on ventral surface. Tibiae with long setae; protibia compressed, dorsal surface toothed. Metatibia straight, specular spot on outer distal surface well developed, shorter than first tarsal segment. Calcaria long, metatibial pair foliaceous. Tarsi slender, with

long silky setae; first metatarsal segment about as long as unguis segment.

Aedeagus not examined.

Material examined. Holotype in Eberswalde, Germany (not seen).

Other material: 3 ex. (TM), 1 ex. (SMW), 1 ex. (HMNH); localities: Diamond Area: 26.46S 15.35E; Haalenberg, 10 mi W; Kuikup – Tsirub.

Season. Spring (August, September).

Distribution (Fig. 45). Southern Namib Desert, Namibia.

Remarks. The specimens that Koch (1958) assigned to this species agree well with Gebien's (1920) description. Where there are discrepancies, these are easily recognized as observational errors or errors of description, e.g., the rounded pronotal sides, which actually refers to the rounding of the proepisterna, visible in dorsal view.

Genus *EPIPAGUS* Haag

Epipagus Haag, 1872: 311; Gebien, 1937: 194; Koch, 1952: 85.

Type species: *Epipagus benguelensis* Haag, 1872 (by monotypy).

Diagnosis. Cryptochilina of small to medium size (elytral length 4,1–7,7 mm). Integument reddish brown to black, with vestiture of shiny scales. Head moderately large, deflected, not strongly amplexed in thorax, eye reniform, visible in lateral view, setose. Occiput with stridulatory file. Clypeus emarginate anteriorly, sides convergent, not or scarcely separated from gena. Mentum strongly transverse, relatively large but not concealing maxillae (Fig. 46A). Antennae 10-segmented, those of male with apical two segments distinctly enlarged (no female with intact antennae was available). Both apical segments with clearly defined basal sclerotized and apical setose parts.

Pronotum subrectangular, sides weakly rounded, widest at, or just behind or in front of middle, lateral margins complete, carinate or granular, but always distinct at anterior angles. Sculpture consisting of rounded granules, sometimes pedunculate posteriorly. Inner surface of anterior margin finely striate in middle. Elytra broadly ovate to rounded, disc domed, with five discal costae including sutural costa, sutural interval separating suture and sutural costa broad and with indications of supplementary costae anteriorly. Lateral margin subcostiform, well defined. Humeri embracing pronotal base.

Length of prosternum in front of procoxa about half length of procoxa. Anterior prosternal margin simple, not produced or covering mouthparts. Procoxal cavity closed behind. Mesosternum raised to callose anteriorly. Abdominal sternites with setae sexually dimorphic, moderately long in male, long in female.

Legs moderately stout. Male profemur with low ridge-like tubercle occupying basal third to half of anteroventral margin. Protibia slightly flattened, externally carinate in distal third, denticulate, with relatively large, flattened denticles, in

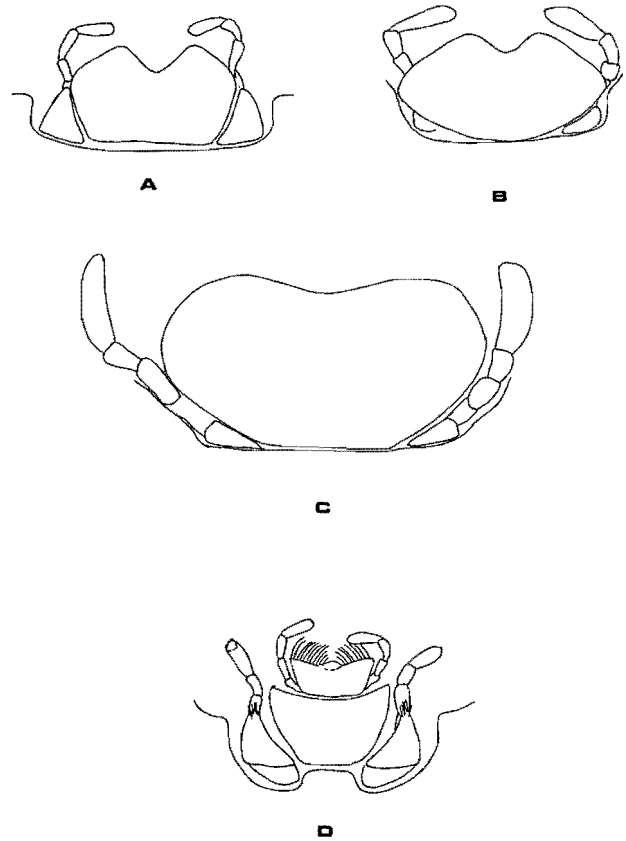


Fig. 46. Mentum of A: *Epipagus luridus* Haag; B: *Cychrochile grisea* spec. nov.; C: *Orientochile elegans* (Gerstaecker); D: *Cryptochile dimorphisterna* spec. nov.

proximal two-thirds. Metatibial calcaria dimorphic, spiniform in male, broader and flattened in female. Metatarsi not dimorphic, slender in both sexes.

Aedeagus not examined.

Distribution. Southern Angola.

Remarks. The genus *Epipagus*, with three species known from very few specimens, is apparently restricted to the arid areas of southwestern Angola. The species bear a superficial resemblance to some of the species of *Horatoma*, notably *H. praetoriusi*. The sclerotized bases of the two apical antennal segments and the complete pronotal lateral margin indicate that the ancestor of *Epipagus* was more plesiomorphic than any of the known species of *Horatoma*, while the 10-segmented antennae exclude *Epipagus* from the ancestry of *Horatoma*, which includes species with 11-segmented antennae. The pronotal sculpture, silvery vestiture, shape of the protibia, and the rather broad mentum suggest that *Epipagus* belongs to the lineage of *Cychrochile* and *Orientochile*, which is supported biogeographically.

Haag (1872, 1878) described two species in the genus; Koch (1952) added two further species. All of these were based on single specimens; additional specimens have indicated that one of Koch's (1952) species, *E. argentescens*, should be synonymized with *E. luridus* Haag. Three species are therefore recognized.

Key to the species of *Epipagus*

1. Lateral pronotal margin strongly raised and carinate posteriorly; proepisternal granules very coarse and dense 2
- Lateral pronotal margin not or scarcely raised posteriorly; proepisternal granules fine to coarse, usually more or less scattered *luridus* Haag
2. Antennae very stout, segments 8 and 9 strongly transverse (male); frons with coarse, dense granules; gena in front of eye angulate *benguelensis* Haag
- Antennae moderately stout, segments 8 and 9 about as wide as long (male); frons with scattered granules; gena in front of eye rounded *angolensis* Koch

Epipagus luridus Haag, Figs 46A, 48

Epipagus luridus Haag, 1878: 86; Gebien, 1937: 194; Koch, 1952: 86.

Epipagus argentescens Koch, 1952: 87. **syn. nov.**

Diagnosis. Pronotum with lateral margin scarcely raised posteriorly. Proepisternal granules variably fine to coarse, but usually scattered. Vestiture of elytra unicoloured, silvery. Antennae moderately stout.

Description. Size small to medium, elytral length 4,1–7,7 mm. Integument reddish brown to black, vestiture of elytra unicoloured, silvery, appearing shaded in some lights, scales of ventral surface and appendages silvery white.

Head moderately large; supra-antennal portion of gena scarcely raised. Eye reniform, with short setae. Antennae moderately stout, with apical two segments slightly enlarged in male (no female with intact antennae available), subspherical, with subconical apex. Frons with rounded granules, dense scales, and procumbent setae.

Pronotum distinctly to strongly transverse (variable), broader in female, sides subparallel to weakly rounded, indicated by a row of approximated, often contiguous granules, not carinate posteriorly; proepisterna not or just visible in dorsal view. Vestiture dense, uniform; with small to large, round, smooth and flat granules, scattered to dense, and short recumbent pale setae.

Elytra broader than pronotum, sides weakly to strongly rounded; with five primary granular rows on disc, granules varying from fine to coarse, and subspherical to elongate. Elytra entirely covered with dense, shiny scales; integument beneath with fine, round, scattered microgranules; intervals 2–5 and lateral interval with mostly elongate secondary granules varying from fine to very broad. Lateral margin consisting of two rows of granules, variably approximated or separated, all with spaced secondary granules between them. Deflected part scaled, with or without a complete row of strioliform granules, and with few to many irregular strioliform granules. Epipleural row consisting of short strioliform granules. Granules of primary rows bearing short to moderate, fine erect pale setae; secondary granules bearing short erect pale setae.

Proepisterna with small to large, rather scattered strioliform

granules. Mesosternum raised and callose anteriorly. Mesosternal apophysis broad, much broader than mesocoxa.

Legs stout, moderately long. Femora, tibiae and dorsal surface of tarsi with silvery scales. Pro-, meso- and meta-femora with bristle-like setae on ventral surface. Male profemur with elongate basiventral tubercle. Tibiae with moderately long bristles; protibia compressed, dorsal surface distally carinate, proximally toothed. Meso- and metatibia straight, subcylindrical, bristly. Metatibial calcaria stoutly spiniform to subfoliaceous (female). Tarsi slender, with short bristles; metatarsi of male distinctly longer than in female; first metatarsal segment about as long as unguis segment.

Aedeagus not examined.

Material examined. Holotype, *luridus*: ♀, elytral length 6,7 mm (SSM): Benguela, Fetting / Sammlung Haag-Rutenberg / *luridus* m. [handwritten] / Type; *Epipagus luridus* Haag [pink] / *Epipagus luridus* C. Koch det. / *Epipagus luridus*, l: 194, No. 2328.

Holotype, *argentescens*: ♂, elytral length 6,7 mm (BMNH): Angola, Monteiro.

Other material: 1♀, 4 ex. (TM), 3♂, 1♀ (SMW); four of the five TM specimens are badly damaged cadavers; localities: Karakul; Lucira; Lucira, 16 km E at 13.57S 12.37E; Pastoril do Sul; São Nicolau.

Season. Live specimens were collected in May and November.

Habitat. Under stones, on compact sandy soil.

Distribution (Fig. 48). Southwestern Angola.

Remarks. Koch (1952) stated that the type of *E. luridus* was a male, thereby correcting Haag's (1878) statement that it was a female, but in fact Haag was correct, and the specimen, lacking profemoral tubercles, is a female. The difference in pronotal shape that Koch (1952) gave between *E. luridus* and *E. argentescens* is thus a sexual difference. The remaining sculptural differences (episternal granules, elytral secondary tubercles, and epipleural sculpture) are variable in the specimens examined. The two species are therefore synonymized.

Epipagus benguelensis Haag

Epipagus benguelensis Haag, 1872: 312; Gebien, 1937: 194; Koch, 1952: 86.

Diagnosis (male holotype). As *E. luridus* except: vestiture of elytra bicoloured, silvery and brownish; antennae stout, segments 8 and 9 strongly transverse; granules of frons very coarse and dense; sides of pronotum almost entire, strongly raised and cariniform posteriorly; granules dense, pedunculate, with flat apices; sutural interval of elytra with mostly brownish scales, intervals 2–5 with brown and silvery patches; proepisterna with dense and coarse elongate granules. Primary rows of elytra consisting of short, separated, ovate granules; secondary granules larger, variable in size, from round to elongate; two approximated marginal rows of somewhat irregular granules similar to those of primary rows;

deflected part with small to moderately large, scattered granules, not arranged in distinct rows.

Material examined. Holotype ♂, elytral length 5,7 mm (SSM): Benguela, Mouflet / Type: *Epipag. benguelensis* Haag-R. [pink] / Sammlung Haag-Rutenberg / *benguelensis* Haag [handwritten] / *Epipagus benguelensis* Haag, 1: 194, no. 2327.

Remarks. The status of this and the next species is uncertain, as each is known only from the holotype. Both fall outside the range of variation observed in *E. luridus*, and the antennal difference is greater than expected between two males of the same species. The two species are therefore retained.

Epipagus angolensis Koch

Epipagus angolensis Koch, 1952: 86.

Diagnosis (male holotype). As *E. luridus* except: sides of pronotum distinctly cariniform; pronotal granules slightly raised, with flat tops; proepisterna with very coarse and dense, round to elongate granules. Primary rows of elytra consisting of elongate, almost contiguous granules; secondary granules large and elongate; marginal edge comprising two rows of small, elongate, separated granules, with sparse granules between them anteriorly; deflected part of elytra with a row of granules, more regular on right than on left side, as well as scattered granules; erect setae of elytra long; metatibial calcaria spiniform.

Material examined. Holotype ♂, elytral length 4,9 mm (SSM): Guinea, Deyrolle / Sammlung Haag-Rutenberg / *variegatus* n. sp. m. [handwritten] / Holotype, *angolensis* Koch, ♂ [dark red] / *Epipagus angolensis* Koch, C. Koch det., 1952 / *Epipagus angolensis* C. Koch det.

Remarks. This species differs from *E. luridus* mainly in the carinate pronotal margins, as well as the more densely sculptured proepisterna; from *E. benguelensis* it differs in the more slender and less distally shortened antenna, fine and scattered granules of the head, rounder angle of the gena in front of eye, and the less raised pronotal granules. The bristles on the elytra are longer than in either of the other two species, but they appear to be easily broken and abraded, and their length may depend on the age, as well as state of preservation, of the specimen.

Genus *CYCHROCHILE* Koch

Cychochile Koch, 1953: 160.

Type species: *Cychochile erodioides* Koch, 1953, by monotypy.

Diagnosis. Cryptochilina of small to medium size (elytral length 2,9–9,8 mm). Integument reddish brown to black, with extensive vestiture of scales. Head small, strongly deflected and amplexed in thorax; eye narrowly reniform, visible in lateral view; mouthparts free. Occiput with stridulatory file. Clypeus large, almost as broad as head in front of eyes,

separated from frons by a shallow to deep notch. Mentum large, covering apex of cardo and base of maxillary palpi (Fig. 46B). Antennae not or distinctly dimorphic, last two segments enlarged, penultimate segment truncate and widest apically, both penultimate and apical segments with clearly defined basal chitinous and apical setose parts.

Pronotum trapezoid, widest basally, narrowing anteriorly, distance between anterior angles about two-thirds to half of basal width, lateral margins complete at least anteriorly and posteriorly, cariniform to denticulate; sculpture consisting of elongate to rounded and pedunculate granules. Inner surface of anterior margin of pronotum finely striate.

Elytra broadly ovate to rounded, each with a sutural costa and two or three primary discal costae. Secondary costae variably developed in intercostal intervals. Sutural costa approximated to suture, simple. Lateral margin well defined, at least anteriorly. Humeri variably embracing pronotal base.

Prosternum in front of coxa less than half of procoxal length. Anterior margin of prosternum simple, not produced. Procoxal cavity closed by a narrow, bare edge, or apparently open behind. Mesosternum callose to bituberculate anteriorly. Abdominal sternites with short, recumbent setae in both sexes.

Male with profemur inermous, or with a tubercle at base of anteroventral margin. Protibia flattened, externally carinate and denticulate, with median tooth very large and prominent in three of the four known species. Metatibial calcaria dimorphic, spiniform in male, broader and flattened in female. Metatarsi dimorphic, shorter and stouter in female.

Distribution (Fig. 48). Primarily in the eastern parts of southern Africa; trans-Kalahari.

Remarks. This peculiar genus is related by the large mentum and general habitus to the next genus, *Orientochile* gen. nov., differing from it in having the anterior prosternal margin simple. It provides a link between the East African genus and the horatomoid Cryptochilini via *Epipagus*.

In addition to the species described below, the Transvaal Museum collection includes a badly damaged cadaver assignable to this genus. It differs sufficiently from the known species to represent a fifth species. It is the most westerly record of the genus, from the Mangetti area in northeastern Namibia, indicating that the species has a trans-Kalahari distribution linking it with the western genus *Epipagus*.

Key to the species of *Cychochile*

1. Protibia with an extremely large median tooth on outer edge (Fig. 47A); elytra with two primary discal costae in addition to sutural and marginal costae 2
- Protibia with median/submedian tooth only moderately large (Fig. 47B); elytra with three primary discal costae in addition to sutural and marginal costae *pluricostata* spec. nov.
2. Head smaller, about one-third of basal pronotal width; fringe of lateral pronotal margin very long; supra-antennal portion of gena auricular, anterior margin forming a right angle with clypeus (lateral view) *erodioides* Koch

- Head larger, about half of basal pronotal width; fringe of lateral pronotal margin short or moderately long; supra-antennal portion moderately raised, angle between its anterior margin and clypeus broadly obtuse (lateral view) 3
- 3. Pronotal granules scattered, small, inconspicuous; primary discal costae of elytra fine, low, interrupted, not distinctly reaching anterior margin of elytra; mesotibia flattened. *grisea* spec. nov.
- Pronotal granules dense, coarse, conspicuous; primary discal costae markedly elevated, complete or almost complete, at least inner and usually outer costae clearly reaching anterior margin of elytra; mesotibia weakly compressed *krugeri* spec. nov.

***Cychrochile erodioides* Koch, Fig. 48**

Cychrochile erodioides Koch, 1953: 160.

Diagnosis. Head very small, about one-third of width of pronotal base, with supra-antennal portion strongly raised, auricular, forming a right angle with lateral margin of clypeus. Pronotum with a fringe of long setae on lateral margin. Elytra with two fine, interrupted primary discal costae apart from the sutural and marginal costae. Median tooth of outer protibial margin large. Male protibia inermous.

Description (holotype). Elytral length 5,9 mm. Integument reddish brown. Vestiture of dorsal surface bicoloured, silvery and brown; vestiture of sternites and legs silvery.

Head small, greatest width less than one-third of pronotal basal width. Clypeus shallowly emarginate anteriorly, sides rounded, separated from frons by a deep notch. Eye narrowly reniform, part below genal canthus slightly longer and distinctly broader than dorsal part; not distinctly setose. Supra-antennal portions of gena strongly raised, auricular. Vestiture of head dense, silvery, extensive. Clypeus and frons with inconspicuous scattered round granules. Antennae on both sides broken off at second segment. (The specimen originally had an antenna, as Koch (1953) described and illustrated it.)

Pronotum at base almost twice as broad as long, sides strongly converging anteriorly, anterior margin less than half of basal width, somewhat raised. Anterior angles subrectangular. Lateral margins almost straight, complete, finely carinate although partly covered by scales; posterior angles broadly rounded, not raised, not embraced by humeri of elytra. Posterior margin weakly bisinuate. Sculpture consisting of moderately dense, subspherical to ovate granules, larger posterior ones flat-topped and shortly pedunculate; posterior half of midline without granules, a broad juxtalateral area with smaller and sparser granules; areas between granules entirely covered with scales. Each granule bearing a long, semi-erect golden seta posteriorly; lateral margin with a dense fringe of long setae.

Elytra globose; apical declivity vertical; disc domed. Humeri not produced. Suture closely flanked by two fine, raised and interrupted carinae; a long, erect seta arises from posterior end of each section of carina. Disc with two costae, fine, carinate and interrupted as sutural costa, but continuous lengths

longer; inner costa ending before, outer costa at top of apical declivity. Lateral margin double, costae strongly diverging at humerus and well separated, both ending at middle of elytron; outer costa raised and curved with small, irregular granules, inner costa consisting of separated, elongate granules, all granules of both rows bearing long, erect setae. All intercostae, including space between two lateral costae, covered with mottled silvery and brown scales, with small round scattered granules bearing long, erect setae. Deflected part of elytra similar to intercostae in sculpture and vestiture, but setae recumbent. Epipleural area scaled in anterior half, posteriorly raised, shiny, and bare, upper margin in anterior half consisting of elongate granules; upper edge with long setae.

Prosternum with anterior margin simple; prosternal apophysis about one-fourth of procoxal width, apex deflected behind coxae and continuous with vertical posterior margin. Prosternum and proepisternum scaled, former with sparse, minute, round granules, latter with larger and denser, round to ovate granules. Procoxal cavity closed behind. Mesosternum callose anteriorly, apophysis narrower than mesocoxa. Metasternum slightly shorter than mesosternum. Mes- and metepisterna scaled, with sparse and inconspicuous minute granules. Abdominal sternites densely scaled.

Legs stout. Profemur without tubercle. Protibia flattened, outer distal angle elongate, outer edge carinate, with very large median tooth, and 1–2 smaller proximal teeth, variable on either side. Meso- and metatibiae flattened, with outer distal angle compressed and expanded. Tibial calcaria strong, long and broadly spiniform. Tarsi slender, cylindrical, metatarsi thicker and relatively shorter than pro- and mesotarsi. Claws equal in length, as long as respective unguis segments. Femora and tibiae with long setae; tarsi with moderately long bristles.

Aedeagus unknown.

Material examined. Holotype ♂, elytral length 5,9 mm (BMNH): Type [round printed label with red border] / Lake N'Gami / Holotype *erodioides* Koch [square dark red label] / *Cychrochile erodioides* Koch, C. Koch det.

Distribution (Fig. 48). Probably Botswana.

***Cychrochile grisea* spec. nov., Figs 46B, 47A, 48, 68**

Diagnosis. Head about half of pronotal basal width, or slightly narrower. Antennae not dimorphic, apical segments slightly enlarged in both sexes. Pronotal lateral margin not carinate in middle, bearing a fringe of short setae. Elytral disc with two finely carinate, interrupted primary costae apart from sutural and marginal costae. Median tooth of outer protibial margin large. Male protibia inermous.

Description. Elytral length 3,8–6,1 mm. Integument of dorsum black, ventral parts and appendages reddish. Vestiture of scales silvery, lighter and shinier ventrally and on legs.

Head small, about one half of basal pronotal width or slightly narrower. Clypeus shallowly emarginate to subtruncate anteriorly, sides rounded, parallel, separated from frons by a shallow notch. Eye narrowly reniform, part below genal

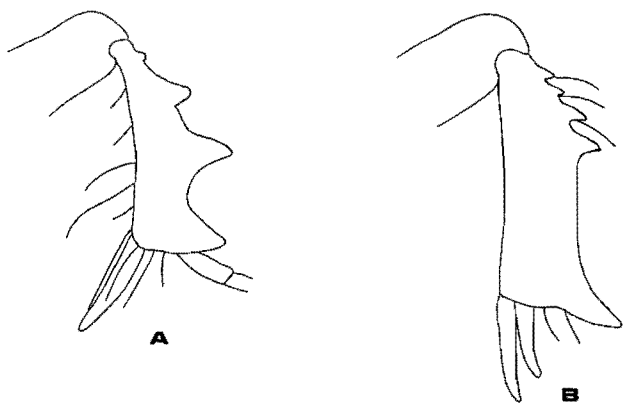


Fig. 47. Protibia of A: *Cychrochile grisea* spec. nov. and B: *C. pluricostata* spec. nov.

canthus much longer than part above it, but same width; not distinctly setose. Supra-antennal portions of gena raised. Scales of head dense, silvery, extensive. Clypeus and frons with a few round granules from which short, semi-erect, anteriorly inclined setae emerge. Antennae moderately slender, not dimorphic, as described for genus.

Pronotum at base about one-third wider than long (shape somewhat variable but apparently not dimorphic); sides convergent anteriorly, anterior margin slightly more than half of basal width, somewhat raised. Anterior angles acute. Lateral margins weakly sinuate, carinate anteriorly and posteriorly, indicated medially by approximated, small and sharp granules; setae short, erect. Anterior carina weakly denticulate; all denticles and granules bearing a moderately long, erect seta. Posterior angles broadly rounded, slightly raised, basally embraced by humeri of elytra. Posterior margin straight. Sculpture consisting of rather fine, scattered, round granules, posterior granules raised, each bearing a short, stiff, erect seta. Midline free of granules; a broad juxtalateral area with smaller and sparser granules; areas between granules entirely with vestiture of scales.

Elytra broadly ovate, convex; apical declivity vertical; disc domed. Humeri produced. Suture closely flanked by two carinae consisting of elongate granules, each bearing posteriorly a moderately long, erect seta. Disc with two costae, as described for *C. erodioides*, but outer costa continuing for a varying distance on apical declivity. Margin composed of two separated costae as *C. erodioides*, but outer costa consisting of a distinct, single or partially double row of closely approximated granules, bearing erect setae of varying lengths, some very long; inner costa consisting of separated, elongate granules bearing moderately long or long, erect setae posteriorly. Outer costa terminates before apical declivity, but inner costa usually continues almost to apex. Interval between outer and inner costae with a row of subspherical, setigerous granules. Discal intercostae as *C. erodioides*, but setae slightly shorter. Deflected part of elytra as *C. erodioides*, but posterior granules bearing moderately long, erect setae, and anterior granules short, scale-like setae. Epipleura almost entirely covered with scales, bare and thickened for a varying distance posteriorly; upper edge with long setae only posteriorly.

Prosternum as *C. erodioides*, but granules more numerous and conspicuous; apophysis varying from one-fourth to about

one-third of procoxal width. Proepisterna with dense, mainly somewhat elongate but broad granules, interspersed with scales. Procoxal cavity closed behind. Meso- and metasterna as *C. erodioides*, mesosternal apophysis varying from slightly narrower to slightly wider than mesocoxa. Mes- and metepisterna with more numerous and coarser granules than *C. erodioides*. Abdominal sternites with dense scales, and sparse minute granules.

Legs stout. Profemora of male without tubercle. Protibia similar to *C. erodioides*, median tooth on average slightly smaller than in *C. erodioides* (Fig. 47A). Mesotibia flattened, outer distal angle lobiform, outer edge rather strongly denticulate. Metatibia subcylindrical, outer distal angle expanded. Tibial calcaria long and broadly spiniform, metatibial pair broader in female. Tarsi slender, cylindrical, metatarsi dimorphic: in male as slender as pro- and mesotarsi, with segments elongate, tarsus almost as long as corresponding tibia; in female shorter and thicker, much shorter than metatibia. Claws equal in length, shorter than unguis segment. Inner surfaces of tibiae with very long bristles; femora, tibiae, and tarsi otherwise with moderately long bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 3,8 mm (TM): Chetu Riv. O. Afr. Zumpt V.1951. Allotype ♀, elytral length 5,7 mm (TM): Mapai O. Afr. Limpopo Riv. Zumpt V.1951. Paratypes: 8♀ (TM): (2) same data as holotype; (6) same data as allotype.

Distribution (Fig. 48). Southeastern Mozambique.

Remarks. This species differs from *C. erodioides* in the more elongate and less globose elytra, produced humeri embracing the pronotal base, generally shorter setation and denser, more conspicuous granulation, larger head, shape of the eye, less compressed metatibiae, and the formation of the lateral margin of the elytra.

Etymology. The name of the new species refers to its grey appearance macroscopically; *C. erodioides* appears brownish (Latin *griseus*, -a, -um, grey).

Cychrochile krugeri spec. nov., Figs 48, 69

Diagnosis. Pronotum with lateral margin completely carinate; anterior margin raised and bilobed in middle; disc with dense, coarse sculpture. Elytra with two strongly elevated, complete or almost complete primary discal costae. Vestiture of bicoloured scales. Male profemur inermous. Protibia with a large median tooth. Mesotibiae weakly compressed. Antennae dimorphic, apical segments enlarged in male.

Description. Elytral length 5,5–9,8 mm. Integument black. Vestiture consisting of bicoloured scales, silvery and brown, shinier and almost uniformly silver ventrally and on legs.

Head as in *C. grisea*, but antennae dimorphic, stouter in male, with apical and penultimate segments markedly enlarged.

Pronotum at base about one-third wider than long in female,

about as wide as long in male, sides weakly convergent anteriorly. Anterior margin about three-fourths of basal width in female, only slightly narrower than base in male; raised in middle, with a distinct median notch; smooth. Lateral margins strongly sinuate, carinate over entire length, with a fringe of very short, erect setae. Posterior angles subrectangular, slightly raised, not embraced by humeri of elytra. Posterior margin straight. Sculpture consisting of rather coarse, dense, round to short strioliform granules, larger and more rounded in middle of disc, each bearing a short, stiff, posteriorly inclined seta. Area adjacent to anterior and lateral margins free of granules, with dense vestiture of scales; area between discal granules mostly with vestiture of scales.

Elytra broadly ovate, moderately convex in male, strongly convex, with disc domed, in female; apical declivity vertical. Humeri not or scarcely produced. Suture closely flanked on either side by a row of fine, contiguous, elongate granules, each bearing a short erect seta. Disc with two strongly elevated, slightly wavy and virtually complete primary costae, outer costa reaching apical declivity, although interrupted posteriorly in female. Lateral margin consisting of an outer costa composed of a row of small, closely approximated granules, bearing erect setae of varying lengths, and an inner costa consisting of spaced, elongate granules bearing long setae at posterior tip. Outer marginal costa terminating at or before top of apical declivity, inner granular row continuing almost to apex. Interval between marginal costae with subspherical, small, setigerous granules scattered or forming a row. Discal intercostae with scattered, round, shiny granules bearing erect, moderately long setae. Deflected part of elytra with scattered, small round granules bearing long, erect setae. Scales of disc and deflected parts of elytra uniformly dense, mottled brown and silvery. Epipleura mainly scaled, bare and thickened for a varying distance posteriorly, upper edge indicated by a row of overlapping, moderately elongate strioliform granules.

Prosternum with anterior margin simple. Prosternal apophysis slightly less than half of procoxal width, apex deflected behind coxae and continuous with vertical posterior margin. Prosternum and proepisterna scaled, former with sparse, small round granules, latter with dense, flattened, dentiform granules. Procoxal cavity apparently open behind. Mesosternum callose anteriorly, apophysis about as wide as mesocoxa in male, slightly wider in female. Meso- and metasterna and corresponding episterna, as well as abdominal sternites, scaled, with scattered small round shiny granules bearing recumbent setae; mesosternal apophysis densely setose.

Legs stout. Profemora of male inermous. Protibia similar to *C. grisea*. Mesotibia only slightly compressed, outer distal angle briefly spiniform, distal half of outer edge with short denticles. Metatibia cylindrical, outer distal angle slightly expanded. Tibial calcaria long and broadly spiniform, metatibial pair broader in female. Tarsi moderately slender, cylindrical, shorter than corresponding tibiae, all tarsi dimorphic: more slender in male, with all segments longer than wide, stouter in female, with only basal and unguis segments longer than wide. Claws equal in length, shorter than unguis segment. Femora with short to moderately long bristles; inner surface of protibiae and entire meso- and metatibiae with long bristles; tarsi with short, dense, rather stout bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 7,0 mm (TM): S.Afr.: KrugerNat.Pk, Nyandu sands, 22.41S 31.22E / 9.2.1994, E-Y:2989, groundtraps, 4 days, leg. Endrödy-Younga / groundtraps with banana bait. Allotype ♀, elytral length 8,5 mm (TM), same data as holotype but faeces [sic] bait. Paratypes: 3♂, 5♀ (TM): (7) same data as holotype, also meat and faeces bait; (1) S.Afr.: KrugerNat.Pk, Malonga (2 km W) sands, 22.37S – 31.18 E / 9.2.1994; E-Y:2992, groundtraps, 4 days, leg. Endrödy-Younga / groundtrap with faeces bait.

Season. Summer (February).

Distribution (Fig. 48). Known only from a restricted area in the Kruger National Park, northeastern South Africa.

Remarks. This species differs from both *C. erodioides* and *C. grisea* in the completely carinate pronotal lateral margin, the medially notched anterior margin, the more prominent and complete primary elytral costae, and the larger size. From *C. grisea* it differs also in the sexually dimorphic antennae.

Etymology. The name of the new species is derived from the Kruger National Park.

Cychrochile pluricostata spec. nov., Figs 47B, 48, 70

Diagnosis. Pronotum with lateral margins strongly carinate and denticulate. Elytra strongly rounded, with three primary discal costae, intercostae with one or more rows of granules. Antennae dimorphic, with apical segments enlarged in male. Male profemur with a tubercle at base of anteroventral margin. Protibia with moderately large to large tooth, variably situated from middle to basal third of the outer margin.

Description. Elytral length 2,9–7,2 mm. Integument reddish brown to black. Scales of dorsal surface mainly silvery, with indistinct brownish patches on elytra, better defined in some males; vestiture of sternites and legs silvery.

Head small, slightly less than half of pronotal basal width. Clypeus shallowly emarginate anteriorly, sides rounded, separated from frons by a shallow notch. Eye as in *C. grisea*. Supra-antennal portions of gena slightly raised. Vestiture of head rather sparse, denser posteriorly, scales very large. Clypeus and frons with moderately dense, large round foveate granules from which short, anteriorly inclined, semi-erect setae emerge. Antennae slender, apical segments enlarged in male.

Pronotum at base almost twice as wide as long, sides convergent anteriorly, anterior margin slightly less than two-thirds of basal width, raised. Anterior angles obtuse. Lateral margins weakly sinuate, carinate and strongly denticulate, with moderately long, erect setae; posterior angles subrectangular, with carinate margin strongly raised, not embraced by humeri of elytra. Posterior margin shallowly curved. Sculpture consisting of dense, elongate granules (a few rounded granules anteriorly and laterally), also covering midline; a narrow juxtalateral area with smaller and sparser granules. Each granule bearing a short, semi-erect, posteriorly inclined seta. Scales densest laterally and anteriorly, but also present in narrow intervals between granules.

Elytra rounded, convex, globose in female; apical declivity

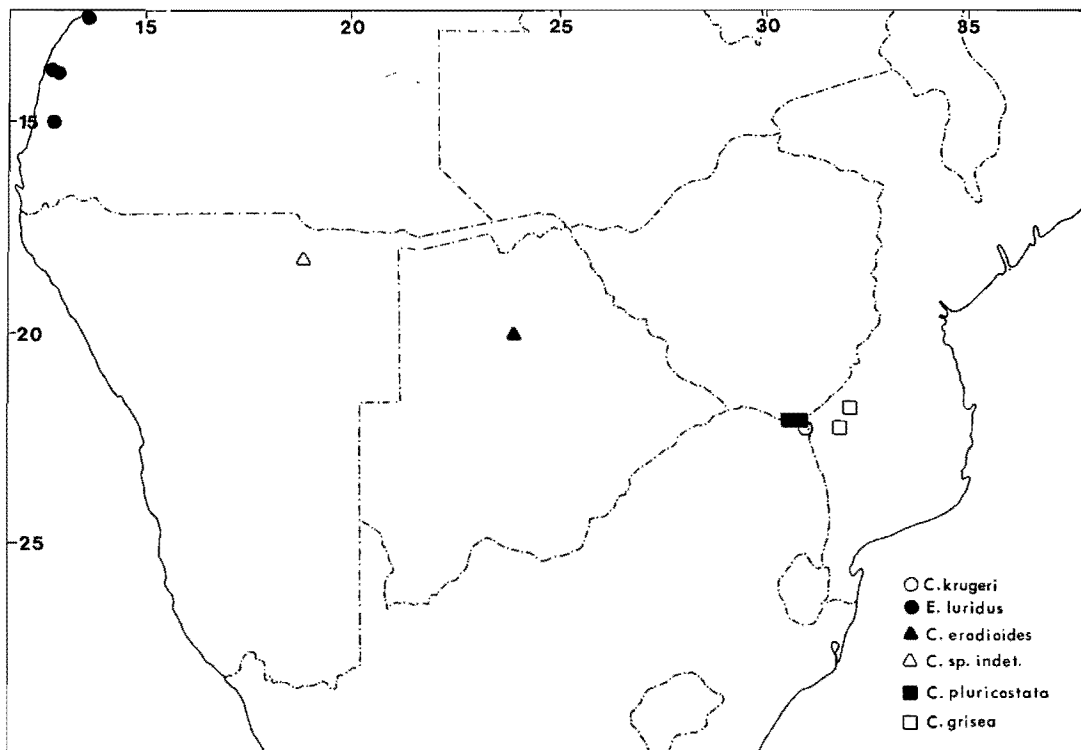


Fig. 48. Distribution of *Epipagus luridus*, *Cychrochile erodioides*, *Cychrochile* sp. indet., *C. pluricostata*, *C. grisea* and *C. krugeri*.

vertical; disc convex. Humeri not or only slightly produced. Suture closely flanked by two costae consisting of approximated elongate granules each bearing a moderately long, erect seta at posterior tip. Disc with three primary costae which are interrupted carinae, all variably abbreviated posteriorly. Primary costae more prominent in male. Lateral margin double, with both outer costa and median row less regularly formed; inner costa continuing onto apical declivity. Discal intercostae with variable, dimorphic sculpture: each with a fairly distinct granular median secondary row in female, and a more irregular granular row on either side of it; in some males only median row developed. Median secondary row of first interval sometimes interrupted near base; basal part apparently representing supplementary sutural costa in the genus *Orientochile*. All granules bearing erect setae, which vary from short to long; extremely long on outer marginal costa. Middle discal costa with patches of brown scales forming faint spots. Males with a distinct brown patch anteriorly between sutural and middle primary costae. Deflected part of elytra with coarse scales and scattered round to elongate granules, posterior granules bearing long, erect setae. Epipleura bare and swollen apically, otherwise scaled, with an indistinct row of granules marking upper boundary, bearing short setae posteriorly (dorsal to bare part).

Prosternum with anterior margin simple; prosternal apophysis about one-fourth of procoxal width; as *C. erodioides*, but scales much coarser. Proepisternum densely granular, with large scales between granules. Procoxal cavity apparently open behind. Mesosternum bicallose anteriorly, apophysis about equal to or slightly wider than mesocoxa. Metasternum about two-thirds of mesosternal length. Mes- and metepisterna with coarse scales and sparse round large granules. Abdomi-

nal sternites densely scaled, with scattered minute granules bearing long recumbent setae. All sternites with long setae.

Legs stout. Profemur of male with a low to dentiform tubercle at base of anteroventral margin. Protibia flattened, outer edge sharply carinate with moderately large submedian tooth and 1–3 variable teeth proximal to it (Fig. 47B). Meso- and metatibia weakly compressed, outer distal angle of mesotibia spiniform, that of metatibia expanded. Outer edge of meso- and metatibiae denticulate. Tibial calcaria long, strong, narrowly (male) to broadly (female) spiniform. Tarsi slender, subcylindrical, shorter than respective tibiae, metatarsi stouter and slightly shorter in female. Claws equal in length, shorter than unguis segment. Femora and tibiae with long setae; tarsi with moderately long setae.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 3,4 mm (TM): S.Afr.: KrugerNat.Pk, Punda Miliia, sand, 22.38S 31.02E / 3.2.1994: E-Y:2974, groundtraps, 8 days, leg. Endrödy-Younga / groundtrap with faeces bait. Allotype ♀, elytral length 5,9 mm (TM): S.Afr.: KrugerNat.Pk, Punda Miliia Sands, 22.38S 31.04E / 11.2.1994: E-Y:2996, groundtraps, 3 days, leg. Endrödy-Younga / groundtrap with meat bait. Paratypes: 42♂, 67♀ (TM), 2 (NCI): (14) same data as holotype, but some traps with meat or banana bait; (53) same data as allotype, but some traps with banana or faeces [sic] bait; (1) Punda Miliia, NKW (sand vlakke), 12.1.1968, H.A.D. van Schalkwyk / National Coll. of Insects, Pretoria, S.Afr.; (1) Shipudza, NKW, 8.3.68, H.A.D. van Schalkwyk / National Coll. of Insects, Pretoria, S.Afr.

Season. Summer (January – March).

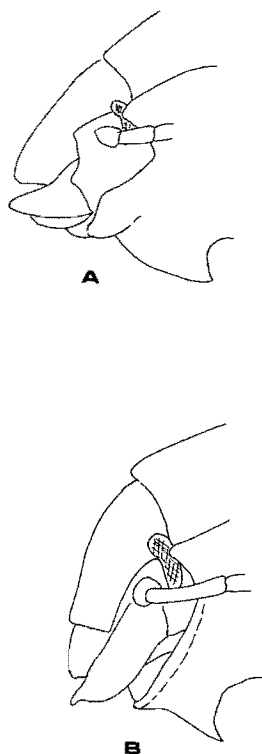


Fig. 49. Profile of A: *Orientochile elegans* (Gerstaecker) and B: *Cryptochile consita* Haag.

Distribution (Fig. 48). Known only from the Kruger National Park, Eastern Transvaal, South Africa.

Remarks. This species differs from the other three species of *Cybrochile* in the elytral sculpture, with three discal costae and secondary costae developed, the less raised supra-antennal portion of the gena, the more denticulate lateral pronotal margin and raised margin of posterior pronotal angle, the pronotal sculpture, the dimorphism of the male profemur, and the smaller median tooth of the protibia, which invalidates what was previously supposed to be a generic character. It differs from *C. grisea* in the dimorphic apical segments of the antennae.

Etymology. The name of the new species refers to the large number of discal costae (primary and secondary) (Latin, *plus*, *pluris*, many; *costa*, -ae, f., rib).

Genus *ORIENTOCHILE* gen. nov.

Type species: *Cryptochile elegans* Gerstaecker, 1854.

Diagnosis. Cryptochilina of medium to large size (elytral length 6,0–10,1 mm). Head moderately large, strongly deflected and amplexed in thorax, supra-antennal portion meeting anterior pronotal angle, eye thus partly concealed in lateral view, narrowly reniform. Occiput with stridulatory file. Clypeus broad, almost as broad as head in front of eyes, separated from frons by a deep incision. Mentum very large, leaving cardo of maxillae exposed, but concealing maxilla distal to cardo (Fig. 46C). Mouthparts concealed by produced anterior prosternal margin. Antennae moderately stout, not

dimorphic, last two segments slightly enlarged, penultimate segment widest at truncate apical margin. Apical segments with well-defined basal sclerotized and apical setose parts.

Pronotum trapezoid, sides strongly converging anteriorly; lateral margins complete. Sculpture of round to ovate, pedunculate and peg-like granules.

Elytra ovate or broadly ovate, convex to globose; each with a sutural costa which is double anteriorly, and two primary discal costae; secondary costae present or absent. Lateral margin well defined at least anteriorly. Humeri not embracing pronotal base.

Anterior margin of prosternum produced, collar-like. Procoxal cavity apparently open behind. Mesosternum bituberculate anteriorly.

Male (where known) with profemur tuberculate. Protibia semicircular to flattened in cross-section, outer margin carinate over half or more of length, with one or two prominent but not hypertrophied teeth. Metatibial calcaria dimorphic, broader and longer in female; metatarsi not dimorphic.

Remarks. Differs from *Cryptochile* in the size and shape of the mentum, which, like that of *Cybrochile*, is large and transverse and partly covers the maxillary palpi (Fig. 46C,D). The new genus differs from *Cybrochile* in the produced anterior margin of the prosternum, the larger size, and the presence of supplementary sutural costae.

In spite of the shared and obviously apomorphic character of the produced prosternum in this genus and *Cryptochile* (Fig. 49A,B), most of the characters as well as geographical considerations indicate that the two East African species must have arisen independently of *Cryptochile* from an ancestor that resembled *Cybrochile*, with which they share the enlarged mentum, another distinctly apomorphic character.

Key to the species of *Orientochile*

1. Elytra ovate, convex but not globose, with two carinate discal costae; pronotum not strongly transverse, not more than twice as broad as long; lateral pronotal margins costiform, raised
 *elegans* Gerstaecker
- Elytra rounded, globose, with carinate secondary costae at least in inner two elytral intervals, thus each elytron with four carinate costae on inner half in addition to sutural costa; pronotum strongly transverse, more than twice as broad as long; lateral pronotal margins granular, level with disc
 *multicostata* Koch

Orientochile elegans (Gerstaecker) comb. nov. Figs 46C, 49A, 50

Cryptochile elegans Gerstaecker, 1854: 531, 1862: 278; Haag, 1872: 301; Gebien, 1937: 193; Gridelli, 1940: 459; Koch, 1953: 159.

Cryptochile sordida Gerstaecker, 1854: 531, 1862: 279; Haag, 1872: 302; Gebien, 1937: 193; Koch, 1953: 159 (synonym of *elegans*).

Cryptochile patrizii Gridelli, 1940: 460; Koch, 1953: 159 (subspecies of *elegans*). **syn. nov.**

Diagnosis. Pronotum about one-and-a-half times as broad as long in female, narrower in male, with lateral margin completely carinate. Elytra convex, not globose; elytral disc with two complete, carinate costae in addition to sutural and marginal costae.

Description. Elytral length 6,0–10,0 mm. Integument reddish to black, apices of appendages reddish. Scales of dorsal surface and sternites bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; legs silvery.

Head moderate. Clypeus emarginate, sides rounded, separated laterally from gena by a deep notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive. Clypeus and frons with peg-like granules bearing procumbent dark setae. Antennae moderately stout, apical two segments slightly enlarged, not dimorphic.

Pronotum about one-and-a-half times as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin moderately raised and produced; anterior angles acute. Lateral margins straight, strongly convergent anteriorly, complete, costate but covered by scales, with a row of granules bearing recumbent setae; posterior angles broadly rounded, not embraced by humeri. Posterior margin straight. Sculpture consisting of peg-like, subspherical, pedunculate granules, scattered to dense, with dark semi-erect to recumbent bristle-like setae, encircled by scales; areas between granules partly scaled, and filled with dust and sand grains.

Elytra ovate, attenuate, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, flanked on either side by a row of elongate granules, each bearing a semi-erect dark seta posteriorly; anteriorly, lateral to granular row, a rudimentary costa bearing semi-erect setae. Both discal costae complete, finely to broadly carinate, carina exposed on disc; costae slightly and about equally raised; outer costa situated almost at middle of disc. Lateral margin costate, costae united for a short distance behind humeri, then diverging, clothed with scales except where setigerous granules emerge, with a row of punctures almost concealed by vestiture of scales between them, as well as a row of small granules bearing erect setae. Intercostal intervals with dense, bicoloured silvery and brown scales, and with scattered, long, stiff, erect black setae emerging from small granules. Lateral intercostal interval with a third costa indicated either as a raised area or a row of larger granules. First and second discal costae with pairs of tomentose brushes on either side; granules of inner marginal row each surrounded by a tomentose brush. Deflected part of elytra with dense bicoloured scales concealing punctures, and with small, round, scattered granules, from which recumbent short scale-like setae emerge. Epipleural area scaled, raised upper edge with a row of granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, slightly emarginate medially; prosternal apophysis about one-third to half of procoxal width. Prosternum and proepisternum scaled, both with variable small round granules bearing recumbent scale-like setae. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis about one-third wider than mesocoxa. Metasternum slightly more than half of mesosternal length. Mes- and metepisterna mostly scaled, with scattered small round granules. Abdominal sternites entirely scaled; both sexes with

short, scattered, recumbent setae.

Legs stout. Male profemur with tubercle at basal third, tubercle with apical pore. Protibia ovate in cross-section, outer margin carinate over at least distal half, with 1–2 large teeth above carinate section. Outer angle of subcylindrical meso- and metatibiae with a strong spiniform process. Tibial calcaria spiniform, protibial pair longer and thicker, metatibial pair dimorphic, longer and foliaceous in female. Tarsi relatively slender, cylindrical, not dimorphic, distinctly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, rather short to moderately long bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Types not seen.

Other material: 4♂, 12♀ (TM); localities: Beira; Malindi; Pungwe Bay (19.34S 34.38E); Sekoke; Watamu. Also 'Mozambique.'

Season. Winter/spring (June – August).

Distribution (Fig. 50). East Africa (Mozambique to Kenya).

Remarks. Koch (1953) synonymized *sordida* Gerstaecker with *elegans*, as it was clearly based on a female specimen of the latter species, and reduced Gridelli's (1940) species *patrizii* to a subspecies of *elegans*. In addition to the holotype of *patrizii*, Koch assigned four specimens from northern East Africa (Watamu and Malindi) to the northern subspecies. The specimens examined by us (10 ex. from Watamu and Malindi and 6 ex. from Mozambique) are not separable on the characters given by Koch (1953). There is no difference in elytral convexity between the southern and the northern specimens. Most of the specimens from Mozambique have the two discal costae moderately broad and strongly elevated, but in the northern specimens the discal costae vary from fine and scarcely elevated to similar to those of the southern specimens. The pronotal sculpture of all specimens is comparable. We do not believe the use of subspecies to be justified, and have therefore synonymized *patrizii* Gridelli with *elegans* Gerstaecker.

The type material of Gerstaecker in the Museum für Naturkunde der Humboldt-Universität, Berlin, was examined by Dr Koch. Topotypical material of both 'subspecies' was available, obviating the need to obtain the types.

***Orientochile multicosata* (Koch) comb. nov., Fig. 50**
Cryptochile multicosata Koch, 1953: 157.

Diagnosis. Pronotum more than twice as broad as long in female; lateral margins carinate only anteriorly. Elytra globose, with two carinate primary costae and two or three prominent secondary costae on disc.

Description (female holotype). Elytral length 10,1 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, scales elongate; vestiture of sternites and legs silvery.

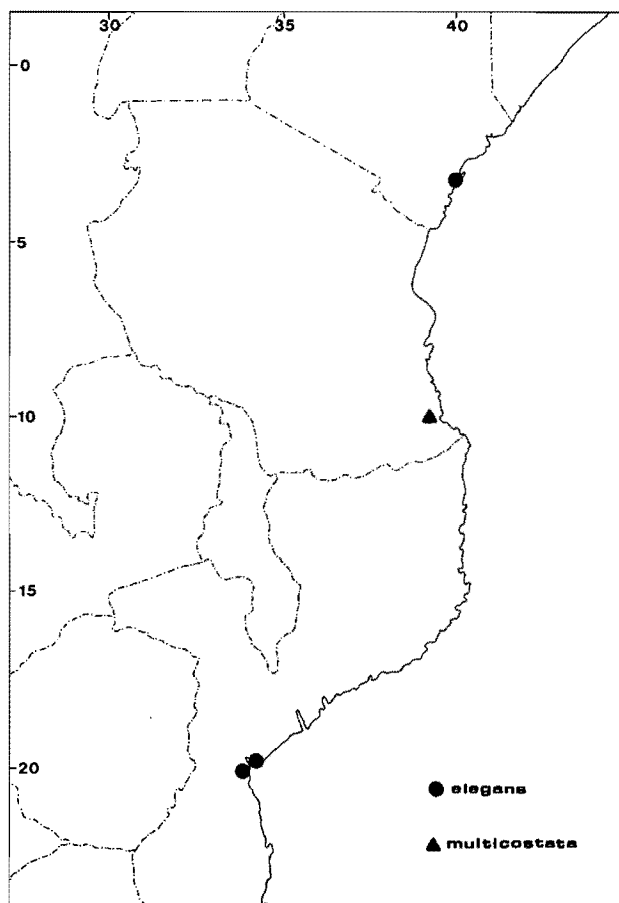


Fig. 50. Distribution of *Orientochile elegans* and *O. multicosata*.

Head small. Clypeus broad, emarginate, sides rounded, separated laterally from gena by a deep notch. Eye narrowly reniform, not distinctly setose. Scales of head extensive. Clypeus rugose, frons with round, pedunculate granules, each bearing a stout, procumbent seta. Antennae moderately stout, apical two segments slightly enlarged, penultimate segment widest at truncate apex.

Pronotum more than twice as broad as long in female; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles broadly obtuse. Lateral margins subparallel for a short distance in front of posterior angles, then strongly converging anteriorly, almost complete, anteriorly carinate, from behind anterior angle consisting of approximated granules. Posterior angles broadly obtuse, not embraced by humeri. Posterior margin irregularly sinuate. Sculpture consisting of subspherical pedunculate granules, dense, each bearing a stout, recumbent seta on posterior margin; areas between granules packed with accumulated sand grains.

Elytra broadly ovate, globose; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, flanked on either side by an interrupted raised costa; costae diverge anteriorly, suture anteriorly flanked by another

row of finer granules; sutural costa bearing erect bristles at intervals (where interrupted). Both primary discal costae almost complete, carinate, low, irregularly interrupted by emerging bristles; intercostal intervals with median costa, almost as prominent, but slightly more interrupted, and abbreviated anteriorly and posteriorly. A row of subspherical, setigerous granules, alternating with deep punctures, between median and primary costae. Lateral margin consisting of three rows, outer row composed of separated, dentiform, setigerous granules, inner row consisting of irregular, widely spaced, elongate, dentiform granules with setae; middle row composed of deep punctures and a few small setigerous granules. Sutural and intercostal intervals with dense, bicoloured silvery and brown scales. Lateral intercostal interval with three moderately prominent costate rows of granules alternating with four rows of smaller granules with interspersed punctures. Deflected part of elytra with dense, partly bicoloured vestiture of scales, coarse, moderately dense punctures, and slightly elongate scattered granules. Epipleural area scaled, raised upper edge with an exposed row of slightly elongate granules subtended by a row of punctures.

Prosternum with anterior margin raised, narrowly collar-like, even and almost straight, shallowly emarginate, prosternal apophysis slightly less than half of procoxal width. Prosternum and proepisternum scaled, former with sparse small round granules bearing recumbent setae, latter with moderately dense, very short and fine strioliform granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis about one-and-one-third times as wide as mesocoxa. Metasternum about half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, round granules. Abdominal sternites mostly scaled, first three with scattered small round setigerous granules.

Legs stout. Protibia flattened in cross-section, outer margin carinate on slightly more than distal half, with two flattened teeth proximal to carina. Outer angle of subcylindrical meso- and metatibiae with strong stout spiniform process. Pro- and mesotibial calcaria spiniform, metatibial calcaria stout, foliaceous. Tarsi slender, cylindrical, protarsi about as long as protibia, others shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, very short light brown bristles.

Material examined. Holotype ♀, elytral length 10.1 mm (BMNH): Tanganyika Terr., Lindi Distr. Tendaguru, 11.VII.1914, W.E. Cutler / Holotype *multicosata* Koch [written, on dark square red label] / *Cryptochile multicosata* Koch, C. Koch det. The specimen also bears a round, yellow-bordered, printed paratype label, but as the original description refers to only one specimen, this must be an error.

Season. Collected in winter (July).

Distribution (Fig. 50). Known only from the type locality in Tanzania.

Remarks. The specimen resembles a very large *Cychrochile*. The prosternal collar is not as well developed as in *O. elegans*.

Genus *CRYPTOCHILE* Latreille

Cryptochyle Latreille, 1829: 7; Solier, 1840: 248 (emended to *Cryptochile*); Haag, 1872: 274; Gebien, 1937: 192; Gridelli, 1940: 459.

Type species: *Pimelia maculata* Fabricius, 1781 (by subsequent designation).

Diagnosis. Cryptochilina of small to large size (elytral length 3,0–13,0 mm). Integument brown to black, usually with vestiture of scales. Head moderately large to large, strongly deflected and amplexed in thorax, eye visible or concealed in lateral view (Fig. 49B). Clypeus variable, narrower than head in front of eyes, continuous with frons or separated from it by a notch of varying depth. Mentum relatively small, maxillae completely exposed on either side of it (Fig. 46D). Antennae 10-segmented, stout to slender, not distinctly dimorphic, last two segments slightly enlarged, penultimate segment variable in shape. Apical segment with basal part bare, sclerotized, apical part setose. Occiput with long stridulatory file.

Pronotum varying in shape from trapezoid to rectangular, lateral margins complete or almost complete (except in highly modified, spinous species); sculpture consisting of elongate to strioliform granules or ridges, or (rarely) microgranules.

Elytra rounded to ovate or oblong, convex; usually each with a sutural costa and two primary costae, either outer or inner discal costa sometimes reduced or absent; sutural costa when present simple. Lateral margin well defined. Humeri not or weakly embracing pronotal base.

Anterior margin of prosternum produced, collar-like, covering mouthparts (Fig. 49B). Prosternal apophysis with apex rounded or bilobed, horizontally produced between coxae, at most weakly deflected. Procoxal cavity closed or apparently open behind. Proepisterna usually not visible in dorsal view. Mesosternum bituberculate anteriorly; apophysis of varying width. Abdominal sternites with or without dimorphic setation.

Legs moderately long to long. Male usually with profemur tuberculate, tubercle reduced or absent in some species. Protibia ovate to quadrate in cross-section, outer margin carinate in distal half or only at outer distal angle, with or without one or more dentiform spines. Metatibia straight, without specular spot. Metatibial calcaria not dimorphic, spiniform in both sexes; metatarsi usually shorter and thicker in female than in male. Tarsi with short to moderately long bristles. Claws equal in length.

Aedeagus simple, slender to moderately stout.

Distribution (Fig. 5). Western parts of southern Africa, from southern Angola to the southwestern Cape Province of South Africa.

Remarks. The genus *Cryptochile* is the most widely distributed genus of Cryptochilina, and includes most of the common, and therefore also the earliest described species. No recent revision has been made, the last comprehensive revision being that of Haag (1872). Gebien (1920) described two further species, and Koch (1952) revised a species-group occurring in the northern Namib Desert, adding to it two new species and a subspecies. The collection in the Transvaal Museum had been studied and arranged by Koch in order to revise the genus. Subsequent to his study, further collecting expanded

the material and resulted in the discovery of several new species.

In the present revision the genus is restricted to the southwestern African species that have the mouthparts concealed by the prosternum. Two East African species with concealed mouthparts, formerly included in *Cryptochile*, are placed in a separate genus, *Orientochile*. We believe them to have evolved separately from a tropical lineage in which the clearly apomorphic character of the concealed mouthparts developed independently. This is more fully discussed in the Introduction.

The 35 species recognized in this revision are arranged in six species groups, based primarily on the shape of the protibia.

In the first three species groups, the protibia is flattened and expanded, at least apically. This shape is considered to be plesiomorphic in the genus, as it is also found in other groups of Cryptochilini. In the remaining species groups the outer apical angle of the protibia is curved posteriorly, and the protibia tends to be square in cross-section.

In the first group, consisting of four species (*C. assimilis* Solier, *C. inflata* Haag, *C. arcuata* spec. nov., and *C. namaquana* spec. nov.), the protibia is strongly flattened and expanded, with the outer edge carinate at least in the distal half, and the head is enlarged. These species occur most frequently in littoral or sublittoral sands, although *C. arcuata* occurs only on inland sands, and *C. assimilis* occurs wherever sand is available within its range, from the mountains to the coast of the western Cape. The group is distributed from Namaqualand to the southern Cape, and is probably ancestral to the genus *Cerasoma* Endrödy-Younga.

In the second group, consisting of *C. fallax* Solier, *C. affinis* Haag, and four new species, *C. montiscedris*, *C. angulicollis*, *C. setipennis*, *C. protibialis*, the protibia is apically flattened and expanded, and the outer edge is carinate over a short distance, usually less than half the length of the protibia. The head is of moderate size. This group probably resembles the ancestral forms of *Cryptochile*. The six species are distributed in a limited area of the southwestern Cape, mainly in mountainous areas.

The third group consists of two species (*C. decorata* Solier and *C. dimorphisterna* spec. nov.) characterized by an unusual dimorphism, the male having tubercles developed posterolaterally on the mesosternum; the pronotal sculpture is reduced. The two species have an apparently discontinuous distribution in the mountains of the southwestern Cape.

The fourth group consists of *C. denticollis* Haag and two new species, *C. crassicollis* and *C. supramontis*. In these species the outer apical angle of the protibia is curved posteriorly and downwards, scarcely expanded, and the outer surface of the rounded protibia is slightly flattened. They occur in the Cedarberg Mountains of the southwestern Cape.

In the remaining species groups the protibia is distinctly quadrate in cross-section, the flattened outer section usually being delimited on both sides by a line of spines or teeth.

In the fifth group, consisting of nine species (*C. minuta* Solier, *C. bipunctata* Haag, *C. circum* Haag, *C. porosa* (Herbst), *C. globulum* Solier, and four new species *C. digitalis*, *C. hessei*, *C. karrooensis*, *C. rotundior*), the mesosternum is relatively narrow (not more than twice the width of the mesocoxa), and in all the species except *C. circum* it is angulate to keeled laterally.

The sixth group, characterized by a wide mesosternum, can be divided into four subgroups. Most of the species are large, and several are common and widely distributed. The first subgroup includes the dominant Cape species that were among the earliest described *Cryptochilina*, *C. maculata* (Fabricius) and *C. tomentosa* (Herbst), as well as *C. granulata* Haag and *C. tessulata* Haag. They are all large, western Cape species. The second subgroup contains the two spinose western Cape species, *C. echinata* (Fabricius) and *C. spinosa* Péringuey. The third subgroup includes the widely distributed species *C. consita* Haag, and two apparently rare and restricted species, *C. concava* Gebien and *C. uncostata* spec. nov. The fourth subgroup is the northernmost group of *Cryptochile*, characterized by a modified pronotal margin, and includes three species, *C. grossa* Erichson, *C. carpi* Koch, and *C. epistomalis* spec. nov. Several of the species in the species group, notably *C. maculata*, *C. consita*, *C. uncostata*, *C. grossa*, and *C. epistomalis*, have bare forms that are shiny black, without either microgranular sculpture or vestiture of scales, as well as the scaled form, with a microgranulate integument. In most of the species the scaled form is more common, but in *C. uncostata* the bare form appears to dominate. The sculpture of the bare specimens is often coarser. The two forms usually occur together.

Key to the species and subspecies of *Cryptochile*

1. Elytral costae smooth or serrulate, but without erect denticles or spines 2
 - Elytral costae (at least outer costa) with sharp, erect spiniform denticles or with strong spines *echinata* group.... 44
2. Lateral pronotal margin single, fine and narrow throughout length, deflected or not but, if deflected, fine and denticulate. 3
 - Lateral pronotal margin either thickened or double, at least posteriorly, reflected over entire length or at least in distal half. (Northern Namib Desert, including southern Angola) *grossa* group.... 39
3. Lateral margin of clypeus separated from gena by a shallow to distinct notch; sides of clypeus curved, subparallel or weakly convergent, rarely straight and convergent. 4
 - Lateral margins of clypeus continuous with gena, straight and strongly convergent anteriorly *consita* group.... 37
4. Outer surface of protibia with a more or less flattened, demarcated area 5
 - Outer surface of protibia sharp (thin) to rounded, without distinctly flattened area 18
5. Disc of elytra with two almost equally developed costae apart from suture and margin 6
 - Disc of elytra with outer costa distinctly better developed than inner costa, which is strongly reduced or absent 14
6. Mesosternum narrower, less than twice as wide as mesocoxa 7
 - Mesosternum broader, twice or (usually) more than twice as wide as mesocoxa *maculata* group 34
7. Elytra with long, stiff and erect setae. 8
 - Elytra with short, relatively inconspicuous setae. 10
8. Lateral margin of elytra marked by a fine and complete carina; elytra oblong *minuta* Fabricius
 - Lateral margin of elytra consisting of 2–3 granular rows; elytra round. 9
9. Sides of raised part of mesosternum sharply keeled *rotundior* spec. nov.
 - Sides of raised part of mesosternum rounded-angular. *digitalis* spec. nov.
10. All marginal elytral rows granular; elytra broadly ovate to rounded 11
 - At least one of marginal elytral rows complete, carinate; elytra ovate to oblong 13
11. Sides of raised part of mesosternum sharply keeled *hessei* spec. nov.
 - Sides of raised part of mesosternum rounded or angular, but not sharply keeled 12
12. Pronotum with dense, uniform, strioliform granules; anterior mesosternal tubercles sharply raised; mesosternum with polished tubercles between vestiture *karroensis* spec. nov.
 - Pronotum with sparse to dense, but irregular, strioliform granules, absent from some areas; mesosternum with anterior callosities low, blunt, and with dense vestiture of scales uninterrupted by prominent tubercles *circulum* Haag
13. Elytral costae flanked by rows of punctures; intercostal intervals also punctate *porosa* Herbst
 - Elytral costae not, or not obviously, flanked by punctate rows; intercostae not clearly punctate *bipunctata* Haag
14. Sides of raised part of mesosternum keeled 15
 - Sides of raised part of mesosternum rounded to angular, not keeled 16
15. Size large (elytral length more than 5 mm); marginal costae of elytra continuous; sides of elytra subparallel, elytra slightly elongate *porosa* Herbst
 - Size small (elytral length less than 5 mm); marginal costae of elytra consisting of widely spaced granules; sides of elytra rounded, elytra globose *globulum* Solier
16. Mesosternal apophysis less than twice mesocoxal width; entire pronotal lateral margin raised and denticulate, or posterior angle not strongly raised . . . 17
 - Mesosternal apophysis twice or more than twice mesocoxal width; posterior pronotal angle strongly raised (Fig. 51A) *denticollis* Haag
17. Entire lateral pronotal margin raised, serrate to denticulate (Fig. 51B); sculpture of pronotum consisting at least partly of strioliform granules *supramontis* spec. nov.
 - Pronotal lateral margin denticulate, but not raised; pronotal sculpture consisting entirely of subspherical or ovate to briefly elongate, coarse granules *crassicollis* spec. nov.



Fig. 51. Lateral margin of pronotum of A: *Cryptochile denticollis* Haag and B: *C. supramontis* spec. nov.

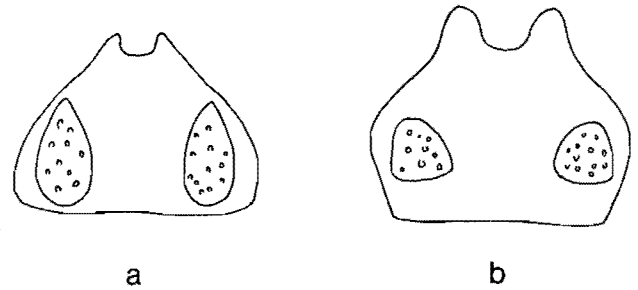


Fig. 52. Male mesosternum of A: *Cryptochile dimorphisterna* spec. nov. and B: *C. decorata* Solier.

- 18. Disc of elytra with two almost equally developed costae apart from sutural and marginal costae; intercostal areas of elytra not conspicuously punctate; mesosternum not dimorphic, similar in both sexes 19
- Disc of elytra with inner costa either strongly reduced anteriorly or absent; intercostal areas of elytra conspicuously punctate; mesosternum dimorphic, male with a pair of large tubercles developed posterolaterally (Fig. 52A,B) *decorata* group.... 33
- 19. Protibia in distal half flattened, outer edge carinate for about half of length 20
- Protibia in distal half rounded, outer edge carinate over a short distance (less than half of length) 21
- 20. Majority of elytral costae continuously carinate; pronotal sides usually straight or weakly sinuate in front of posterior angles *assimilis* group.... 26
- Ssutural, discal, and marginal elytral costae all dissolved into granules of varying length; sides of pronotum strongly sinuate in front of posterior angles *protibialis* spec. nov.
- 21. Mesosternal apophysis less than twice mesocoxal width; male profemoral tubercle small to large, rounded (Fig. 53B,C) 22
- Mesosternal apophysis broad, distinctly more than twice mesocoxal width; male profemoral tubercle fine, tubular (Fig. 53A) *montiscedris* sp.
- 22. Sides of clypeus subparallel or only slightly convergent, notch separating them from gena deep; elytral setation short, inconspicuous 23
- Sides of clypeus strongly convergent, notch separating them from gena small; elytral setation variable, but always conspicuous, sometimes long *setipennis* spec. nov.
- 23. Anterior callosities of mesosternum separated by a deep and broad cleft, callosities sharp 24
- Anterior callosities of mesosternum separated by a narrow and shallow concavity, callosities low, rounded. *fallax* Solier 25
- 24. Granulation of pronotum rather sparse, leaving

- smooth patches not confined to midline; granules of intercostae small and inconspicuous ... *affinis* Haag
- Granulation of pronotum dense, without or with only small, and usually medial, smooth areas; granules of elytral intercostae coarse and conspicuous, especially lateral interval *angulicollis* spec. nov.
- 25. Notch between clypeus and gena deep; pronotum more transverse, sinuosity of lateral margin shallow or absent; tomentose patches soft and velvety *fallax fallax*
- Notch between clypeus and gena shallow; pronotum less transverse, sinuosity of lateral margin deep; tomentose patches long, brush-like *fallax grandior* subspec. nov.
- 26. Pronotal lateral margins convergent anteriorly from base; head large, but not or slightly more than half width of pronotal base. 27
- Pronotal lateral margins subparallel for considerable distance in front of base, narrowing just before anterior angles; head very large, more than half width of base of pronotum *assimilis* Solier
- 27. Upper marginal elytral row consisting of elongate granules, almost contiguous to widely separated . . . 28
- Upper marginal elytral row consisting of a continuous or interrupted carina, if latter then at least some sections too long to be defined as granules *namaquana* spec. nov. ... 30
- 28. Anterior pronotal margin emarginate *arcuata* spec. nov. 29
- Anterior pronotal margin truncate to convex . . *inflata* Haag
- 29. Anterior pronotal angles broadly rounded; elytral setation long *arcuata arcuata*
- Anterior pronotal angles acute; elytral setation short. *arcuata whiteheadi* subspec. nov.
- 30. Upper marginal elytral costa entire, or almost entire . . . 31
- Upper marginal elytral costa interrupted in several places 32
- 31. Outer discal costa of elytra flanked laterally by coarse and dense granules *namaquana crassisculpta* subspec. nov.
- Outer discal costa of elytra not as above, granules of intercostal interval fine and not concentrated *namaquana namaquana*

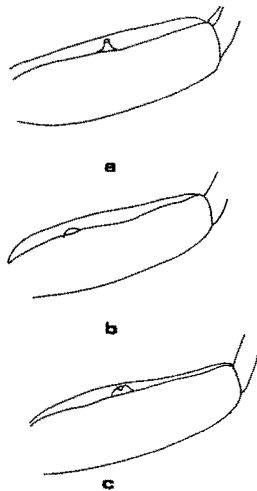


Fig. 53. Male profemur to show tubercle on anteroventral margin. A: *Cryptochile montiscedris* spec. nov.; B: *C. setipennis* spec. nov.; C: *C. angulicollis* spec. nov.

32. Setae of elytra rather short in both sexes; female not strongly domed; elytra ovate
 *namaquana curtisetosa* subsp. nov.
- Setae of elytral margins long in male, entire elytral setation very long in female; female strongly domed; elytra rounded
 *namaquana setosissima* subsp. nov.
33. Pronotal sculpture consisting mainly of dense microgranules, with a few round, larger granules; inner discal costa absent; elytral margin consisting of two granular rows; male profemur without tubercle
 *decorata* Solier
- Pronotal sculpture consisting mainly of fine, vermiform granules; inner discal costa usually present, reduced anteriorly; elytral margin consisting of two fine, high carinae; male profemur with small median tubercle *dimorphisterna* spec. nov.
34. Sculpture of medial part of abdominal sternites consisting of fine punctures 35
- Sculpture of medial part of abdominal sternites consisting of flat round granules *tessulata* Haag
35. Upper marginal elytral row dissolved into granules, not continuously carinate 36
- Both marginal elytral rows continuous, carinate
 *tomentosa* Herbst
36. Elytra broadly ovate, discal costae fine, undulating; notch between clypeus and gena deep .. *granulata* Haag
- Elytra oblong, discal costae broad, straight; notch between clypeus and gena moderately deep
 *maculata* Fabricius
37. Disc of elytra with two costae apart from sutural and marginal costae 38
- Disc of elytra with a single costa apart from sutural and marginal costae *unicostata* spec. nov.
38. Sutural interval of elytra in caudal view V-shaped, bare or sparsely scaled; vestiture of elytra white, dark spots along inner costa formed by bare patches; sutural costae strongly convergent anteriorly,

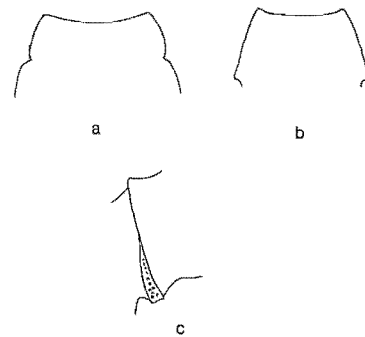


Fig. 54. Clypeal outline of A: *Cryptochile grossa* Erichson; B: *C. epistomalis* spec. nov.; C: lateral pronotal margin of *C. epistomalis*.

- almost meeting before but not reaching scutellum
 *concava* Gebien
- Sutural interval of elytra in caudal view flat-bottomed, scaled; vestiture of elytra bicoloured, white and brown; dark spots along inner costa formed by scales; sutural costae not or weakly convergent anteriorly, reaching scutellum or not; (in specimens with bare elytra only the sutural structure refers) *consita* Haag
39. Sides of clypeus continuous with gena, straight, converging anteriorly (Fig. 54B) 40
- Sides of clypeus rounded, subparallel, separated from gena by a notch (Fig. 54A) *grossa* Erichson
40. Sides of pronotum double over entire length
 *carpi* Koch.... 41
- Sides of pronotum double only posteriorly (Fig. 54C) *epistomalis* spec. nov. 43
41. Area between lateral pronotal carinae at least partly granular; elytral intercostae with small granules 42
- Area between lateral pronotal carinae entirely foveate; elytral intercostae with coarse, dense granules *carpi carpi*
42. Deflected part of elytra with rather large, scattered granules *carpi angolensis* subsp. nov.
- Deflected part of elytra with very small, sparse granules *carpi laevipleura* Koch
43. Sides of pronotum reflected upwards over entire length *epistomalis littoralis* subsp. nov.
- Sides of pronotum reflected upwards in posterior half only *epistomalis epistomalis*
44. Posterior pronotal angle angular to dentiform, but simple; pronotum with distinct strioliform granules
 *echinata* Fabricius.... 45
- Posterior pronotal angle consisting of two stout spines; pronotum microgranular *spinosa* Péringuey
45. Posterior pronotal angle strongly raised, occupying entire posterior half of pronotal margin; elytral spines long *echinata echinata*
- Posterior pronotal angle not strongly raised, posteriorly placed; elytral spines short
 *echinata serrata* Péringuey

***Cryptochile assimilis* Solier, Fig. 55B**

Cryptochile assimilis Solier, 1840: 263 (*assimile*); Haag, 1872: 298 (emended); Gebien, 1937: 192.

Cryptochile gayi Solier, 1840: 262; Haag, 1872: 298 (synonym of *assimilis*).

Cryptochile crassipes Solier, 1840: 264; Haag, 1872: 298 (synonym of *assimilis*).

Diagnosis. Head very large, more than half width of pronotal base. Pronotum with sides subparallel over most of length, abruptly convergent anteriorly. Elytra with two complete, carinate costae apart from sutural and lateral costae. Protibia in distal half flattened, with outer edge carinate.

Description. Elytral length 5,5–10,0 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and brown; vestiture of sternites and legs silvery.

Head very large. Clypeus emarginate, sides anteriorly convergent, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive, denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with subspherical granules. Antennae slender, apical two segments slightly enlarged, not distinctly dimorphic, slightly longer in male.

Pronotum about twice as broad as long in female, slightly narrower in male; broadest over posterior three-fourths of length (i.e., sides subparallel). Anterior margin somewhat raised and produced, shallowly emarginate; anterior angles acute. Lateral margins slightly sinuate in front of posterior angles, almost complete, consisting of approximated granules that sometimes coalesce; posterior angles broadly rounded, not embraced by humeri. Posterior margin straight. Sculpture consisting of moderately fine strioliform granules and ridges, dense, at least part of midline free of granules; areas between granules mainly with scales, denser wherever granules are more widely spaced, i.e., anteriorly and posteriorly on midline, laterally, and in various patches. Entire surface with short, semi-erect dark setae.

Elytra narrowly ovate to oblong, convex; apical declivity vertical. Humeri produced, not quite embracing pronotal base. Suture flat, with a fine carina, dissolved into granules posteriorly, flanking it on either side. Both discal costae complete, finely carinate, weakly undulating, slightly and about equally raised; lateral margin consisting of three rows, outer row composed of approximated elongate granules, middle row composed of small, irregular granules, inner row composed of widely spaced, very elongate granules. Suture scaled; intercostal intervals with dense, bicoloured silvery and brown scales, and with scattered, short, broad, brown erect setae emerging from small granules. First discal costa with pairs of dark patches on either side; second costa with less regular, smaller, paired or unpaired patches; granules of inner marginal row each with an associated dark patch medial to it. Deflected part of elytra with dense bicoloured scales, and with elongate, scattered granules, extremely variable in size but always larger posteriorly. Epipleural area scaled, upper edge complete, or consisting of elongate and partly contiguous granules, subtended by an obscure row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about half of procoxal width.

Prosternum and proepisternum scaled, former with dense, flat, subspherical granules, latter with dense, mainly short strioliform granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis about one-and-a-half times as broad as mesocoxa. Metasternum slightly shorter than mesosternum. Mes- and metepisterna mostly scaled, with dense and partly confluent large flat granules. Abdominal sternites partly scaled, densely sculptured, with flat, large and partly confluent granules.

Legs stout. Male profemur with flat, ovate tubercle at basal third, tubercle with faint apical fovea. Protibia ovate in cross-section, outer margin carinate over one-third to more than half of length. Outer angle of subcylindrical meso- and metatibiae with strong flange-like process. Tibial calcaria spiniform, all slightly thicker in female. Tarsi slender, cylindrical, segments distinctly shorter and thicker in female; in male, all tarsi as long as or slightly longer than respective tibiae; in female, all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, rather short dark bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Material examined. Lectotype ♂, elytral length 7,5 mm (MHNG): *assimile* ♀ Sol. *gayi* Sol. [handwritten] / 15; Musée de Genève No. 15 / Solier [handwritten] / Cap B.E., colln Gory (Solier). Although the label indicates the specimen to be female, it is a male, with tuberculate profemora. Paralectotypes: 2♀ (MHNG): (1) *assimile* Sol. / 14 / *penicillarum* Sol., *assimilis* Dej., Cap B.E., colln Gory (Solier); (1) *assimile* Sol. var. *cranifer* Sol. / 16 / Musée de Genève No. 16 / Cap. B.E. coll. Turine.

Other material: 43♂, 31♀, 12 ex (TM), 23♂, 16♀ (SAM); localities: Abrahamskraal farm; Arniston; Bontebok National Park; Brackfontein farm; Buffelsbaai; Cape Flats; Cape Point; Cape Town; Cape Town, 63 km N; Ceres; Clanwilliam; Darling; De Doorns; Elands Bay Forestry; Franschoek; Het Kruis; Hex River; La Motte; Leipoldville; Leipoldville – Elands Bay; Moorreesburg; Oudebosch, Riviersonderend Mts; Paleisheuvel; Rawsonville; Robertson, 10 km S, 15 km W; Rondevlei; Saamstaan farm; St Helena Bay; Sea Point; Somerset West; Stellenbosch; Still Bay; Strand; Strandfontein, nr; Worcester; Yzerfontein, 8 km N; Yzerfontein/Cape Town junction, 33.14S 18.12E; Zeekoevlei. Also Cap b. Sp. Wrong locality: Pretoria.

Season. Spring and summer (August, February).

Habitat. Sandy substrata, from mountainous to littoral areas.

Distribution (Fig. 55B). Southern Cape Province, South Africa.

Remarks. This is a very variable species, but no geographical pattern was observed. Variation occurs in the body shape, both elytra and pronotum being shorter or longer, the sinuosity of the pronotal sides, the development of the discal and upper marginal elytral costae, and the secondary discal costa between the suture and the first primary discal costa, the shape of the protibia, the length of the male metatarsus, and the length of the elytral setae, particularly those of the elytral margin. The colour pattern is also variable. Specimens from

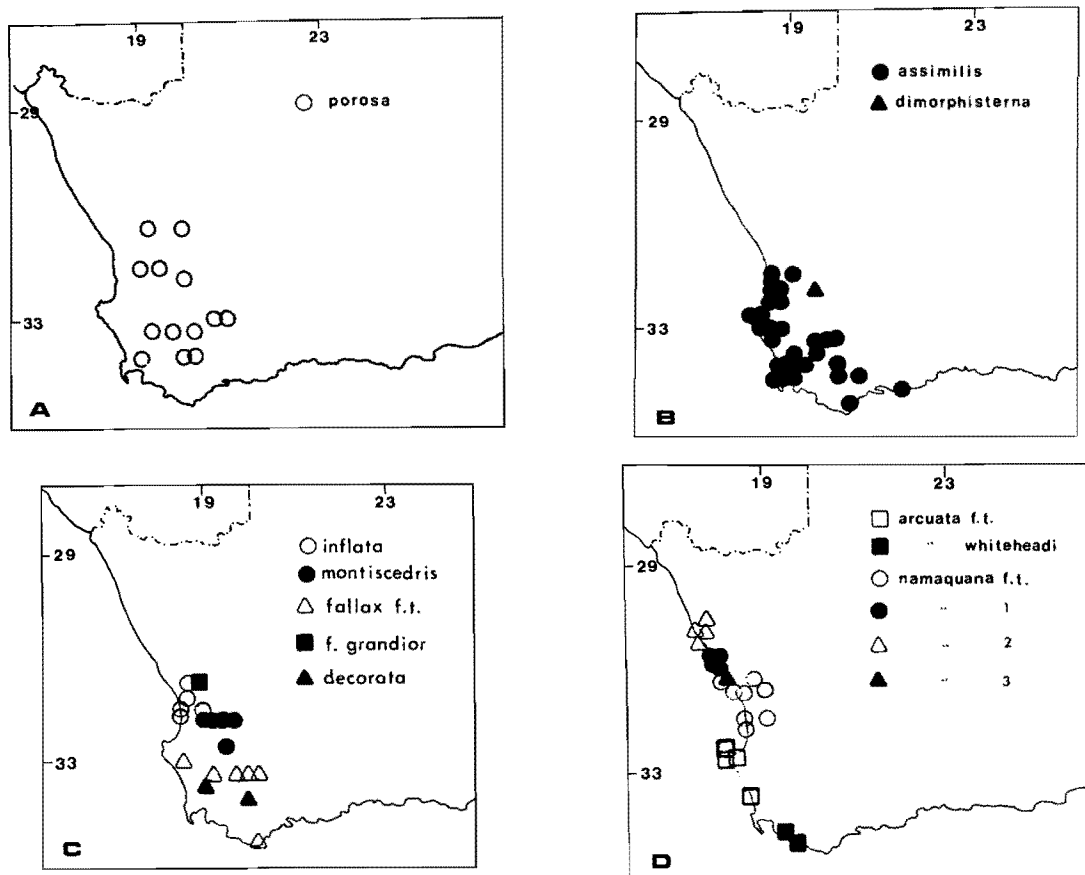


Fig. 55. Distribution of A: *Cryptochile porosa*; B: *C. assimilis*; C: *dimorphisterna*; C: *C. inflata*, *C. montiscedris*, *C. fallax f.t.*, *C. fallax grandior*, *C. decorata*; D: *C. arcuata f.t.*, *C. arcuata whiteheadi*, *C. namaquana f.t.*, *C. namaquana curtisetosa* (= 1), *C. namaquana setosissima* (= 2), *C. namaquana crassisculpta* (= 3).

the Yzerfontein/Darling area are slightly shorter on average, with a more transverse pronotum; they can be distinguished from the sympatric (or parapatric) *C. inflata* by the less convergent pronotal sides and shorter setation, as well as the head which is clearly more than half of pronotal width.

Cryptochile arcuata spec. nov., Figs 55D, 71, 72

Diagnosis. Head not or slightly more than half width of pronotal base. Pronotum with lateral margins convergent anteriorly, anterior margin emarginate. Elytra with two complete, carinate to prominent granular costae apart from sutural and lateral costae, upper marginal elytral row consisting of variably spaced, elongate granules. Protibia in distal half flattened, with outer edge carinate.

Description. Elytral length 5.5–7.2 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, white and light brownish, elytra with dark brown tomentose patches; vestiture of sternites and legs silvery.

Head large, about half of pronotal width at base or slightly more, variable. Clypeus emarginate, sides anteriorly convergent, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive. Clypeus and frons with subspherical granules from

which short, procumbent setae emerge. Antennae slender, apical two segments slightly enlarged, slightly larger in male.

Pronotum about twice as broad as long in female, slightly narrower in male; broadest at posterior angles. Anterior margin slightly raised, shallowly emarginate; anterior angles variable, acute to broadly obtuse. Lateral margins almost straight, almost complete, consisting of approximated, sometimes coalescent granules, posterior angles broadly rounded, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of moderately fine strioliform granules and ridges, dense, at least part of the midline free of granules; areas between granules mainly with scales. Entire surface with short, recumbent dark setae.

Elytra ovate, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, closely flanked by a pair of carinae variably dissolved into granules. Both discal costae developed, or inner costa evanescent; finely carinate or variably or completely dissolved into elongate granules, not raised; lateral margin broad, consisting of three rows, outer row almost complete, at least most granules contiguous, inner row consisting of widely spaced, usually somewhat elongate granules, more approximated or even coalescent near base; middle row consisting of small, subspherical, separated granules. Sutural interval scaled. Inter-costal intervals with dense, bicoloured silvery and brown scales, and with scattered short to long, stiff, erect light to dark

brown setae emerging from shiny round granules. Granules of lateral costae with variable but often long and erect light brown to dark setae; discal costae with erect setae where dissolved into granules. First discal costa with pairs of dark patches on either side; second costa with less regular, smaller, paired or unpaired brushes; granules of inner marginal row each with an associated dark brown patch medial to it. Deflected part of elytra with dense bicoloured scales concealing fine, scattered punctures, and with round to slightly elongate, scattered granules, extremely variable in size but always larger ventrally and posteriorly. Epipleural area scaled, upper edge complete or partly to entirely consisting of elongate, approximated granules subtended by evanescent row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to slightly less than half of procoxal width. Prosternum and proepisternum scaled, former with variable, mainly crescentic granules, latter with scattered to moderately dense, mainly short strioliform granules, sometimes coalescing to form longitudinal rugosities. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis about as broad as mesocoxa or slightly broader. Metasternum slightly shorter than mesosternum. Mes- and metepisterna mostly scaled, with dense and partly confluent, flat granules. Abdominal sternites mostly scaled, densely sculptured.

Legs stout. Male profemur with flattish tubercle at basal third, tubercle with apical pore. Protibia flattened in cross-section, distal half of outer margin carinate. Outer angle of subcylindrical meso- and metatibiae with strong flange-like process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments shorter and thicker in female; in male, pro- and mesotarsi as long as or slightly longer or shorter than respective tibiae, metatarsus slightly shorter than metatibia; in female, all tarsi distinctly shorter than respective tibiae. Claws equal in length, slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, moderately short dark bristles.

Aedeagus not examined.

Season. Spring (August – November).

Distribution (Fig. 55D). Southwestern Cape, South Africa.

Remarks. The new species differs from *C. assimilis* in the anteriorly convergent sides of the pronotum and the relatively shorter and broader elytra. In these characters it resembles *C. inflata*, from which it differs mainly in the emarginate anterior pronotal margin; this is subtruncate to convex in *C. inflata*. The elytra are slightly more elongate than in *C. inflata*. Two subspecies are recognized

Etymology. The name of the new species refers to the arcuate anterior margin of the pronotum (Latin, *arcuatus*, -a, -um, bow-shaped).

Cryptochile arcuata arcuata

Diagnosis. Anterior pronotal angle at least 90 degrees; setae of lateral elytral margin long; mesosternal apophysis one-and-a-half to one-and-two-thirds of mesocoxal width.

Material examined. Holotype ♂, elytral length 6,1 mm (TM): S. Afr., S.W. Cape, Cape Columbine, 32.49S 17.51E / 22.8.1983; E-Y:1964, groundtraps, 73 days, leg. Endrödy, Penrith / groundtrap with banana bait. Allotype ♀, elytral length 6,6 mm (TM): same data as holotype but with faeces bait. Paratypes: 11 ex. (TM), 8 ex. (SAM): 1♂, 4♀, same data as holotype, 2 banana, 1 meat, 2 faeces bait. 2♀, S. Afr., S.W. Cape, Duiker Island, 32.43S 17.56E / 22.8.1983; E-Y:1962, groundtraps, 73 days, leg. Endrödy, Penrith / groundtrap with meat (1), faeces (1) bait. 1♂, 3♀, S. Afr., S.W. Cape, Cape Town, 38 km N, 33.34S 18.27E / 30.8.1983; E-Y:2002, groundtraps, 63 days, leg. Endrödy, Penrith / groundtrap with meat bait. 2♂, 5♀, St Helena Bay. 1♂, S.Afr. C.P., Langebaanweg, 3218 Cc, Kleinberg, 26.IX.78, V.B. Whitehead.

Habitat. Vegetated sand dunes and sandy soils.

Cryptochile arcuata whiteheadi subsp. nov.

Diagnosis. Anterior pronotal angle acute, less than 90 degrees; setae of lateral elytral margin short; mesosternal apophysis only slightly wider than mesocoxa.

Material examined. Holotype ♂, elytral length 6,7 mm (TM): S. Afr., S.W. Cape, Gansbaai, 10 km NE, 34.31S 19.25E / 27.8.1983, groundtraps, 63 days, leg. Endrödy, Penrith, groundtraps with banana bait. Allotype ♀, elytral length 6,6 mm (SAM): S.Afr. C.P., Vermont, 13.XI.83, V.B. Whitehead. Paratypes: 11 ex. (SAM, TM), Vermont: (7) coastal dunes, 2.11.74, B. Kensley; (2) dune, 1.X.78, V.B. Whitehead; (2) 10.X.1983, V.B. Whitehead.

Remarks. The new subspecies differs from the nominate subspecies only in the characters given in the diagnosis.

Etymology. The new subspecies is named in honour of our friend Dr V. B. Whitehead, formerly of the South African Museum, who collected some of the type material.

Cryptochile inflata Haag, Fig. 55C

Cryptochile inflata Haag, 1878: 82; Gebien, 1937: 192.

Diagnosis. Head not or slightly more than half width of pronotal base. Pronotum with lateral margins convergent, anterior margin truncate to convex. Elytra rounded, convex, with two variably carinate discal costae apart from sutural and lateral costae; upper marginal elytral row occasionally carinate, usually consisting of variably spaced, elongate granules. Protibia in distal half flattened, with outer edge carinate.

Description. Elytral length 5,0–7,2 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, white and light brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery.

Head large, about half of basal pronotal width or slightly more. Clypeus emarginate, not separated laterally from gena. Eyes narrowly reniform, not distinctly setose. Scales of head

mostly confined to sides, clypeus and posterior parts. Clypeus and frons with round granules. Antennae slender, apical two segments enlarged, scarcely dimorphic, antenna slightly longer, with slightly larger apical segments, in male.

Pronotum less than twice as broad as long in both sexes, not distinctly dimorphic; broadest at posterior angles. Anterior margin raised and produced, convex; anterior angles very broadly obtuse. Lateral margins not sinuate in front of posterior angles, almost complete, consisting of approximated, sometimes coalescent granules; posterior angles broadly rounded, basally embraced by humeri. Posterior margin almost straight. Sculpture consisting of moderately coarse strioliform granules and ridges, some expanded and irregularly shaped, dense, covering entire pronotum although smaller, sparser, and rounded laterally; areas between granules mostly bare, scales largely confined to sides and parts of midline. Entire surface with extremely short, recumbent dark setae; lateral margins with slightly longer, erect setae.

Elytra rounded, convex; apical declivity vertical. Humeri produced, just embracing pronotal base. Suture closely flanked on either side by a fine, interrupted carina. Both discal costae developed, broadly to finely carinate, complete or interrupted, outer costa slightly raised; lateral margin consisting of three rows, outer row finely carinate, inner row consisting of widely separated to approximated, somewhat elongate granules, occasionally continuously carinate, well separated from outer row; middle row consisting of a usually distinct but irregular row of rounded granules. Intercostal intervals with dense, bicoloured white and brown scales, and with scattered to moderately dense rounded granules bearing short stiff erect dark setae. First discal costa with pairs of tomentose patches on either side; second costa with less regular, smaller, paired or unpaired patches; granules of inner marginal row each with an associated tomentose patch medial to it. Granules of lateral costae with long, stiff, erect setae. Deflected part of elytra with dense white scales, and with scattered to dense, round to ovate or elongate granules, extremely variable in size but always larger posteriorly. Epipleural area bare except for a narrow median row of scales, upper edge virtually complete, undulating.

Prosternum with anterior margin collar-like, narrow, even and almost straight, weakly emarginate medially; prosternal apophysis about one-third to half of procoxal width. Prosternum laterally and proepisternum medially scaled, former with coarse, dense, subspherical granules, latter with dense, mainly broad, elongate granules. Procoxal cavity apparently open behind. Mesosternum bituberculate anteriorly, apophysis one-and-a-half to one-and-two-thirds times as broad as mesocoxa. Metasternum slightly shorter than mesosternum. Mes- and metepisterna with background scaled, and with bare and polished, raised rugose sculpture. Abdominal sternites mostly bare, densely and rugosely sculptured.

Legs moderately stout. Male profemur with flat elongate tubercle at basal third, tubercle with apical pore. Protibia flattened in cross-section, outer margin carinate on distal half, with or without irregular teeth dorsal to carina. Meso- and metatibiae subcylindrical, former with a thin flange, latter with strong spiniform process at outer distal angle. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in

female; all tarsi distinctly shorter than respective tibiae. Claws equal in length slender, shorter than unguis segment. Femora, inner side of protibia, and tarsi with stiff, moderately long bristles; inner side of meso- and metatibiae with long setae.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Holotype ♂, elytral length 6,2 mm (SSM): Cap, Fetting / *Cryptochile inflata* / Sammlung Haag-Rutenberg / Type: *Cryptochile inflata* Haag-R. [pink] / *inflata* Haag.

Other material: 6♂, 7♀ (TM), 2♂ (NCI), 4♂, 2♀ (SAM), 1♂ (SMW); localities: Clanwilliam; Leipoldville; Leipoldville – Elands Bay; Vredendal, 20 km W; Vredendal, S. at 31.40S 18.41E; Vredendal, Graafwater; Zandveld at 31.29S 18.44 E.

Season. Spring (August – November).

Habitat. Red sand dunes, with vegetation; sandy, vegetated red soil.

Distribution (Fig. 55C). Southern Namaqualand, South Africa.

Cryptochile namaquana spec. nov., Figs 55D, 73

Diagnosis. Head not or slightly more than half width of pronotal base. Pronotum with lateral margins convergent anteriorly, anterior margin truncate. Elytra rounded to ovate, with two carinate discal costae, inner marginal row carinate, occasionally interrupted. Protibia in distal half flattened, with outer edge carinate.

Description. Elytral length 3,0–7,1 mm, females on average considerably larger than males. Integument reddish brown to black, apices of appendages reddish. Scales of dorsal surface bicoloured, white and brown, elytra with dark brown tomentose patches; vestiture of sternites and legs silvery.

Head large, about half of pronotal basal width. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive, denser on sides and posterior parts. Clypeus and frons with round granules, sides of frons with elongate granules. Antennae slender, apical two segments enlarged; antennae distinctly dimorphic, longer in male and with last two segments distinctly larger than in female.

Pronotum variable, less than to about twice as broad as long, usually broader in female, but variable between individuals; broadest at posterior angles. Anterior margin truncate, slightly raised; anterior angles broadly obtuse. Lateral margins straight or sinuate in front of posterior angles or not, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles broadly rounded, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of moderately fine strioliform granules and ridges, dense, at least part of midline and juxtalateral area free of granules; areas between granules partly scaled, scales concentrated on non-granular parts of midline and sides. Entire surface with very short to long, recumbent reddish setae.

Elytra rounded to ovate, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture closely flanked on either side by a fine carina. Both discal costae complete, finely to broadly carinate, about equally raised; lateral margin consisting of two rows, outer one finely carinate, inner one usually finely carinate, sometimes interrupted, especially posteriorly; distance between two carinae variable, space filled with irregular granules. Costae and granules with moderate to long, pale to dark setae. Intercostal intervals with dense, bicoloured (white and brown) scales, and with scattered short to long, stiff, erect, yellow to brown setae emerging from small granules. Pattern of dark brown tomentose scales variable, either as follows: first discal costa with pairs of tomentose patches on either side, second costa with less regular, smaller, paired or unpaired patches, granules of inner marginal row each with an associated tomentose brush medial to it; or pattern much more extensive. Deflected part of elytra with dense bicoloured scales, and with variable granulation, but posteriorly always with very long and broad granules or ridges that are very dense and usually at least partly contiguous. Epipleural area bare, or with narrow row of scales on midline, upper edge usually complete.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to half of procoxal width. Prosternum laterally, proepisternum medially scaled, former with dense round granules, latter with dense, mainly short and curved strioliform granules. Procoxal cavity apparently open behind. Mesosternum bituberculate anteriorly, apophysis almost twice as broad as mesocoxa. Metasternum slightly shorter than mesosternum. Mes- and metepisterna with background scaled, and with raised and polished rugose sculpture. Abdominal sternites with sparse scales and setae, densely and rugosely sculptured.

Legs slender. Male profemur with subconical or conical tubercle just distal to basal third, tubercle with apical pore. Protibia flattened in cross-section, outer margin carinate in distal half and variably toothed dorsal to carina. Meso- and metatibiae slightly compressed, outer angle with projecting flange (mesotibia) or strong spiniform process (metatibia).

Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments of metatarsi much shorter and thicker in female; in male, tarsi as long as or slightly longer than respective tibiae; in female, all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than ungual segment. Femora and tibiae with moderately long to long setae, sometimes very long on inner surface of meso- and metatibiae, tarsi with stiff, moderately short bristles.

Aedeagus stout, apicale of sheath (and with it apex of median lobe) strongly curved dorsad.

Season. Winter to spring (July – November).

Distribution (Fig. 55D). Namaqualand, South Africa.

Remarks. The present polymorphic species is considered to be best presented as a series of subspecies, although individual specimens are potentially difficult to place, as a great deal of overlap was observed. The trend towards greater sexual dimorphism, with enlargement and increased convexity of the female, and progressive elongation of tarsi in the male, culmi-

nates in *Cerasoma* Endrödy-Younga, which is likely to have arisen from an ancestor similar to *C. namaquana*.

Etymology. The name of the new species is derived from the geographic region in which it occurs; the name was selected for this species by the late Dr C. Koch.

Cryptochile namaquana namaquana

Diagnosis. Upper marginal costa entire. Outer discal costa not flanked by dense and coarse granules. Elytral setation relatively short in both sexes. Disc of elytra flat in male, slightly but not conspicuously convex in female.

Material examined. Holotype ♂, elytral length 4,6 mm (TM): S. Afr. S.W. Cape, Lambertsbay N., 32.04S 18.19E / 25.8.1981; E-Y:1844, groundtraps, leg. Endrödy-Younga / groundtraps with ferm. banana bait. Allotype ♀, elytral length 5,7 mm (TM): same data as holotype. Paratypes: 42♂, 47♀ (TM), 1♀ (SMW): (29) same data as holotype, but baits as follows: 15 meat, 4 faeces, 10 ferm. banana; (1) same locality as holotype but 24.8.1981, E-Y:1842, day, white sand, leg. Endrödy-Younga; (1) S. Afr. SW Cape, Nortier farm, 32.03S 18.19E / 25.8.1981, E-Y:1847, day, red sand, leg. Endrödy-Younga; (9) S. Afr., SW Cape, Elandsbay forestry, 32.18S 18.21E / 28.8.1981, E-Y:1853, groundtraps, 60 days, leg. Endrödy-Younga / 3 meat bait, 2 faeces, 4 banana; (1) Clanwilliam, 28/9/27, A. Engelbrecht; (8) S. Afr., SW Cape, Seweputs coast, 31.39S 18.17E / 23.8.1981, groundtraps, 64 days, leg. Endrödy-Younga / meat bait, 5 faeces, 2 banana; (5) locality and date as preceding specimens, E-Y:1838, other data and bait as preceding specimens, 4 faeces, 1 banana; (5) S. Afr., SW Cape, Papendorp dunes, 31.38S 18.12E / 22.8.1981, E-Y:1830, groundtraps, 64 days, leg. Endrödy-Younga / 1 faeces bait, 4 banana; (4) S. Afr. Namaqualand, Koekenaap, 31.32S 18.14E / 31.8.1979, E-Y:1625, groundtraps, 59 days, leg. Endrödy-Younga / 3 meat bait, 1 banana; (3) same locality as preceding specimens, 4.11.1979, E-Y:1669, red inland dune, leg. Endrödy-Younga; (17) Skulpbaai, 2,5 km NW, 31.23S 17.56E / 30.8.1979, E-Y:1619, groundtraps, 62 days, leg. Endrödy-Younga / 9 meat, 7 faeces, 5 banana; (1) V. Rhynsdorp, July–Aug. '27, G. v. Son; (1) 20.8.1927, Van Rhynsdorp, Capl., Dr Brauns; (1) Zandveld at 31.29S 18.44E, Cape, R.S.A., 20 Sept. 1982, M.-L. Penrith / H 54711.

Remarks. The series of specimens from Skulpbaai is to some extent intermediate between the nominate and the following subspecies, but is included in the type series of the nominate subspecies with which the majority of specimens agree.

Cryptochile namaquana curtisetosa subsp. nov.

Diagnosis. Upper marginal costa always interrupted in both sexes; setae short; pronotum of female long.

Material examined. Holotype ♂, elytral length 4,1 mm (TM): S. Afr., S. Namaqua, Rooidam farm, 31.04S 17.48E / 26.8.1979, E-Y:1600, groundtraps, 63 days, leg. Endrödy-

Younga / groundtrap with banana bait. Allotype ♀, elytral length 5,7 mm (TM), same data as holotype, but faeces bait. Paratypes: 30♂, 65♀ (TM): (11) same data as holotype, baits: 1 faeces, 10 banana; (15) S. Afr., S. Namaqua, Hoekbaai 2 km ENE, 31.11S 17.47E / 27.8.1979, E-Y:1609, groundtraps, 62 days, leg. Endrödy-Younga / 3 meat bait, 3 faeces, 9 banana; (2) same locality as preceding specimens / 28.10.1979, E-Y:1665, from under stones, leg. Endrödy-Younga; (10) S. Afr. Namaqualand, Klein Kogelfontein, 31.10S 17.50E / 27.8.1979, E-Y:1606, groundtraps, 62 days, leg. Endrödy-Younga / 2 faeces bait, 8 banana; (10) S. Afr., Namaqualand, Katdoringvlei, 31.07S 17.52E / 27.8.1979, E-Y:1605, groundtraps, 62 days, leg. Endrödy-Younga / meat bait; (3) same locality as preceding specimens / 28.10.1979, E-Y:1664, singled on sand, day, leg. Endrödy-Younga; (6) S. Afr., Namaqualand, Brakriver mouth, 31.06S 17.44E / 25.8.1979, E-Y:1597, groundtraps, 63 days, leg. Endrödy-Younga / 2 faeces bait, 4 ferm. banana; (11) S. Afr. Namaqualand, Waterval farm, 31.03S 17.46E / 25.8.1979, E-Y:1598, groundtraps, 63 days, leg. Endrödy-Younga / 5 meat bait, 3 faeces, 3 banana; (2) S. Afr., Namaqualand, Kotzesrus, 30.57S 17.50E / 25.10.1979, E-Y:1652, singled, dunes, day, leg. Endrödy-Younga; (4) same locality as preceding specimens / 23.8.1979, E-Y:1582, groundtraps, 62 days, leg. Endrödy-Younga / ferm. banana bait; (17) locality and date as preceding specimens, E-Y:1584, other data as preceding specimens: 9 faeces bait, 8 ferm. banana; (3) S. Afr. Namaqualand, Rondabel farm, 30.47S 17.50E / 24.8.1979, E-Y:1587, groundtraps, 63 days, leg. Endrödy-Younga / ferm. banana bait; (1) S. Afr., Namaqualand, Groenrivier mouth, 30.42S 17.35E / 24.8.1979, E-Y:1591, groundtraps, 63 days, leg. Endrödy-Younga / ferm. banana bait; this last specimen has long setae, but otherwise agrees with the subspecies to which it has been assigned.

Cryptochile namaquana crassisculpta subsp. nov.

Diagnosis. Outer (lateral) discal costa flanked by dense and coarse granules, or at least one row of large granules; setation of lateral elytral margin long in male, entire elytral setation long in female; upper lateral costa entire or almost entire. Elytral disc flat in male, with strongly raised costae, convex in female.

Material examined. Holotype ♂, elytral length 3,6 mm (TM): S. Afr., Namaqualand, Soutpan dunes, 31.15S 17.52E / 29.10.1979, E-Y:1666, coastal dunes, leg. Endrödy-Younga. Allotype ♀, elytral length 5,9 mm (TM): same locality as holotype, 29.8.1979, E-Y:1617, groundtraps, 62 days, leg. Endrödy-Younga / groundtrap with banana bait. Paratypes: 16♂, 8♀ (TM): (4) same data as holotype; (20) same data as allotype.

Cryptochile namaquana setosissima subsp. nov.

Diagnosis. Males almost as in *C. n. curtisetosa*, but setae of elytral margins long; elytra strongly rounded. Females similar to those of *C. n. curtisetosa* but more domed and rounded, and with very long elytral setae.

Material examined. Holotype ♂, elytral length 3,7 mm (TM): S. Afr., Namaq. coast, Gemsbok Vlakke farm, 30.30S 17.25E /

2.9.1977, E-Y:1372, groundtraps, 56 days, leg. Endrödy-Younga / groundtraps with banana bait. Allotype ♀, elytral length 6,3 mm (TM): S. Afr., Namaq. coast, Gemsbok Vlakke farm, 30.30S 17.29E / 1.9.1977, E-Y:1366, groundtraps, 56 days, leg. Endrödy-Younga / groundtrap with meat bait. Paratypes: 1♂, 4♀ (TM); 2♂ (SAM): (1) same data as allotype, but faeces bait; (1) locality and other data same as holotype, but E-Y:1370; (1) locality and other data same as allotype, but E-Y:1365, and 58 days; (1) Hondeklipbaai, 11.11.'33, G. van Son; (1) Soebatsfontein, 13–14.11.'33, G. van Son; (2) Wallekraal, Namaqualand, Mus. Exped., Oct. 1950.

Cryptochile protibialis spec. nov., Figs 56C, 74

Diagnosis. Head distinctly narrower than half of pronotal width. Pronotum with sides sinuate in front of posterior angles. Elytra with sutural, two discal and lateral costae all dissolved into granules of variable length, not continuously carinate. Protibia flattened in distal half, with outer edge carinate.

Description. Elytral length 4,3–5,8 mm. Integument reddish brown to black, appendages reddish. Scales of dorsal surface bicoloured, white and brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head virtually confined to sides, clypeal sulcus and posterior parts, with a posteromedian patch of variable extent on frons. Clypeus and frons with subspherical granules. Antennae slender, longer in male, apical two segments slightly enlarged in female, distinctly enlarged in male.

Pronotum variable, not markedly dimorphic, slightly to much less than twice as broad as long; broadest at posterior angles. Anterior margin raised and produced; anterior angles acute. Lateral margins weakly to distinctly sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles subrectangular, expanded, not embraced by humeri. Posterior margin straight. Sculpture consisting of moderately fine, dense strioliform granules and ridges, at least part of midline free of granules, usually other more or less paired but irregular smooth patches as well; areas between granules partly with scales, dense laterally and on smoothed areas. Entire surface with short, erect dark setae.

Elytra broadly ovate, convex, dorsal surface flat; apical declivity vertical. Humeri not or slightly produced, not embracing pronotal base. Suture raised, and flanked on either side by a row of sharp granules. Both discal costae strongly raised, about equally developed, carinate, inner costa variably interrupted on disc to form shorter carinae, granular on declivity, outer costa consisting of an irregular double row of granules along an underlying and scale-covered costa; lateral margin consisting of three rows, outer row composed of sharp dentiform granules, inner row composed of widely spaced, somewhat elongate, strongly raised granules; middle row composed of irregular small subspherical granules, abbreviated posteriorly. Sutural and intercostal intervals with dense, bicoloured white and brown scales, intercostal intervals with scattered

small granules from which stiff, moderately short black setae emerge.

First discal costa with pairs of flat tomentose patches on either side; second costa with less regular, smaller, paired or unpaired patches, better developed along inner row of granules; a tomentose patch medial to each granule of inner marginal row. Deflected part of elytra with dense bicoloured scales concealing fine, scattered punctures, and with round, scattered granules, variable in size but generally larger posteriorly. Epipleural area scaled, upper edge consisting of elongate, approximated granules, subtended by a row of obscure punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis less than half of procoxal width. Prosternum and proepisternum mostly scaled, former with variable, round granules, latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum bituberculate anteriorly, apophysis about one-and-a-half times as broad as mesocoxa. Metasternum only slightly shorter than mesosternum. Mes- and metepisterna with confluent raised smooth sculpture, areas between raised parts scaled. Abdominal sternites mainly scaled, densely sculptured with raised and coalescent granules.

Legs stout. Male profemur with moderately large tubercle at basal third, tubercle with apical pore. Protibia compressed in cross-section, outer margin carinate at least on distal half. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process; mesotibia with apical carina that terminates in spine. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments distinctly shorter and slightly thicker in female; in male, pro- and mesotarsi about as long as respective tibiae, metatarsus slightly shorter than metatibia; in female, all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, short dark bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 4.7 mm (TM): Clanwilliam, IX.1928, Dr Brauns. Allotype ♀, elytral length 5.8 mm (TM): South Africa, Clanwilliam, Nov. 1952, S.S. Walters. Paratypes: 2♂ (TM), 3♂ (SAM): (1) same data as allotype; (1) Z.A. 99, Seder Berg, 500–1100 m, Clanwilliam distr. C.P.; humus under bushes and large stones, IV.1962, N. Leleup; N. Leleup leg.; (1) Malmesbury, Lightfoot; (1) Touws Riv. C.C., Dr Purcell; (1) Clanwilliam.

Season. Spring and summer (September – April).

Distribution (Fig. 56C). Southwestern Cape, South Africa.

Remarks. This species resembles the species described above in the apically compressed protibia, with the outer margin carinate for a considerable distance behind the outer distal angle. It differs from them in the interrupted elytral costae, shape and sculpture of the pronotum, and the smaller head. Specimens examined had been identified as *C. globulum* Solier, with whose description the specimens seem to agree, but examination of the type of Solier's species shows it to differ, having a quadrate protibia.

Etymology. The name of the new species refers to the protibia (Latin suffix *-alis*, *-e*, relating to).

***Cryptochile fallax* Solier, Figs 55C, 75**

Cryptochile fallax Solier, 1840: 258; Haag, 1872: 294; Gebien, 1937: 192.

Diagnosis. Clypeus with sides subparallel or weakly convergent, separated from gena by a distinct notch. Elytra ovate to oblong, with two complete to interrupted discal costae. Humeri not embracing pronotal base. Mesosternal apophysis less than twice width of mesocoxa; mesosternum with two low, rounded, anterior callosities separated by a narrow and shallow concavity. Protibia rounded in distal half, without a flattened area, carinate apically.

Description. Elytral length 3.3–7.2 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, white and brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites white.

Head of medium size. Clypeus emarginate, sides subparallel, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head generally distributed, but concentrated on sides, clypeal sulcus and posterior parts. Clypeus and frons with irregular, subspherical to elongate granules. Antennae slender, apical two segments slightly enlarged, not dimorphic. Penultimate segment transverse, and truncate apically.

Pronotum less than twice as broad as long in female, narrower in male, variable; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, broadly serrately carinate on posterior angles; posterior angles subrectangular, not raised, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of dense, moderately fine strioliform granules and ridges, at least part of midline and usually two patches in middle on either side of disc free of granules; areas between granules mainly without scales except for larger unsculptured patches as described above. Entire surface with short, semi-recumbent dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flanked by two narrow carinae sometimes dissolved into granules anteriorly and posteriorly, flat. Development of discal costae variable, outer costa usually dissolved into granules posteriorly, inner costa sometimes dissolved into granules or abbreviated posteriorly. Non-granular parts of costae finely carinate, weakly undulating, slightly and more or less equally raised. Lateral margin consisting of three rows, outer row at least partly carinate, otherwise composed of approximated granules, inner row parallel, composed of widely spaced, elongate granules; middle row composed of rather closely set, round to ovate tubercles. Sutural and intercostal intervals with dense, bicoloured white and brown scales, intercostal intervals with scattered short erect dark setae emerging from small to minute round granules. First discal costa with pairs of tomentose brushes on either side; second costa without associated tomentose brushes, or with less regular, smaller, unpaired

brushes; a tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense bicoloured scales concealing at least a few fine punctures, and with mainly round, scattered granules, extremely variable in size but always larger and sometimes elongate to strioliform posteriorly. Epipleural area scaled, upper edge consisting of a row of contiguous granules, subtended a row of punctures.

Prosternum with anterior margin collar-like, approximately arcuate, prosternal apophysis about one-third to slightly less than half of procoxal width. Prosternum scaled, with variable round granules anteriorly and laterally, apophysis coarsely punctate with scattered granules, proepisterna mainly bare with moderately dense, mostly short and sometimes curved strioliform granules. Procoxal cavity apparently open behind. Mesosternum variably bituberculate anteriorly, apophysis less than twice as broad as mesocoxa. Metasternum short, about half of mesosternal length. Mes- and metepisterna mostly scaled, with moderately dense, variable, mainly ovate granules. Abdominal sternites mainly scaled, densely sculptured, with flat, subspherical, virtually contiguous tubercles.

Legs stout. Male profemur with small to moderately large subspherical to compressed tubercle at basal third, tubercle with apical pore. Protibia ovate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly thicker in female; all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, rather short dark bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Season. Winter and spring (June – November).

Distribution (Fig. 55C). Western Cape, South Africa.

Remarks. This species is polymorphic; two subspecies are recognized.

Cryptochile fallax fallax Solier

Diagnosis. Size smaller, elytral length 3,3–5,0 mm; pronotum transverse, lateral margins weakly sinuate; scales of tomentose brushes on elytra short.

Material examined. Type material was not traced.

Other material: 12♂, 4♀ (SAM), 4♂, 10♀ (TM); localities: Ceres; Hex River; Hopfield; Struisbaai; Touws River; Triangle. Specimens labelled Kimberley and Windhoek are regarded as being of dubious provenance.

Remarks. Three males and eight females from Struisbaai are unusual in that several of the specimens have much coarser intercostal granulation, one of the males has strongly enlarged apical antennal segments, and the elytra are slightly more convex than those of most of the other specimens. The specimens are also very small.

Cryptochile fallax grandior subsp. nov.

Diagnosis. Size larger, elytral length 5,7–7,2 mm; pronotum less transverse, and more sinuate laterally; scales of tomentose brushes on elytra long.

Material examined. Holotype ♂, elytral length 5,7 mm (TM): Van Rhy'n's-Pass, 4–5.11.'33, G. van Son. Allotype ♀, elytral length 7,2 mm (TM): same data as holotype. Paratype: ♂ (TM): same data as holotype.

Remarks. The specimens from Vanrhyn's Pass are distinguished from the nominate subspecies by their larger size and slightly different pronotal shape.

Etymology. The name of the new subspecies refers to its larger size (Latin, *grandis*, -e, large, great).

Cryptochile montiscedris spec. nov., Figs 53A, 55A, 76

Diagnosis. Clypeus with sides rounded, separated from gena by a deep notch. Elytra ovate, with two fine carinate discal costae, humeri embracing pronotal base. Mesosternal apophysis broad, more than twice width of mesosternum. Male profemur with fine, tubular tubercle basally. Protibia rounded in distal half, without flat area, carinate apically.

Description. Elytral length 3,8–8,3 mm. Integument black, apices of appendages reddish. Scales of dorsal surface varicoloured, silvery and shades of brown, elytra with light to dark brown tomentose brushes; vestiture of legs and sternites silvery.

Head of medium size. Clypeus broadly emarginate, sides rounded, separated laterally from gena by a deep notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive. Clypeus and frons with round granules bearing short, procumbent dark setae. Antennae slender, apical two segments slightly enlarged, not distinctly dimorphic, on average slightly larger in males.

Pronotum about one-and-one-third to one-and-a-half times as broad as long in female, slightly narrower in male, variable; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles close to middle, almost complete, anteriorly and posteriorly carinate, in middle consisting of approximated, sometimes coalescent granules, posterior angles broadly rounded, basally embraced by humeri. Posterior margin weakly curved. Sculpture consisting of moderately fine strioliform granules and ridges, scattered to dense, at least part of midline as well as sides and usually two patches on disc free of granules; areas between granules mainly bare, scales confined mostly to non-granular areas. Entire surface with short, recumbent dark setae.

Elytra ovate, convex; apical declivity vertical. Humeri produced, basally embracing pronotal base. Suture flat, flanked by two fine, carinate costae. Both discal costae complete, finely carinate, straight or weakly undulating, slightly and about

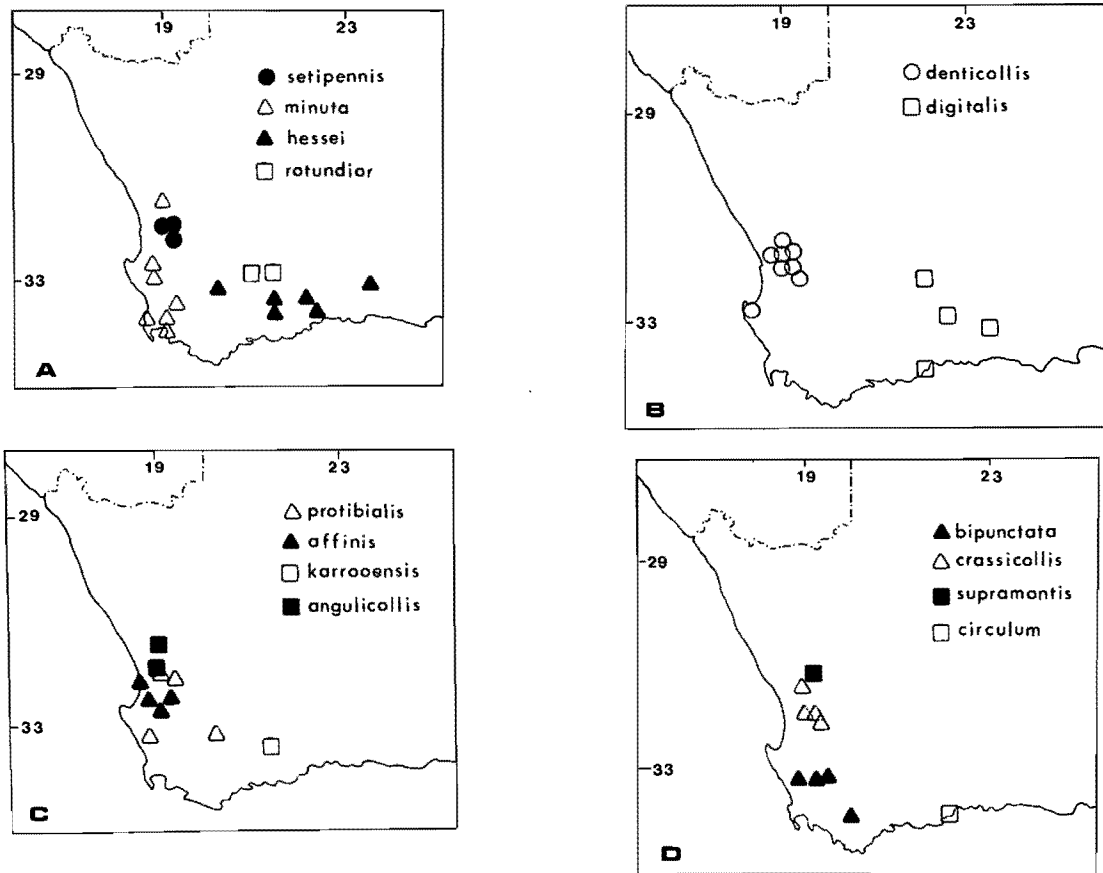


Fig. 56. Distribution of A: *Cryptochile setipennis*, *C. minuta*, *C. hessei*, *C. rotundior*; B: *C. denticollis*, *C. digitalis*; C: *C. protibialis*, *C. affinis*, *C. karroensis*, *C. angulicollis*; D: *C. bipunctata*, *C. crassicollis*, *C. supramontis*, *C. circulum*.

equally raised; lateral margin consisting of three variably separated or approximated rows, outer row almost complete, inner row consisting of widely spaced, somewhat elongate granules, middle row composed of rather large, irregular granules; all rows with short erect dark setae. Intercostal intervals with dense scales, and with scattered short, stiff, erect dark setae emerging from small or minute granules. First discal costa with pairs of tomentose brushes on either side; second costa with less regular, small, paired or unpaired brushes or patches; a tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense bicoloured vestiture of scales concealing fine, scattered punctures, and with round to elongate, scattered granules, extremely variable in size, each with a recumbent short seta. Epipleural area scaled, smooth, upper edge consisting of a row of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to half of procoxal width. Prosternum and proepisternum scaled, former with variable, small round granules, latter with moderately dense, mainly short and fine vermiculate granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis about twice as broad as mesocoxa. Metasternum about half of mesosternal length. Meso- and metasterna scaled. Mes- and metepisterna with background scaled, and with scattered, raised and smoothed irregular sculpture. Abdominal sternites with dense granules

interspersed with scattered scales.

Legs moderately slender. Male profemur with small and elongate conical tubercle at basal third, tubercle with apical pore (Fig. 53A). Protibia ovate in cross-section, outer margin carinate in about distal third. Outer angle of subcylindrical meso- and metatibiae with strong spine-like process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments considerably shorter and thicker in female; all tarsi in both sexes considerably shorter than respective tibiae. Claws equal, slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, short black bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Holotype ♂, elytral length 4,1 mm (TM): S. Afr., Cape Cedarbg, east track, 1 000 m, 32.27S 19.24E / 21.8.1983, E-Y:1956, groundtraps, 66 days, leg. Endrödy, Penrith / groundtrap with banana bait. Allotype ♀, elytral length 5,9 mm (TM): same data as holotype but meat bait. Paratypes: 66♂, 152♀ (TM), 2♂, 1♀ (SAM): (6) same data as holotype, baits: 3 meat, 3 faeces, 1 banana; (58) S.Afr. Cape-Cedarbg, east track, 800 m, 32.29S 19.22E / 21.8.1983, E-Y:1954, groundtraps, 66 days, leg. Endrödy, Penrith / (10 singled around traps at setting, 23 banana, 7 faeces, 18 meat); (38) S. Afr., Cape-Cedarbg, east track, 1100 m, 32.27S 19.23E / 1.8.1983, E-Y:1955, groundtraps, 66 days, leg. Endrödy,

Penrith / (8 meat, 1 faeces, 29 banana); (55) S. Afr., Cape-Cedarbg, east track, 850 m, 32.24S 19.25E / 1.8.1983, E-Y:1957, groundtraps, 66 days, leg. Endrödy, Penrith / (3 traps at setting, 30 banana, 17 meat, 5 faeces); (16) S. Afr., Cape-Cedarbg, east track, 650 m, 32.23S 19.24E / 21.8.1983, E-Y:1958, groundtraps, 66 days, leg. Endrödy, Penrith / (4 traps at setting, 3 meat, 3 faeces, 6 banana); (7) S. Afr., Cape-Cedarbg, Pienaarsflak, 850 m, 32.49S 19.27E / 2.9.1981, E-Y:1885, groundtraps, 65 days, leg. Endrödy-Younga / (4 meat, 2 faeces, 1 banana); (1) S. Afr., SW Cape, Cedarberg, 32.22S 18.58E / 31.8.1981, E-Y:1873, groundtraps, 63 days, leg. Endrödy-Younga / groundtrap with meat bait; (1) S. Afr., Cape-Cedarbg, Welbedachtgrot, 32.24S 19.10E / 1.11.1981, E-Y:1911, on flowers, leg. Endrödy-Younga; (2) S. Afr., Cape-Cedarbg, jeep track, 900 m, 32.28S 19.15E / 1.9.1981, E-Y:1882, groundtraps, 63 days, leg. Endrödy-Younga / groundtraps with faeces bait; (6) S. Afr., Cape-Cedarbg, jeep track, 1280 m, 32.26S 19.13E / 1.9.1981, E-Y:1881, groundtraps, 63 days, leg. Endrödy-Younga / (4 meat, 2 faeces); (2) S. Afr., Cape-Cedarbg, jeep track, 900 m, 32.28S 19.16E / 1.9.1981, E-Y:1883, groundtraps, 63 days, leg. Endrödy-Younga / (1 meat, 1 banana); (3) S. Afr., Cape-Cedarbg, Jonkis Poort, 32.49S 19.27E / 2.9.1981, E-Y:1886, groundtraps, 65 days, leg. Endrödy-Younga / (2 faeces, 1 singled); (15) S. Afr., W. Cape, Cedarberg, Oukraal, 32.25S 19.25E / 2.9.1979, E-Y:1630, sandblown mt, leg. Endrödy-Younga; (2) Stellenbosch, 9/9/41 and 22/10/40, D. Greeff; (1) Cedarberg, 30/9/48, G.W. Wagener; (1) Warrenton, 4/7. [illegible], A. du Preez; (2) South Africa, Sederberg -(e), 30.9.1940 and 2.10.1940; (2) Kromm River, S. Cedar Mtns, Dr K. H. Barnard, Sept. 1935; (1) Clanwill., Oct. 85 [1885], L.P. [on back].

Season. Spring (August – October).

Distribution (Fig. 55A). Cedarberg Mountains, southwestern Cape Province, South Africa.

Remarks. This species differs from *C. fallax* in the shape of the male profemoral tubercle, the deep notch separating the clypeus and the gena, the produced humeri basally embracing the pronotum, and the wide mesosternal apophysis.

Etymology. The name of the new species refers to the area in which it occurs, i.e., the Cedarberg Mountains in the southwestern Cape (Latin, *mons, montis*, m., mountain; *cedrus, -i*, f., cedar).

***Cryptochile affinis* Haag, Fig. 56C**

Cryptochile affinis Haag, 1872: 295; Gebien, 1938: 192.

Diagnosis. Clypeus with sides subparallel, separated from gena by a distinct but shallow notch. Pronotal granules sparse to dense. Elytra ovate to oblong, with two complete, carinate discal costae, intercostal granules inconspicuous. Mesosternal apophysis less than twice mesocoxal width; mesosternum with two sharp anterior callosities separated by a deep and broad cleft. Male profemoral tubercle basal. Protibia rounded in distal half, without flat area, carinate apically.

Description. Elytral length 5.5–8.0 mm. Integument black, at least apices of appendages reddish. Scales of dorsal surface bicoloured, white and varying shades of brown, elytra with light to dark brown tomentose brushes; vestiture of legs and sternites silvery.

Head of medium size. Clypeus emarginate, sides subparallel, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with round granules bearing short dark procumbent setae. Antennae moderately stout, apical two segments slightly enlarged, not dimorphic.

Pronotum about one-and-one-third times as broad as long; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles and just behind anterior angles, subparallel or weakly convergent between sinuosities, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles broadly rounded, slightly expanded, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of fine to moderately coarse, elongate to strioliform granules or short ridges, scattered to dense, at least part of the midline and variable patches on either side of it free of granules; areas between granules mainly with scales. Entire surface with short, recumbent dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, with an undulating carina on either side, dissolved into granules posteriorly. Both discal costae usually complete on disc, carinate, variably interrupted on apical declivity, weakly undulating, about equally raised; lateral margin consisting of three rows, outer row more or less continuous, composed of basally confluent granules, inner row composed of widely spaced, elongate granules, middle row composed of widely spaced, subspherical granules, sometimes evanescent. Long stiff black bristles emerging from granules of lateral rows and also discal costae on apical declivity. Intercostal intervals with dense, bicoloured white and (mainly) brown scales, and with scattered short stiff semi-erect dark setae emerging from small or minute granules. First discal costa with pairs of tomentose brushes on either side; second costa with less regular, smaller, paired or unpaired brushes; a tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense, bicoloured vestiture concealing fine, scattered punctures, and with round to elongate, scattered granules. Epipleural area scaled, upper edge consisting of a row of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about half of procoxal width or slightly narrower. Prosternum and proepisternum scaled, former with variable, round granules, those of apophysis giving rise to broad recumbent bristles; latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis one-and-a-half times to about twice as broad as mesocoxa. Metasternum short, slightly more than half of mesosternal length. Meso- and metasterna with flat and broad bristles. Mes- and metepisterna scaled between irregular, raised and smoothed sculpture. Abdominal sternites laterally scaled, medially almost bare, with scattered punctures.

Legs stout. Male profemur with moderately large tubercle just behind middle, tubercle with apical pore. Protibia ovate in cross-section, outer margin carinate at expanded outer distal angle only or for a very short distance proximal to it. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process, mesotibial process strongly bilaterally compressed. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi moderately slender, cylindrical, segments slightly shorter and thicker in female; all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff golden to dark bristles.

Aedeagus not examined.

Material examined. Lectotype ♂, elytral length 6,2 mm (SSM): Cap, Drege / Sammlung Haag-Rutenberg / *affinis* Haag / Type: *Cryptochile affinis* Haag-R. [pink]. Paralectotype ♂ (SSM): Cap, Baulny / Sammlung Haag-Rutenberg.

Other material: 3♂ (TM), 1♂, 1♀ (SAM); localities: Citrusdal; Elands Bay; Het Kruis; Piketberg. Also 'Bushmanland, Cape Colon.'

Season. Spring (September – November).

Distribution (Fig. 56C). Southwestern Cape, South Africa.

***Cryptochile angulicollis* spec. nov., Figs 53C, 56C, 77**

Diagnosis. Clypeus with sides subparallel, weakly rounded, notch separating them from gena distinct, shallow. Pronotal granules dense. Elytra ovate, with two well-developed carinate to interrupted discal costae; intercostae, especially lateral interval, with coarse, conspicuous granules. Male profemoral tubercle at base of femur. Protibia rounded in distal half, without flat area, carinate apically.

Description. Elytral length 5,8–8,8 mm. Integument black. Scales of dorsal surface silvery brown, elytra with light to dark brown tomentose patches; vestiture of sternites and legs buff.

Head of medium size. Clypeus emarginate, sides subparallel, weakly rounded, separated laterally from gena by a distinct shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with round granules bearing short, procumbent setae. Antennae slender, longer in male, apical two segments slightly enlarged, not dimorphic.

Pronotum about one-and-one-third times as broad as long in female, slightly to distinctly narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles and behind anterior angles, convergent, almost complete except at middle, anteriorly consisting of approximated, sometimes coalescent granules, more widely separated medially, carinate on posterior angles; posterior angles broadly rounded, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of moderately dense, elongate to strioliform granules, in some specimens part of midline free of granules; areas between granules mainly

scaled. Granules bearing short, recumbent dark setae.

Elytra ovate, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flanked by two interrupted carinae. Both discal costae developed, complete or interrupted, finely to broadly carinate, or dissolved into granules, outer costa sometimes double, slightly and about equally raised; lateral margin consisting of three rows, outer row almost complete, composed of contiguous broad granules, inner row of widely spaced and strongly raised, somewhat elongate granules, middle row composed of round granules, sometimes slightly irregular, not forming a single row. Intercostal intervals with dense brown scales, and with scattered short erect dark setae emerging from large round granules. First discal costa with pairs of tomentose patches on either side; second costa with or without less regular, smaller, paired or unpaired brushes; a tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense bicoloured white and brown scales concealing scattered punctures, and with round to ovate or elongate scattered granules. Epipleural area scaled, upper edge consisting of a row of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about half of procoxal width. Prosternum laterally, proepisternum entirely scaled, former with variable round granules laterally, medially with raised and smoothed sculpture, latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis about twice as broad as mesocoxa or slightly narrower. Metasternum short, about half of mesosternal length. Mes- and metepisterna mostly without scales, rugosely sculptured, with moderately dense and variably confluent granules, and with scattered, recumbent setae. Abdominal sternites laterally scaled, with large round granules, medially bare except for short setae, punctured.

Legs stout. Male profemur with moderately large median tubercle, tubercle with apical pore (Fig. 53C). Protibia broadly ovate in cross-section, outer margin carinate on and for a short distance proximal to expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, short black bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 6,6 mm (NMBL): S. Africa, C.P., Wiedouw 309, Vanrhynsdorp, 31.44S 18.47E, 20–23 Sept. 1982, S. Louw / NMBH 8930. Allotype ♀, elytral length 6,8 mm (SMW): same locality as holotype, 20 Sept. 1982, M.-L. Penrith / H 54783, T.. Paratypes: 1♀ (SMW), same data as allotype; 2♂, 1♀ (SAM), Bulhoek, Klaver – Clanw., Mus. Exped., Oct. 1950; 1♂, 1♀ (SAM), Bulhoek Clw., S.A.M. 12–56; 2♀ (TM), 11 m SE Vanrhynsdorp, IX.66, L. Schulze / insectary no. 619.

Season. Spring (September, October).

Distribution (Fig. 56C). Western Cape Province, South Africa.

Remarks. This species differs consistently from *C. affinis* in the position of the male profemoral tubercle, the shape of the pronotum, the bare and sculptured pro-, meso- and metasterna, and the coarse granulation of the elytral intercostae.

Etymology. The name of the new species refers to the angular shape of the pronotum (Latin, *angulus*, -i, m., angle; *collum*, -i, n., neck).

***Cryptochile setipennis* spec. nov., Figs 53B, 56A, 78**

Diagnosis. Clypeus with sides strongly convergent anteriorly, weakly separated from gena. Elytral setation always conspicuous; both discal costae carinate and usually complete. Male profemur with large tubercle at basal third. Protibia rounded in distal half, without flat area, carinate apically.

Description. Elytral length 5,5–7,3 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with dark brown tomentose patches; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, separated laterally from gena by a very shallow notch. Eyes narrowly reniform, not distinctly setose. Scales of head dense, virtually uniform. Clypeus with small, frons with large rounded to slightly elongate granules, with procumbent setae. Antennae moderately stout, apical two segments slightly enlarged, not dimorphic.

Pronotum not distinctly dimorphic, about one-third wider than long; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins weakly sinuate in front of posterior angles, anteriorly consisting of approximated, irregular granules, carinate on posterior angles; posterior angles subrectangular, not embraced by humeri. Posterior margin curved. Sculpture consisting of dense, coarse rounded or ovate to slightly elongate granules, midline indicated or concealed, areas between granules mainly scaled. Entire surface with short, semi-erect to recumbent dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Sutural interval flat, flanked by a broad and partly interrupted carina on either side. Both discal costae almost complete, broadly carinate, slightly and about equally raised; lateral margin consisting of three rows, outer row composed of broad, contiguous granules, inner row composed of mainly widely spaced, elongate granules, middle row composed of irregular, widely spaced large granules. Intercostal intervals with dense, bicoloured silvery and brown scales, and with scattered, moderate to long, stiff erect dark setae emerging from small round granules. Inner discal costa with pairs of tomentose brushes on either side; outer costa with less regular, smaller, paired or unpaired brushes; a large tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense bicoloured scales concealing fine, scattered punctures, and with round, scattered granules, variable in size but usually larger posteriorly. Epipleural area scaled, upper edge consisting of short strioliform granules, subtended by a row of fine punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about half or slightly more than

half of procoxal width, apex rounded. Prosternum laterally and proepisternum entirely scaled, former with large, round granules anteriorly, apophysis punctate, latter with moderately dense, rounded to briefly elongate granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis about one-and-two-thirds times as broad as mesocoxa, lateral edges angular. Metasternum short, about half of mesosternal length. Mes- and metepisterna mostly bare, punctate. Abdominal sternites mostly bare, with scattered punctures, sides densely sculptured, scaled.

Legs stout. Male profemur with moderately large tubercle at basal third, tubercle with apical pore (Fig. 53B). Protibia rounded in cross-section, outer margin carinate at expanded outer distal angle only, proximally with large denticles. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, broader in female, protibial pair longer and thicker. Tarsi moderately stout, cylindrical, not dimorphic; all tarsi slightly shorter than respective tibiae. Claws equal in length slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 5,5 mm (TM): Z.A. 99, Seder Berg, 500–1100 m, Clanwilliam distr., C.P. / Humus under bushes and large stones, IV.1962, N. Leleup / N. Leleup leg. Allotype ♀, elytral length 7,3 mm (SAM): Pakhuis Pass, top, 24.XI.76, V.B. Whitehead. Paratype ♂, elytral length 7,1 mm (TM): South Africa, Clanwilliam, Oct. 1947, D. Bergh.

Season. Spring (October, November); also April.

Distribution (Fig. 56A). Known from a limited area in the Cedarberg Mountains of the southwestern Cape, South Africa.

Remarks. This species is distinguished from others in the group by the shape of the clypeus, with its straight and convergent sides; in addition, it is distinguished from *C. fallax* and *C. affinis* by the pronotal sculpture and more conspicuous elytral setation, from *C. angulicollis* by the virtually uninterrupted elytral costae and less conspicuous elytral setation; and from *C. montiscedris* by the pronotal shape, narrower mesosternum, and the large male profemoral tubercle (Fig. 53B).

The male paratype has shorter elytral bristles than the holotype or the allotype (those of the holotype are the longest).

Etymology. The name of the new species refers to the setose elytra (Latin, *saeta*, -ae, f., bristle, stiff hair; *pennae*, -arum, f., wings).

***Cryptochile decorata* Solier, Figs 52B, 55C**

Cryptochile decorata Solier, 1840: 255; Haag, 1872: 303, 1878: 83; Gebien, 1937: 193.

Diagnosis. Pronotum with lateral margins granular except at carinate posterior angles; sculpture of disc consisting of coarse microgranules, with a few larger, round granules. Elytral disc with only one conspicuous and well-developed primary costa, inner costa indicated only posteriorly. Elytral lateral rows granular. Mesosternum of male with a pair of large,

bare, punctate bosses posterolaterally. Male profemur inermous. Protibia rounded, without flattened area apically, apical third carinate.

Description. Elytral length 5.4–8.5 mm. Integument black, apices of appendages reddish. Scales of dorsal surface uni- or bicoloured, buff or buff and brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery.

Head moderately large. Clypeus emarginate, sides broadly rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, darker medially, lighter on sides, clypeal sulcus and posterior parts. Clypeus and frons with round, mainly foveate granules bearing conspicuous semi-erect dark setae. Antennae moderately stout, apical two segments slightly enlarged, not dimorphic.

Pronotum less than twice as broad as long in female, distinctly narrower in male; broadest at posterior angles, strongly narrowing anteriorly. Anterior margin strongly raised and produced; anterior angles subrectangular. Lateral margins sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, broadly carinate on posterior angles; posterior angles broadly rounded, expanded, slightly raised, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of rather coarse, dense, round microgranules, a few larger, round to ovate granules along either side of midline, particularly in middle; entire surface with scales, and with tomentose scale-like bristles scattered singly, and also aggregated, forming a pattern on either side of midline and in other irregular patches.

Elytra ovate to oblong, convex; apical declivity vertical to recurved. Humeri produced, but not embracing pronotal base. Suture closely flanked on either side by a broad, raised, undulating costa. Outer discal costa complete on disc, carinate, strongly raised, granular posteriorly, undulating; inner costa indicated only posteriorly, by raised, scale-covered crests that terminate in a dentiform granule. Lateral margin consisting of two rows of granules, inner row less dense, with a row of pores between them; widely spaced, elongate and raised granules immediately medial to inner row. Sutural and intercostal intervals with dense scales, intercostal intervals with scattered large punctures. Position of first discal costa indicated by pairs of tomentose brushes; second costa with less regular, smaller, paired or unpaired brushes; large granules of innermost marginal row each with an associated medial tomentose brush. Intercostal intervals with scattered brown scale-like bristles. Deflected part of elytra with dense bicoloured scales concealing large, scattered punctures, and with round, scattered granules, variable in size. Epipleural area scaled, upper edge consisting of a row of elongate granules, some confluent, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to half of procoxal width. Prosternum and proepisternum scaled, latter with sparse small round granules, medially with moderately dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, in male with a pair of large, bare and punctate bosses posterolaterally (Fig. 52B); apophysis about one-and-one-third times as broad as mesocoxa. Metasternum slightly shorter than

mesosternum. Mes- and metepisterna mainly scaled, with large, flattened, approximately reniform tubercles. Abdominal sternites mostly densely scaled, posterior margins of sternites 3–5 bare, with scattered punctures.

Legs stout. Male profemur without tubercle. Protibia ovate in cross-section, outer margin carinate on distal third. Outer angle of subcylindrical meso- and metatibiae with strong flange-like process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, not dimorphic; all tarsi much shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, rather short black bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Holotype not seen.

Other material: 1♂ (SAM), 46♂, 45♀, 14 ex. (TM); localities: Paarl; Robertson, 10 km S.

Season. Early summer (October, December).

Distribution (Fig. 55C). Southwestern Cape, South Africa.

Remarks. The rediscovery of this rare species is most interesting. We have not been able to locate the holotype, but the identity of the species is clear from the description, as it differs so greatly from all the other species of *Cryptochile*. The only closely related species is the one described below, but it lacks the striking pronotal sculpture described by Solier (1840) and observed in the specimens assigned to *C. decorata*.

Cryptochile dimorphisterna spec. nov., Figs 52A, 55B, 79

Diagnosis. Pronotum with lateral margins strongly raised and reflected, formed by a finely denticulate carina; discal sculpture of fine vermiform ridges and granules. Elytral disc with only one conspicuous and well-developed primary costa; inner one fine and interrupted. Lateral elytral rows finely carinate, undulating. Mesosternum of male with two bare, raised and punctate triangular patches posterolaterally. Male profemur with small median tubercle. Protibia rounded, without flattened area, carinate at apical angle only.

Description. Elytral length 4.9–9.2 mm. Integument black. Scales of dorsal surface bicoloured, beige and brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs white.

Head moderately large. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with round, sharply pointed granules, bearing short, procumbent dark setae. Antennae slender, apical two segments enlarged, not dimorphic.

Pronotum slightly less than twice as broad as long, both sexes variable; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles broadly rounded. Lateral margins strongly raised and reflected, sinuate in front of posterior angles, complete, denticulate-carinate;

posterior angles rectangular, strongly expanded, not embraced by humeri, and projecting laterally far beyond them. Posterior margin almost straight. Sculpture consisting of very fine wavy strioliform ridges, scattered to dense, at least part of midline and juxtalateral and anterior areas free of granules; vestiture of scales mainly confined to a broad marginal frame, leaving most of centre of disc bare; most of scales short, buff and dense, sometimes with darker, long scales in two patches anteromedially.

Elytra ovate, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture raised, flanked by two sharp and fine wavy carinae, on either side of which are brown scales, flanked laterally by a row of punctures. Both discal costae developed, inner costa incomplete, finely carinate, scarcely raised, outer costa complete and sharply and finely carinate, weakly undulating, strongly raised; lateral margin consisting of two rows, united at humeri and strongly diverging posteriorly, both finely and sharply carinate, undulating, space between them with scattered granules subtending punctures. Intercostal intervals with dense scales, and with scattered, very short, erect brown setae emerging from granules; integument with moderately dense punctures. First discal costa with pairs of tomentose patches on either side; second costa with or without less regular, smaller, paired or unpaired paler patches; inner marginal row with irregular tomentose patches on both sides. Deflected part of elytra with dense bi- to tricoloured scales, and with scattered punctures and round to elongate, scattered granules, each bearing a short recumbent apical seta. Epipleural area scaled, upper edge complete anteriorly, undulating, posteriorly consisting of elongate, almost contiguous granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about half of procoxal width or slightly wider. Prosternum and proepisternum scaled, former with sparse round granules, latter with coarse microgranules and with scattered to moderately dense, mainly short strioliform or vermiform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis about twice as broad as mesocoxa or slightly wider; male with two bare, raised and punctate triangular patches posterolaterally (Fig. 52A). Metasternum slightly more than half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, variable, often crescentic granules. Abdominal sternites mainly scaled, densely sculptured, with flat granules from which moderately long, recumbent dark setae emerge.

Legs moderately slender. Male profemur with very fine tubular tubercle at middle, tubercle with apical pore. Protibia ovate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apicale of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Holotype ♂, elytral length 5,5 mm (TM):

S. Afr., Cape-Cedarbg, east track 650 m, 32.22S 19.24E / 21.8.1983, E-Y:1959, groundtraps, 66 days, leg. Endrödy, Penrith / groundtrap with faeces bait. Allotype ♀, elytral length 8,5 mm (TM); same data as holotype. Paratypes: 3♂, 19♀ (TM): same data as holotype (1♀ from meat bait, others faeces bait); 3♂, 1♀, locality and date as holotype, E-Y:1960, collecting data as holotype, 2♂, 1♀ faeces bait, 1♂ banana bait.

Distribution (Fig. 55B). Cedarberg Mountains, South Africa.

Remarks. This species differs from *C. decorata*, which it resembles in the modification of the male mesosternum, in the shape of the pronotum and the development of the secondary sculpture on the pronotum, in having two discal elytral costae, and in the dimorphic profemora.

Etymology. The name of the new species refers to the dimorphic mesosternum.

Cryptochile minuta (Fabricius), Fig. 56A

Pimelia minuta Fabricius, 1781: 318.

Cryptochile minuta: Haag, 1872: 296; Gebien, 1937: 192.

Cryptochile penicillata Solier, 1840: 257; Haag, 1872: 296 (synonym of *minuta*).

Diagnosis. Elytra ovate to oblong, with conspicuous stiff erect setae; with two carinate discal costae, lateral margin marked by a carinate costa. Mesosternal apophysis less than twice width of mesocoxa. Protibia with a flattened, demarcated area on outer surface of distal half.

Description. Elytral length 4,5–7,5 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, sides weakly rounded, separated laterally from gena by a shallow but distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head mostly confined to sides, clypeal sulcus and posterior parts. Clypeus with round, frons with elongate granules, all bearing short, semi-erect to procumbent setae. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum about twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles, almost complete, anteriorly carinate or consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles broadly rounded, expanded, not embraced by humeri. Posterior margin straight. Sculpture consisting of moderately fine strioliform granules and ridges, scattered to dense, at least part of the midline free of granules; areas between granules mainly with scales. Entire surface with short, recumbent dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture closely flanked by two undulating, fine carinae. Both discal costae complete, finely carinate, weakly undulating, slightly and about equally raised; lateral margin consisting of two rows, outer row finely carinate, inner row evanescent, consisting of

an approximated row of widely spaced, slightly elongate granules, sometimes developed only posteriorly. Intercostal intervals with dense, bicoloured silvery and brown scales, and with scattered, long, stiff erect black setae emerging from punctures. First discal costa with pairs of tomentose brushes on either side; second costa with less regular, smaller, paired or unpaired brushes; a tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense bicoloured scales concealing fine, scattered punctures, and with round, scattered granules, extremely variable in size but always larger posteriorly. Epipleural area bare, smooth, upper edge complete, undulating, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to half of procoxal width. Prosternum and proepisternum scaled, former with variable, round granules, latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, laterally keeled, apophysis about as broad as or slightly broader than mesocoxa. Metasternum extremely short, much less than half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, variable granules. Abdominal sternites mainly scaled, densely sculptured.

Legs stout. Male profemur with moderately large tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; in male, pro- and mesotarsi as long as or slightly longer than respective tibiae, metatarsus slightly shorter than metatibia; in female, all tarsi slightly shorter than respective tibiae. Claws equal in length, slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Material examined. Type material (not examined): lectotype in Banks Collection (BMNH). Paratype in Kiel.

Other material: 52♂, 67♀ (TM), 10♂, 10♀ (SAM); localities: Burgersdorp (?); Cape Town; Gordon's Bay; Moorreesburg; Somerset West; Stellenbosch; Vanrhynsdorp; Wellington, 10 km N; Zuurefontein farm.

Season. This species has been recorded throughout the year, with the exception of February and March.

Distribution (Fig. 56A). Southwestern Cape, South Africa.

Remarks. *Cryptochile minuta* is a distinctive species, which cannot be confused with any of the others.

***Cryptochile bipunctata* Haag, Fig 56D**

Cryptochile bipunctata Haag, 1872: 285; Gebien, 1937: 192.

Cryptochile undata Haag, 1872: 288; Gebien, 1937: 192.

syn. nov.

Diagnosis. Elytra ovate to oblong, with both discal costae usually complete, carinate, about equally raised, not flanked

by conspicuous punctate rows, intercostae not conspicuously punctate; lateral margin of elytra with two complete, carinate rows; elytral setation inconspicuous. Mesosternum bituberculate, laterally keeled, apophysis not more than twice mesocoxal width. Protibia with a flattened, demarcated area on outer surface of distal half.

Description. Elytral length 4.2–8.0 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, off-white and brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery.

Head of medium size. Clypeus emarginate, sides subparallel to convergent, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive. Clypeus with dense round granules or reticulate, frons with dense round granules. Antennae slender, apical two segments slightly enlarged, not dimorphic. Penultimate segment widest and truncate apically.

Pronotum variable, twice as broad as long or much narrower, generally broader in female; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles, at middle almost complete, anteriorly consisting of approximated, usually coalescent granules, carinate on posterior angles; posterior angles subrectangular, embraced by humeri. Posterior margin straight. Sculpture consisting of moderately fine strioliform granules and ridges, scattered to dense, at least part of midline free of granules; areas between granules mainly with scales. Entire surface with short, semi-erect dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, embracing pronotal base. Suture closely flanked by two complete carinae. Both discal costae usually complete, carinate, weakly undulating, slightly and about equally raised; lateral margin consisting of two complete rows, carinate, diverging from humerus. Sutural and intercostal intervals with dense, bicoloured off-white and brown scales, and with very fine scattered granules; microgranulate. First discal costa with pairs of tomentose patches on either side; second costa with less regular, smaller, paired or unpaired patches; a row of patches along inner marginal row. Deflected part of elytra with dense bicoloured silvery and brown scales concealing fine, scattered punctures, and with small, round, scattered granules, larger posteriorly. Epipleural area bare, smooth, upper edge usually complete, undulating, sometimes dissolved into granules just before apical part, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, edge carinate; prosternal apophysis about half or slightly more than half of procoxal width. Prosternum and proepisternum mainly scaled, former with variable, round granules, apophysis punctate, latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, raised and laterally keeled, apophysis about twice as broad as mesocoxa. Metasternum short, less than half of mesosternal length. Mes- and metepisterna mainly scaled, without secondary sculpture, or with one or two large, round and smooth granules. Abdominal sternites mainly scaled, densely sculptured; with punctures and granules.

Legs stout. Male profemur with small, variable tubercle at

basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; in male, pro- and mesotibiae as long as or slightly longer than respective tibiae, metatarsus slightly shorter than metatibia; in female, all tarsi slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus not examined.

Material examined. Type material of *bipunctata* not traced. Holotype, *undata*: ♂, elytral length 5.4 mm (SSM): Cap, Doré / Sammlung Haag-Rutenberg / *undata* Haag; Type: *Cryptochile undata* Haag-R.

Other material: 5♂, 3♀ (SAM), 3♀ (TM); localities: Ceres; Cold Bokkeveld (Ceres div.); Hanover; Malmesbury; Oudebosch, Riviersonderend mts; Saaron (Tulbagh div.); Tulbagh; Vogelvllei.

Season. Spring and early summer (October – December).

Distribution (Fig. 56D). Southwestern Cape, including the southern Karoo, South Africa.

Remarks. This species appears to be rare. The type of *C. undata* has markedly wavy elytral costae, but this character varies considerably in the small series examined.

***Cryptochile porosa* (Herbst), Fig. 55A**

Pimelia porosa Herbst, 1799: 109.

Cryptochile porosa: Haag, 1872: 292; Gebien, 1937: 192.

Cryptochile puncticosta Haag, 1872: 293; Gebien, 1937: 192. **syn. nov.**

Diagnosis. Elytra ovate to oblong, with both discal costae well developed or inner one evanescent, both flanked by rows of punctures, intercostal intervals conspicuously punctate; at least outer lateral costa carinate; elytral setation inconspicuous. Mesosternum bituberculate, laterally keeled, apophysis slightly less than twice mesocoxal width. Protibia with a flattened, demarcated area on outer surface of distal half.

Description. Elytral length 5.4–8.9 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, white, buff, or grey, and light brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, sides rounded, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive. Clypeus and frons with round granules. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum about twice as broad as long in female, slightly narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles subrectangular. Lateral margins slightly to distinctly sinuate in front of posterior

angles, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles subrectangular, apices broadly rounded, edge slightly raised, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of rather fine to coarse strioliform granules, scattered to dense, at least part of midline free of granules; areas between granules mainly with scales. Entire surface with short, semi-erect dark setae.

Elytra variable, broadly ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, flanked on either side by a row of fine granules, scarcely raised. At least outer discal costae complete, granular posteriorly and sometimes reduced basally, on disc finely carinate, strongly raised, undulating; inner costa variable, either well developed, raised and entire on disc, sometimes abbreviated at base, not interrupted by tomentose patches, which it divides into pairs, or strongly reduced or absent, not raised, at most consisting of a fine carina, interrupted at least by tomentose patches. Lateral margin consisting of two rows, outer row broadly carinate, often complete, sometimes composed of conspicuous granules; inner row carinate, partly (anteriorly) carinate, or consisting of an irregular row of granules, evidently comprising two rows, inner row indicated by widely spaced, somewhat elongate granules; a row of punctures between main inner and outer lateral costae. Sutural and intercostal intervals with dense, light brown scales, intercostal intervals with scattered, short stiff erect dark setae emerging from punctures, punctures usually dense, not all setigerous. First discal costa with pairs of tomentose patches sometimes uniting over carina if present (see above), and sometimes joined along inner edge; second costa without or with less regular, smaller, paired or unpaired brushes; inner, spaced granules of inner marginal row each with a medial tomentose brush. Deflected part of elytra with dense bicoloured scales, large scattered punctures, and round to elongate, scattered to rather dense granules, variable in size. Epipleural area occupied by bare, smooth, broad upper edge which is complete, undulating, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to slightly less than half of procoxal width. Prosternum and proepisternum scaled, former with variable, round granules laterally, latter with dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, sides keeled, apophysis slightly less than twice as broad as mesocoxa. Metasternum short, less than half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, round granules. Abdominal sternites mainly scaled, posterior half to one-third bare, shiny and punctate.

Legs stout. Male profemur with small to moderately large round tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with a strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, not dimorphic; all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Material examined. Type of *porosa* not traced. Lectotype, *puncticosta*: ♂, elytral length 7,0 mm (BMNH): Type [printed, round, red-bordered] / Coll. Laf., Cape G.H. / *puncticosta* [handwritten] / *punctata* Haag, type [handwritten] / *Cryptochile maculata* Fabr. [handwritten] / F. Bates 81–19. Paralectotypes, *puncticosta*: 1♂, 2♀ (SSM): (♂): Haag; Sammlung Haag-Rutenberg; the specimen also bears a holotype label added by Dr C. Koch. (1♀): Cap, Thorey; Sammlung Haag-Rutenberg / *Cryptochile puncticosta* / *puncticosta* Haag / Type: *Cryptochile puncticosta* Haag-R. / labelled allotypus by Dr C. Koch. (1♀): Cap, Kraatz / Sammlung Haag-Rutenberg.

Other material: 13♂, 18♀, 12 ex. (TM), 24♂, 12♀ (SAM); localities: Ashton; Bidouw Pass; Calvinia; Calvinia, 8 mi. S; Clanwilliam; De Doorns; Doornbosch, nr; Hex River Pass; Houwhoek; Kogman's Kloof; Laingsburg; Matjiesfontein; Matjiesfontein, 7–10 m SW; Montagu; Nuweberg, 10 km NE (34.00S 19.08 E); O'okiep; Oudtshoorn; Robertson, 10 km S, 15 km W; Stellenbosch; Touws River; Triangle; Tulbagh; Vanrhyn's Pass; Waterval, Tankwa Karroo.

Season. Spring and summer (August – January); also recorded in June.

Distribution (Fig. 55A). Southern Karoo and southwestern Cape, South Africa.

Remarks. Specimens from the localities Houwhoek, Ashton, Oudtshoorn, Tulbagh and Robertson have both discal carinae complete and the inner marginal row at least anteriorly carinate, and in the male specimens from these localities the profemoral tubercle is small. This agrees with the type specimens of *C. puncticosta*. However, the differences observed occur irregularly, and there is considerable overlap, specimens from Touws River, Matjiesfontein, Montagu, and De Doorns being intermediate. Consequently no subspecies are recognized and *C. puncticosta* is synonymized with *C. porosa*. The difference in the punctate sculpture of the elytral intercostae given by Haag (1872) is indistinct; very dense vestiture of scales may conceal all but the flanking rows of punctures along the costae.

The male specimen in BMNH, which was the first examined by us, has been designated the lectotype of *puncticostata*. It is referred to in the original description. The remaining specimens are paralectotypes; there is confusion surrounding their status due to the curatorial designation of types, but none can have the status of holotype or allotype, since none were originally designated.

***Cryptochile denticollis* Haag, Figs 51A, 56B**

Cryptochile denticollis Haag, 1872: 289; Gebien, 1937: 192.

Diagnosis. Pronotum with posterior angles rounded, expanded and strongly raised, lateral margins otherwise granular, not raised. Outer discal costa of elytra always much more prominent than inner costa, which is variably developed to absent. Sides of raised parts of mesosternum not keeled; apophysis twice or more than twice mesocoxal width. Protibia with flattened, demarcated area on outer surface of distal half.

Description. Elytral length 4,5–7,5 mm. Integument black,

apices of appendages sometimes reddish. Scales of dorsal surface bicoloured, white or beige and light brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites white or beige.

Head of medium size. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive, bicoloured. Clypeus and frons with round to (a few) elongate granules. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum distinctly narrower than to almost twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles subrectangular. Lateral margins sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, broadly carinate on posterior angles; posterior angles broadly rounded, expanded and strongly raised (Fig. 51A), not embraced by humeri. Posterior margin straight. Sculpture consisting of rather coarse, round to elongate or strioliform granules, scattered to dense, at least part of midline and a large patch anteriorly on either side of it free of granules; areas between granules mainly with scales. Entire surface with short, recumbent dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri scarcely produced, not embracing pronotal base. Suture flat, flanked on either side by a carina dissolved into granules on posterior third. Both discal costae developed, or inner costa indicated by an interrupted carina, or widely spaced granules, or absent; outer costa usually complete, carinate, sometimes dissolved into granules posteriorly, outer costa strongly raised, inner costa not raised; lateral margin consisting of two rows of somewhat irregular but linked granules, inner row appearing branched, owing to incorporation of a row of elongate granules medial to it. Sutural and intercostal intervals with dense scales, sutural and medial part of inner intercostal interval with brown, rest with light-coloured scales, intercostal intervals with scattered punctures generally subtended by small round granules or microgranules. First discal costa (or remnant) with pairs of tomentose brushes on either side; second costa with or without less regular, smaller, sparse unpaired brushes; a tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense, bicoloured scales concealing fine, scattered punctures, and with round to ovate, scattered granules, variable in size. Epipleural area scaled, upper edge complete for a varying distance anteriorly, then composed of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about two-thirds of procoxal width. Prosternum and proepisternum scaled, former with large, round granules, latter with scattered to rather dense, mainly short strioliform granules, inner ones C-shaped. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis more than twice as broad as mesocoxa. Metasternum about half of mesosternal length. Mes- and metepisterna mainly scaled, with dense, rounded and flattened granules. Abdominal sternites mainly bare, with scattered punctures.

Legs stout. Male profemur without or with small tube-like tubercle at basal third, tubercle with apical pore. Protibia

quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, not, or not distinctly, dimorphic; all tarsi slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) curved dorsad.

Material examined. Type material not examined (Stockholm).

Other material: 124 ex. (including 60 males with tuberculate profemur) (TM); 84 ex. (including 41 males with tuberculate profemur) (SAM); localities: Bidouw Pass (32.09S 19.10 E); Bidouw Valley; Boontjieskloof (Pakhuis Pass); Bulshoek; Clanwilliam; Klaver; Klaver, 12 mi. before; Nardouw; Olifants R. valley S. Klaver; Pakhuis Pass, lower end; St Helena Bay; Sederberg, 500–1100 m); Stellenbosch [?]; Vanrhynsdorp; Vanrhynsdorp, 17 km SE.

Season. Mainly in spring (July – December).

Distribution (Fig. 56B). Southwestern Cape, South Africa.

Remarks. The species is distinctive, and had been identified by C. Koch in the TM and SAM collections for his revision.

The variation in the development of the male tubercle is at least partly geographic, but there is no overlap in the Clanwilliam area. The size of the tubercle is also variable. In some specimens it is minute, and in one male a tubercle was present on one side only. Since females are indistinguishable from non-tuberculate males without dissection of the genitalia, the character was not used to define a subspecies.

***Cryptochile crassicollis* spec. nov., Figs 56D, 80**

Diagnosis. Pronotum with lateral margin denticulate, but not raised even at posterior angle; sculpture of disc consisting entirely of coarse, round to elongate granules. Outer primary discal costa of elytra complete, carinate, inner costa variably reduced. Mesosternal apophysis less than twice mesocoxal width, sides of raised part of mesosternum not keeled. Protibia with flattened, demarcated area on outer surface of distal half.

Description. Elytral length 4.0–6.8 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery and brown.

Head moderately large. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with round granules, larger on frons; all with short, semi-erect, anteriorly inclined setae. Antennae moderately slender, apical two segments slightly enlarged, not dimorphic.

Pronotum slightly less than twice as broad as long in both sexes; broadest at posterior angles. Anterior margin slightly

raised and produced; anterior angles broadly rounded. Lateral margins sinuate in front of posterior angles, anteriorly consisting of approximated granules, carinate on posterior angles; posterior angles broadly rounded, not raised, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of rather coarse, round to elongate granules, scattered to moderately dense, at least part of the midline free of granules; areas between granules mainly with scales. Entire surface with very short, semi-erect dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, flanked by a fine, undulating carina. Outer discal costa complete, finely carinate, weakly undulating, inner discal costa markedly but variably reduced, represented by fine short carinae and granules, more distinct posteriorly. Lateral margin consisting of two rows, outer row scalloped, carinate, dissolved into granules posteriorly, inner row consisting of almost contiguous elongate granules. Intercostal intervals with dense, bicoloured silvery and brown scales. Position of first discal costa indicated by pairs of tomentose brushes on either side; second costa with less regular, smaller brushes on inner side; larger granules of inner marginal row each associated with a medial tomentose brush. Deflected part of elytra with dense, bicoloured scales concealing fine, scattered punctures, and with round, scattered granules, extremely variable in size but always larger posteriorly. Epipleural area bare, smooth, upper edge complete, undulating, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about half of procoxal width, apex bilobed. Prosternum and proepisternum scaled, former with variable, round granules, latter with scattered to moderately dense, subspherical to short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis about one-and-a-half times as broad as mesocoxa. Sides angular. Metasternum short, half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, variable granules. Abdominal sternites 1 and 2 mainly scaled, 3–5 mainly bare, punctate.

Legs stout. Male profemur with very small to large tubercle at basal fourth, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with short spiniform process. Tibial calcaria spiniform, protibial pair longer and thicker, all slightly broader in female. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; in male, pro- and mesotarsi as long as or slightly longer than respective tibiae, metatarsus slightly shorter than metatibia; in female, all tarsi slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, short black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Material examined. Holotype ♂, elytral length 4.6 mm (TM): S. Sfr., S.W. Cape, Clanwilliam, 5 km SW, 32.13S 18.50E / 24[.8]–7.9.1973, E-Y:151, singled on ground, leg. L. Schulze. Allotype ♀, elytral length 6.8 mm (TM): same data as holotype. Paratypes: 14♂, 7♀ (TM), 11♂, 5♀ (SAM): (10♂, 5♀) S. Afr., S.W. Cape, Clanwilliam, X.1966, L. Schulze / Dr L. Schulze, insectary no. 617. 2♀ *idem*, but no insectary label. (1♂) P. Deetlefs, Clanwilliam, 3 Okt. 1946. (1♂) Z.A. 99, Seder Berg 500–

1100m, Clanwilliam distr. C.P./Humus under bushes and large stones, IV.1962, N. Leleup / N. Leleup leg. (2♂) E. of Vanrhynsdorp, C.P., Iv.1968, C.G.C. Dickson. (10♂, 5♀) 4 m. S. of Clanwilliam, C.P., S.A.M. 9:1961. (1♂) Pakhuis Pass, S.A. Museum, Mus. Staff, Sept. 1942.

Season. Spring and summer (September – April).

Distribution (Fig. 56D). Known only from a limited area around Clanwilliam in the southwestern Cape, South Africa.

Remarks. This species differs from *C. denticollis* in the shape of the pronotum, which lacks strongly raised posterior angles, the sculpture of the pronotum and the narrower mesosternum.

Etymology. The name of the new species refers to the coarse pronotal sculpture (Latin, *crassus*, -a, -um, thick, dense, solid, coarse-grained; *collum*, -i, n., neck).

***Cryptochile supramontis* spec. nov., Figs 51B, 56D, 81**

Diagnosis. Pronotum with entire lateral margin raised, serrate to denticulate; sculpture of disc at least partly composed of strioliform granules. Outer discal costa of elytra carinate, inner one much less conspicuous. Mesosternal apophysis less than twice mesocoxal width, sides of raised part of mesosternum not keeled. Protibia with a flattened, demarcated area on outer surface of distal half.

Description. Elytral length 4,5–6,8 mm. Integument black, apices of appendages reddish. Scales of dorsal surface uni- to bicoloured, beige or beige and light brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, sides rounded, subparallel, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive. Clypeus and frons with round to irregularly shaped granules bearing short procumbent setae. Antennae moderately slender, apical two segments slightly enlarged, not dimorphic.

Pronotum about twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles broadly rounded. Lateral margins sinuate in front of posterior angles, complete, denticulate, reflected over entire length, carinate posterior angles strongly raised, broadly rounded (Fig. 51B), not embraced by humeri. Posterior margin straight. Sculpture consisting of scattered, moderately fine strioliform granules on both sides of midline, at least part of midline free of granules, rest with small subspherical to elongate granules; areas between granules mainly scaled; with a dark brown patch on either side of midline. Granules with short, semi-erect dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, not embracing pronotal base. Suture closely flanked by a fine, interrupted carina on either side, flat. Both discal costae indicated, outer costa finely carinate, undulating, strongly raised, inner costa reduced to a fine, interrupted and scarcely raised carina. Lateral margin consisting of three rows, outer row composed of coarse, almost contiguous granules,

inner row composed of widely spaced, elongate granules, middle row composed of small, rather irregular granules. Inter-costal intervals with dense, uni- or bicoloured vestiture of scales, and with distinct and moderately dense punctures, sometimes with scattered small tomentose patches. First discal costa with three pairs of tomentose brushes on either side; second costa with or without less regular, smaller, paired or unpaired brushes; a tomentose brush medial to each granule of inner marginal row. Deflected part of elytra with dense, bicoloured scales concealing coarse, moderately dense punctures, and with round, scattered granules, extremely variable in size. Epipleural area bare anteriorly, scaled posteriorly, upper edge complete anteriorly, undulating, posteriorly consisting of coarse, slightly elongate granules; subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to half of procoxal width, apex shallowly emarginate. Prosternum and proepisternum scaled, former with variable, round granules, latter with dense, mainly short strioliform to crescentic granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis about one-and-a-half times as broad as mesocoxa, sides angular. Metasternum short, less than half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, variable granules. Abdominal sternites mainly scaled, densely sculptured with flattened tubercles.

Legs stout. Male profemur with minute tubercle at basal third, tubercle with apical pore. Protibia rounded to almost quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with a strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter in female; in male, pro- and mesotibiae as long as or slightly longer than respective tibiae, metatarsus slightly shorter than metatibia; in female all tarsi slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderate black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Material examined. Holotype ♂, elytral length 4,8 mm (TM): S. Afr., W. Cape, Nieuwoudtville, 31.29S 19.08E / 25.10.1979; E-Y:1650, singled, leg. Endrödy-Younga. Allotype ♀, elytral length 6,8 mm (TM): same data as holotype. Paratypes: 4♂, 1♀ (TM), 1♀ (SAM) 1♂ (NCI): (4♂, 1♀) same data as holotype; (1♀) 5 m N. of Nieuwoudtville, S.A.M., 9:1961; (1♂) South Africa, 15 km N Botterkloof Pass, 31.41S – 19.18E, 18.ix.1986, R. Oberprieler.

Season. Spring (September, October).

Distribution (Fig. 56D). Known only from a limited area in the southwestern Cape, South Africa.

Remarks. This species differs from *C. denticollis* and *C. crassicollis* in the entirely reflected and denticulate pronotal margin.

Etymology. The name of the new species refers to the type locality, which is 'over' the Cedarberg Mountains (Latin, *supra*, above, over; *mons*, *montis*, m., a mountain).

Cryptochile circulum* Haag, Fig. 56DCryptochile circulum* Haag, 1872: 299; Gebien, 1937: 192.

Diagnosis. Pronotum with spaces between sparse to dense, irregular, strioliform granules. Elytra broadly ovate to round, with both discal costae developed and two granular marginal rows; setation short and inconspicuous. Mesosternum with two low, blunt anterior callosities and covered by uninterrupted vestiture of scales. Protibia with a flattened, demarcated area on outer surface of distal half.

Description. Elytral length 4.2–5.8 mm. Integument black, appendages reddish. Scales of dorsal surface bicoloured, greyish white and light brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery.

Head of medium size. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with round granules, and with short procumbent setae. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum less than twice as broad as long, slightly broader in female; broadest at posterior angles. Anterior margin slightly raised and produced in front of deep anteromedian, transversely triangular impression; anterior angles acute. Lateral margins sinuate in front of posterior angles, almost complete, finely carinate except at sinuosity, carina replaced at sinuosity by approximated, sometimes coalescent granules. Posterior angles subrectangular, slightly raised, embraced by humeri. Posterior margin almost straight. Sculpture distinctive, consisting of scattered round granules medially; anteriorly, laterally, and posteriorly composed of scattered to dense strioliform granules; most of midline, a large spot in middle on either side of it, and parts of sides free of granules. Areas between granules mainly scaled. Entire surface with short, recumbent dark setae.

Elytra broadly ovate to round, convex; apical declivity vertical. Humeri produced, embracing pronotal base. Suture raised and closely flanked by a row of fine elongate granules on either side. Both discal costae developed, finely carinate, about equally and strongly raised, outer costa and to some extent inner costa dissolved into granules. Lateral margin consisting of two well-separated rows of granules, with occasional granules in intervening space; a row of very widely spaced small granules just dorsal to inner row. Sutural and intercostal intervals with dense, bicoloured silvery and brown scales, intercostal intervals with scattered short to moderately long, stiff erect black setae emerging from punctures or minute granules; similar setae arising from costal granules. First discal costa with chevron-like pairs of tomentose brushes on either side; second costa without or with less regular, smaller, paired or unpaired brushes, usually on inner side; granules flanking inner marginal row each with a medially situated tomentose brush. Deflected part of elytra with dense bicoloured scales concealing fine, scattered punctures, and with round, scattered granules. Epipleural area scaled, upper edge consisting of a row of spaced, elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost

straight, prosternal apophysis almost half of procoxal width. Prosternum and proepisternum densely scaled, former with sparse, minute, round granules, latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis slightly broader than mesocoxa. Metasternum slightly more than half of mesosternal length. Mes- and metepisterna scaled, with scattered, round granules. Abdominal sternites mainly scaled, densely sculptured, with confluent rugosities.

Legs stout. Male profemur with subspherical tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 5.0 mm (SSM): Cap, Kraatz / Sammlung Haag-Rutenberg / *Cryptochile circulum* / *circulum* Haag / Type *Cryptochile circulum* Haag-R. (pink).

Other material: 1♂, 5♀ (TM), 2♀ (SAM); locality: Mossel Bay.

Season. Spring (September, October); also recorded in January.

Distribution (Fig. 56D). Known only from a single locality on the southwestern Cape coast, South Africa.

Cryptochile globulum* SolierCryptochile globulum* Solier, 1840: 259; Haag, 1872: 300; Gebien, 1937: 192.*Cryptochile trilineatum* Solier, 1840: 261; Haag, 1872: 300 (synonym of *globulum*).

Diagnosis. Elytra globose; outer costa strongly raised, consisting of elongate granules, inner costa represented by a few widely spaced elongate granules with associated chevron-shaped tomentose patches; lateral margin consisting of two granular rows. Sides of raised part of mesosternum keeled. Size small. Protibia with a flattened, demarcated area on outer surface of distal half.

Description (male holotype). Elytral length 3.8 mm. Integument black, appendages reddish. Scales of dorsal surface bicoloured, greyish white and light brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery.

Head of medium size. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with round granules, and with short procumbent setae. Antennae slender, apical two segments slightly enlarged.

Pronotum less than twice as broad as long; broadest at posterior angles. Anterior margin slightly raised and produced in front of deep anteromedian, transversely triangular impression; anterior angles acute. Lateral margins sinuate in front of posterior angles, almost complete, finely carinate except at sinuosity, at sinuosity composed of approximated, sometimes coalescent granules. Posterior angles subrectangular, slightly raised, embraced by humeri. Posterior margin shallowly V-shaped. Sculpture consisting of moderately dense, long strioliform granules, quite evenly distributed, leaving only midline free of granules. Setation no longer evident; vestiture extensively abraded.

Elytra broadly ovate to round, convex; apical declivity vertical. Humeri produced, embracing pronotal base. Suture raised and closely flanked by a row of fine elongate granules on either side. Outer discal costa strongly raised, dissolved into spaced, briefly elongate granules; inner costa scarcely discernible, represented by a few, widely spaced, raised elongate granules with associated chevron-shaped tomentose patches. Lateral margin consisting of an outer row of widely spaced small granules, and an inner row of very widely spaced but strongly raised, briefly elongate granules, apparently with associated tomentose brushes, and a few minute granules interspersed with punctures in interval between inner and outer rows. Vestiture and setation largely abraded. Deflected part of elytra apparently with bicoloured scales concealing fine, scattered punctures, and with round, scattered granules. Epipleural area scaled, upper edge consisting of a row of spaced, elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and more or less straight, prosternal apophysis almost half of procoxal width. Prosternum and proepisternum densely scaled, former with sparse, minute, round granules, latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, sides of middle part sharply keeled; apophysis slightly broader than mesocoxa. Metasternum slightly more than half of mesosternal length. Mes- and metepisterna scaled, with scattered, round granules. Abdominal sternites mainly scaled, densely sculptured, with confluent rugosities.

Legs stout. Male profemur with subspherical tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with a strong spiniform process. Tibial calcaria spiniform, protibial pair longer and thicker. Tarsi slender, cylindrical, all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 3,8 mm (Torino, Regional Museum – Spinola Collection): *Cryptochile globosum*, Reiche et Solier, D. Reiche / C.B. Sp. / D. Verraux [head label].

Remarks. The minute specimen does not correspond with any of the other specimens examined. It differs from *C. circumum* in the pronotal sculpture, the less developed inner elytral costa, and the keeled mesosternum.

Cryptochile hessei spec. nov., Figs 56A, 82

Diagnosis. Mesosternum with sides of raised part keeled. Protibia with a flattened, demarcated area distally on outer surface.

Description. Elytral length 5,0–6,4 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery.

Head of medium size. Clypeus emarginate, sides weakly rounded, subparallel, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive. Clypeus and frons with round granules. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum about twice as broad as long in female, slightly narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles obtuse. Lateral margins sinuate in front of posterior angles, almost complete, consisting of approximated, sometimes coalescent dentiform granules, carinate on posterior angles; posterior angles broadly rounded, embraced by humeri. Posterior margin curved. Sculpture consisting of dense, moderately fine strioliform granules and ridges, at least part of midline free of granules; areas between granules mainly with vestiture of scales. Entire surface with very short, recumbent dark setae.

Elytra rounded, convex; apical declivity vertical. Humeri produced, embracing pronotal base. Suture flanked on either side by a raised, single or partly double row of elongate granules. Both discal costae developed, finely carinate, outer costa consisting of an irregular double row of cariniform granules, inner costa entire or interrupted, both weakly undulating, strongly and about equally raised; lateral margin consisting of two rows of granules with a row of punctures between them, some punctures sometimes subtended by a granule. Upper row subtended by a row of spaced, elongate granules. Intercostal intervals with dense, bicoloured silvery and brown scales concealing dense punctures, and with scattered short stiff erect dark setae emerging from granules that vary from minute to prominent and sharply conical. First discal costa with pairs of roughly chevron-shaped tomentose brushes on either side; second costa with less regular, smaller, paired or unpaired brushes; granules dorsal to inner marginal row each with an associated medial tomentose brush. Deflected part of elytra with dense, bicoloured scales and with coarse, moderately dense punctures, as well as round, scattered granules. Epipleural area scaled, upper edge consisting of a row of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to half of procoxal width. Prosternum and proepisternum scaled, former with small, round granules, latter with dense, mainly short, curved strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, laterally keeled, apophysis about twice as broad as mesocoxa. Metasternum about half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, large round granules. Abdominal sternites 1 and 2 mainly scaled, sternites

3–5 variably scaled, and coarsely sculptured, at least some large flat granules and often confluent flattened rugosities emerging from vestiture.

Legs stout. Male profemur with moderately large to large tubercle just proximal to middle, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short dark bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 5,6 mm (SAM); 18 m. E. of Touws R to Hondewater, 12.1962, S.A.M. Allotype ♀, elytral length 5,8 mm (SAM); same data as holotype. Paratypes: 3♂, 1♀ (SAM), 6♀ (TM): (1♂, 1♀) same data as holotype; (1♂) George Dist., C.P., C. Thorne, Aug. 1931; (1♂) Dr Purcell; (1♀) Oudtshoorn, 1940, G. van Son; (1♀) Willowmore, Capland, Dr Brauns; (1♀) Ladismith, Capland, Dr Brauns; (3♀), Vanwyksdorp, Oct. 1937; (1♀), Eendracht, Koo dist., C.P., 16.10.1966.

Season. Spring and early summer (August – December).

Distribution (Fig. 56A). Southern Karoo to southern Cape coastal region, South Africa.

Remarks. This species differs from *C. circum* in the striolate pronotal sculpture, shorter lateral setation of the elytra, and more prominent intercostal granules; it differs from the holotype of *C. globulum* in the developed inner elytral costa and details of the sculpture.

Etymology. The new species is named in honour of Dr A.J. Hesse, for many years Curator of Entomology at the South African Museum, who almost certainly collected some of the specimens during his annual trips to the Karoo.

Cryptochile karroensis spec. nov., Figs 56C, 83

Diagnosis. Pronotum with dense strioliform granules. Elytra broadly ovate, both discal costae well developed, lateral margin consisting of three granular rows; setation inconspicuous. Mesosternum with two sharply raised anterior tubercles, and with polished tubercles interrupting vestiture of scales; sides of raised part angular but not keeled. Protibia with a flattened demarcated area distally on outer surface.

Description. Elytral length 4,2–5,8 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with dark brown tomentose patches; vestiture of sternites and legs silvery.

Head moderately large, broader than half of pronotal base. Clypeus emarginate, sides rounded, subparallel, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive. Clypeus with round granules, frons with round and irregular granules bearing short procumbent setae. Antennae moderately slender,

apical two segments slightly enlarged, not dimorphic.

Pronotum about twice as broad as long in female, slightly narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles obtuse. Lateral margins sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, mostly coalescent granules, carinate on posterior angles; posterior angles broadly rounded, expanded, slightly raised, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of moderately dense strioliform granules and ridges, midline free of granules except in middle, an elongate patch on either side of midline variably with reduced granulation; areas between granules mainly covered with scales. Entire surface with extremely short, recumbent dark setae.

Elytra broadly ovate, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, flanked by a row of bead-like, slightly irregular granules on either side. Both discal costae complete, inner costa finely carinate, weakly undulating, outer costa consisting of a double to triple row of irregular elongate granules, rows slightly and about equally raised; lateral margin consisting of three rows, outer two rows composed of smallish round granules with a row of punctures between them, and an inner row of widely spaced, elongate granules. Intercostal intervals with dense, bicoloured silvery and brown scales, and with scattered, short, stiff, semi-erect dark setae emerging from small round granules. First discal costa with pairs of small tomentose brushes on either side; second costa with less regular, smaller, paired or unpaired brushes; each granule of inner marginal row with an associated medial tomentose brush. Deflected part of elytra with dense bicoloured scales concealing scattered punctures, and with round, scattered granules. Epipleural area scaled, smooth, upper edge consisting of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and weakly emarginate, prosternal apophysis about half of procoxal width, apex truncate. Prosternum and proepisternum scaled, former with smallish, round granules, latter with dense, mainly short strioliform granules, some triangular or irregular near outer edge. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis slightly less than twice as broad as mesocoxa, sides sharply angular (keeled). Metasternum short, about half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, small round granules. Abdominal sternites mainly scaled, with scattered to dense (last two sternites) granules.

Legs stout. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, broader in female, protibial pair longer and thicker. Tarsi moderately slender, cylindrical, shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, short black bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 4,6 mm (TM): S.Sfr.: Little Karoo, Gamka tourist camp, 33.42S 21.54E / 25.10.1993: E-Y:2903, window trap, leg. Endrödy-Younga. Paratypes: 2♀ (TM), (1) same data as holotype, (1) Ladismith, Capland, 5.10.12, Dr Brauns.

Season. Spring (October).

Distribution (Fig. 56C). Known from two localities in the Little Karoo, South Africa.

Remarks. This species differs from the remaining species in the group with rounded elytra as follows: from *C. digitalis* and *C. rotundior* in the short elytral setation; from *C. circumum* and *C. globulum* in the more sharply-edged mesosternum and the pronotal sculpture, and from *C. hessei*, which it most closely resembles, in the less produced humeri of the elytra, less sharply keeled mesosternum, and the shape and position of the mesosternal callosities.

Etymology. The name of the new species refers to the geographical area in which it occurs.

***Cryptochile digitalis* spec. nov., Figs 56B, 84**

Diagnosis. Elytral setation long, stiff and erect; elytra round, with two discal costae, lateral margin consisting of three rows of granules. Mesosternum with sides of raised part steeply declivous, but not keeled, apophysis not more than twice as broad as mesocoxa. Protibia with a flattened demarcated area distally on outer surface.

Description. Elytral length 3,9–7,3 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and buff, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, sides rounded, subparallel, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales densest in region of clypeal sulcus. Clypeus and frons with small round granules bearing very short erect dark setae. Antennae slender, apical two segments slightly enlarged, slightly longer in male.

Pronotum about twice as broad as long in female, slightly narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles subrectangular. Lateral margins weakly sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, sometimes coalescent dentiform granules, carinate on posterior angles; posterior angles broadly rounded, expanded, basally embraced by humeri. Posterior margin curved. Sculpture consisting of moderately fine strioliform granules and ridges, dense, at least part of the midline free of granules; areas between granules mainly bare, dense vestiture of scales developed laterally and in parts of midline. Entire surface with short to moderate, erect to recumbent dark setae.

Elytra rounded, convex; apical declivity vertical. Humeri produced, basally embracing pronotal base. Suture closely flanked on either side by a row of fine, raised, elongate granules. Both discal costae developed, complete or outer one interrupted, finely carinate, weakly undulating, strongly and almost equally raised, outer costa slightly more elevated; lateral margin consisting of three rows of granules, middle row slightly irregular and interspersed with punctures, all bearing very long, erect and fine black setae, which occur at intervals

on costae as well. Intercostal intervals with dense, bicoloured silvery and brown scales, scattered punctures, and scattered long, stiff, erect black setae emerging from minute granules. First discal costa with pairs of tomentose brushes on either side; second costa with less regular, smaller, paired or unpaired brushes; largest granules of inner marginal row each with associated medial tomentose brush. Deflected part of elytra with dense, bicoloured scales concealing coarse, moderately dense punctures, and with small, round, scattered granules, usually associated with punctures. Epipleural area scaled, upper edge consisting of a row of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis about one-third to half of procoxal width. Prosternum and proepisternum scaled, former with variable, small round granules, latter with scattered to moderately dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, sides steep, apophysis about twice as broad as mesocoxa. Metasternum about half of mesosternal length. Mes- and metepisterna mainly scaled, with small, sparse granules. Abdominal sternites mainly scaled, with small, sparse emergent granules.

Legs moderately stout. Male profemur with moderately small tubercle just proximal to middle, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) curved dorsad.

Material examined. Holotype ♂, elytral length 6,1 mm (TM): S. Afr., Cape – Karroo, Farm Zwartskraal, 33.10S 22.32E / 25.10.1979; E-Y:1671a, groundtraps, 45 days, leg. R. Oosthuizen / groundtraps with faeces bait. Allotype ♀, elytral length 6,5 mm (TM): same data as holotype but 5.9.1979, E-Y:1638a, groundtraps 50 days, banana bait. Paratypes: 16♂, 26♀ (TM), 1♂, 1♀ (NMBL), 1♀ (SAM): (10♂, 16♀) same data as holotype but bait as follows: meat 1♂, 1♀; faeces 9♂, 9♀, banana 6♀; (2♂, 1♀) same data as holotype but E-Y:1671b, bait as follows: meat 1♂, faeces 1♂, 1♀. 1♂, same data as holotype but 23.7.1979, E-Y:1635a, groundtraps 44 days / faeces bait. 3♀, same data as allotype but all from faeces bait; (1♀) same locality as holotype but 8.11.1978, E-Y:1539a, groundtraps 86 days, leg. Endrödy-Younga / groundtraps with faeces bait; (1♀) same data as holotype but 22.9.1980, E-Y:1716a, groundtraps 47 days / banana bait; (1♀) same data as holotype but 8.11.1980, E-Y:1738, groundtraps, 42 days / banana bait; (3♂, 2♀) Willowmore, Capland, Dr Brauns, 1 with date 3.10.09. (1♀) S. Afr., Cape – Karroo, De Hoop farm, 32.08S 22.24E / 15.9.1983; E-Y:2008, ground, day, night, leg. Penrith [day]. (1♂, 1♀) same locality, 14–16 Sept. 1983, Louw, van Rensburg. (1♀) Mossel B., Overbeek, 1897.

Season. Winter and spring (July – November).

Distribution (Fig. 56B). Southeastern Karoo and adjoining coastal area, South Africa.

Remarks. This species differs from all others in the group in having long setae on the elytra, except the next species, from which it differs in the steeply angulate but not keeled sides of the mesosternum

Etymology. The name of the new species was selected by Dr C. Koch, and refers to the strongly developed distal processes of the tibiae (Latin, *digitus*, -i, m., finger).

***Cryptochile rotundior spec. nov.*, Figs 56A, 85**

Diagnosis. Elytra setation long, stiff and erect; elytra round, with two discal costae, lateral margin consisting of two rows of granules. Mesosternum with sides of raised part strongly keeled, apophysis not more than twice as broad as mesocoxa. Protibia with a flattened demarcated area distally on outer surface.

Description. Elytral length 7,2–8,6 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, sides weakly rounded, weakly convergent anteriorly, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive. Clypeus and frons with round granules, those of clypeus with short, semi-erect setae. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum slightly less than twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins very weakly sinuate in front of posterior angles, almost complete, anteriorly formed by a denticulate carina, smoothly carinate on posterior angles; posterior angles broadly rounded, expanded, basally embraced by humeri. Posterior margin curved. Sculpture consisting of rather fine strioliform granules and ridges, dense, only anterolateral area free of granules; areas between granules mainly bare, scales largely confined to non-granular anterolateral region. Entire surface with short, recumbent dark setae, hardly visible.

Elytra ovate, convex; apical declivity vertical. Humeri produced, basally embracing pronotal base. Suture closely flanked by two irregular, partly double rows of granules. Both discal costae developed, inner costa finely carinate, weakly undulating, outer costa consisting of an irregular double row of alternating, cariniform granules, both costae strongly and about equally raised; lateral margin consisting of two rows of granules, inner row flanked medially by an approximated row of widely spaced, slightly elongate granules. All granules with long, stiff black setae. Intercostal intervals with dense, bicoloured silvery and brown scales, concealing punctures, and with scattered long, stiff erect black setae emerging from small granules. First discal costa with pairs of tomentose brushes on either side; second costa with less regular, smaller, paired or unpaired brushes; granules flanking inner marginal row each with a medial tomentose brush. Deflected part of elytra with

dense, bicoloured scales partly concealing scattered punctures, and with small round, scattered granules, generally associated with punctures. Epipleural area scaled, upper edge consisting of almost continuous broad granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis more than one-third to half of procoxal width. Prosternum and proepisternum scaled, former with variable, minute granules, latter with moderately dense, irregularly arranged and partly confluent, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, keeled laterally, apophysis about as broad as mesocoxa or slightly narrower. Metasternum about half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered large round granules. Abdominal sternites mainly scaled, with moderately large emergent granules.

Legs stout. Male profemur with moderately large tubercle just distal to basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with a strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus not examined.

Material examined. Holotype ♂, elytral length 7,2 mm (SAM): Gouph, Laingsburg Dist., S. A. Museum, Mus. Staff, Nov. 1942. Allotype ♀, elytral length 8,6 mm (TM): Dikbome, Merweville, Koup C.P., Mus. Exped., Oct. 1952.

Season. Late Spring (October, November).

Distribution (Fig. 56A). Known from a limited area in the Great Karoo, South Africa.

Remarks. This species differs from all others in the group except the preceding species in the long setae on the elytra. It differs from *C. digitalis* in the sharply keeled sides of the mesosternum. It might also be larger, but its average size is difficult to evaluate from only two specimens.

Etymology. The name of the new species indicates that it appears even more rounded in shape than the other members of the group (Latin, *rotundus*, -a, -um, round, circular).

***Cryptochile tomentosa* (Herbst), Fig. 57A**

Pimelia tomentosa Herbst, 1799: 105.

Pimelia pusilla Herbst, 1799: 107.

Erodium punctatus Thunberg, 1784: 123 (*nom. preocc.*).

Pimelia costata Fabricius, 1801: 132. **syn. nov.**

Cryptochile tomentosa: Haag, 1872: 283; Gebien, 1937: 192.

Cryptochile costata: Solier, 1840: 252; Haag, 1872: 286; Gebien, 1937: 192.

Cryptochile distinctum Solier, 1840: 254; Haag, 1972: 284 (synonym of *tomentosa*).

Cryptochile vicinum Solier, 1840: 286; Haag, 1972: 286 (synonym of *tomentosa*); Gebien, 1937: 192 (variety of *tomentosa*).

Cryptochile curta Haag, 1872: 287; Gebien, 1937: 192. **syn. nov.**

Diagnosis. Clypeus with sides parallel, separated from gena by a notch. Lateral pronotal margin single. Elytra with two complete, carinate primary costae on disc, lateral margin consisting of two complete, carinate costae. Mesosternal apophysis broad, more than twice mesocoxal width. Medial part of abdominal sternites with fine punctures. Protibia with flattened distal area on outer surface.

Description. Elytral length 4,9–9,3 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery white and brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery to buff.

Head of medium size. Clypeus emarginate, sides parallel, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive, but denser on sides, clypeal sulcus and posterior parts. Clypeus with round granules, frons with elongate granules bearing short procumbent setae. Antennae slender, apical two segments slightly enlarged, not dimorphic, penultimate segment subspherical.

Pronotum less than twice as broad as long, variable, generally broader in female, broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles, complete or almost complete, carinate, sometimes interrupted at sinuosity; posterior angles subrectangular, not embraced by humeri. Posterior margin almost straight. Sculpture variable, consisting of moderately fine to coarse strioliform granules and ridges, scattered to dense, at least part of midline and usually two mediolateral patches free of granules; areas between granules mainly with scales. Entire surface with short, recumbent dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture closely flanked by two fine, raised, complete carinae. Both discal costae complete, finely carinate, weakly undulating, slightly and about equally raised; lateral margin consisting of two complete carinate rows, diverging from humerus. Sutural and intercostal intervals with dense, bicoloured silvery and brown scales, and with or without fine scattered granules on one or more intervals. First discal costa with pairs of tomentose patches on either side, basal patches usually large; second costa with less regular, smaller, paired or unpaired patches; a row of tomentose patches medial to inner marginal row. Deflected part of elytra with dense, bicoloured scales concealing fine, scattered punctures; with round, sparse granules, extremely variable in size but always larger posteriorly. Epipleural area scaled, smooth, upper edge almost complete, or consisting of a row of almost contiguous elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, edge carinate; prosternal apophysis more than half of procoxal width, apex emarginate. Sides of prosternum and most of proepisternum scaled, former with variable, round

granules laterally and fine punctures medially, latter with moderately dense, mainly fine strioliform granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis more than twice as broad as mesocoxa. Metasternum slightly shorter than mesosternum. Mes- and metepisterna mainly scaled, with large, moderately dense, flat and smooth granules. Abdominal sternites laterally scaled, finely punctured.

Legs stout. Male profemur with subspherical tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at and slightly behind expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi at least slightly shorter than respective tibiae (male mesotarsi almost as long as mesotibiae). Claws equal in length, slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad. Apex of median lobe strongly bilobed.

Material examined. Location of types of *tomentosa* unknown.

Type material, *costata*: 2 ex. in Copenhagen, 1 in Kiel (Zimsen, 1964) (not seen)

Lectotype, *curta*: ♂, elytral length 5,9 mm (BMNH): Type [round, red-bordered] / *curta* m. [handwritten] / *curta* Haag, (type) [handwritten, mauve ink] / F. Bates, 81–19. Paralectotypes, *curta*: 2♂, 3♀, (BMNH), data as lectotype.

Other material: 27♂, 28♀ (TM), 24♂, 21♀ (SAM), 2♀ (SMW); localities: Cape Flats; Cape Town; Clanwilliam; Darling; Kamieskroon; Malmesbury; Mamre, nr; Moorreesburg; Paternoster; Piketberg; Wellington. Also Cap; Cap B. Spei; Namaqualand. Wrong locality: Pretoria-Oos.

Season. Spring (September – November).

Distribution (Fig. 56A). Southwestern Cape to Namaqualand, South Africa.

Remarks. *Cryptochile tomentosa* was differentiated from *C. costata* on the basis of the position of the two marginal elytral costae in relation to one another (Haag, 1872). In the material examined, the marginal elytral costae vary from closely approximated over most of the distance to clearly separated and divergent from the humerus. The long series from Paternoster and Moorreesburg showed considerable variation. The remaining material consists of single specimens or specimens with poor or no locality data. The six syntypes of *C. curta* show considerable variation in the spacing of the marginal costae and the other distinguishing feature of the species, namely the sparser pronotal sculpture. Both the position of the marginal elytral costae and the pronotal sculpture vary intraspecifically throughout the genus. On the basis of the present material we do not believe that more than one taxon can be recognized at any level. *Cryptochile costata* and *C. curta* therefore become synonyms of *C. tomentosa*.

Cryptochile maculata* (Fabricius), Fig. 57CPimelia maculata* Fabricius, 1781: 317.*Cryptochile maculata*: Haag 1872: 279; Gebien, 1937: 192.

Diagnosis. Clypeus with sides parallel, separated from gena by a moderate notch. Lateral pronotal margin single. Elytra ovate to oblong, with two complete, broad, straight carinate costae, upper lateral row dissolved into granules. Mesosternal apophysis broad, more than twice mesocoxal width. Medial part of abdominal sternites with fine punctures. Protibia with flattened area on distal outer surface.

Description. Elytral length 5,4–11,5 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, white and brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery.

Individuals completely lacking scales occur; in these specimens the integument is polished and lacks the microgranulation observed in individuals with a vestiture of scales

Head of medium size. Clypeus emarginate, sides rounded, subparallel, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive or scales mostly confined to sides. Clypeus and frons with round to slightly elongate granules. Antennae slender, apical two segments slightly enlarged, not dimorphic. Penultimate segment rounded.

Pronotum variable, about twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles subrectangular, expanded and slightly raised, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of dense fine to moderately coarse strioliform ridges on disc, granules anteriorly and laterally, at least part of midline free of ridges; areas between granules variably with scales. Entire surface with very short, recumbent dark setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, not embracing pronotal base. Suture flat, closely flanked by two carinae, mainly complete, granular on apex. Both discal costae complete, carinate, straight or weakly undulating, strongly and about equally raised; lateral margin consisting of three rows, outer row broadly carinate, sometimes interrupted, inner row composed of widely spaced to contiguous, elongate granules; middle row composed of irregular granules, sometimes distinct only posteriorly, or lost. Intercostal intervals with dense, bicoloured white and brown scales, and with scattered variable granules, always distinct on lateral interval, variably visible on inner two intervals. First discal costa with pairs of light to dark brown tomentose patches on either side; second costa with or without less regular, smaller, usually unpaired brushes; granules of inner marginal row usually each with associated medial tomentose patch. Deflected part of elytra almost bare, with scales only anteriorly and posteriorly, and with round and elongate, scattered granules, extremely variable in size; generally with a distinct row of elongate granules at least posteriorly. Epipleural area bare, smooth, upper edge of contiguous elongate granules, subtended by a row of fine punctures.

Prosternum with anterior margin collar-like, even and almost straight, anterior edge carinate; prosternal apophysis more than half of procoxal width, apex truncate. Prosternum laterally and proepisternum medially scaled, both mainly bare, former with variable, round granules laterally, and small punctures medially, latter with moderately dense, mainly short strioliform granules. Procoxal cavity open behind. Mesosternum strongly bituberculate anteriorly, apophysis much more than twice as broad as mesocoxa. Metasternum about half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, large round and flat granules. Abdominal sternites mainly bare, shiny, with fine scattered punctures.

Legs stout. Male profemur with moderately large subspherical tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with a strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Material examined. Location of type: Banks Collection (BMNH).

Other material: 100♂, 108♀ (TM), 59♂, 46♀ (SMW), 43♂, 22♀ (SAM), 37♂, 26♀ (NMBL); localities: Anenous Pass; Anenous Pass, S; Bitterfontein, 3 mi. N, 10 km N; Bowesdorp; Buffels River valley, 29.33S 17.27E; Bynes Krans; Clanwilliam; Danse Kraal; Eselsfontein farm; Garies; Garies, 15 mi. W; Gelykswerf; Graskom; Great Karas Mts[?]; Hetsklouf, 2 km S; Henkries; Hondeklipbaai; Kamieskroon; Katdoringvlei; Klawer; Klipfontein; Klipvlei; Kotzesrus; Loeriesfontein, 7 mi. S.; Malmesbury; Nababeep; Nuwerust, 40 km N; Okiep; Outiep, Garies; Port Nolloth; Quaggafontein; Rietpoort farm; Rooidam farm; Soebatsfontein N at 30.07S 17.35E; Soutpan, 20 km E; Spektakel; Springbok; Springbok, 8 mi. E, 10 mi. E, 13 km N, 15 mi. N, 82,86 km S; Springbok, Mesklip; Steinkopf; Steinkopf, 9 mi. W; Swart Doring River; Vanrhynsdorp; Vanrhyn's Pass; Vredendal, 20 km W; Wiedou. Also Bullsport; Stellenbosch (taken as incorrect).

Season. Mainly in spring (July – November); also March.

Habitat. Under plants and stones on fairly compact soils.

Distribution (Fig. 57C). Namaqualand, South Africa. The record from the Great Karas Mountains, Namibia, is dubious, and is not included in the map. Records from Stellenbosch and Bullsport (central pro-Namib Desert) are likewise excluded.

Cryptochile granulata* Haag, Fig. 58Cryptochile granulata* Haag, 1872: 282; Gebien, 1937: 192.*Cryptochile maculatum* Solier (nec Fabricius), 1840: 251.

Diagnosis. Clypeus with sides subparallel, separated from gena by a deep notch. Lateral pronotal margin single. Elytra broadly ovate, with two fine, undulating discal costae, and

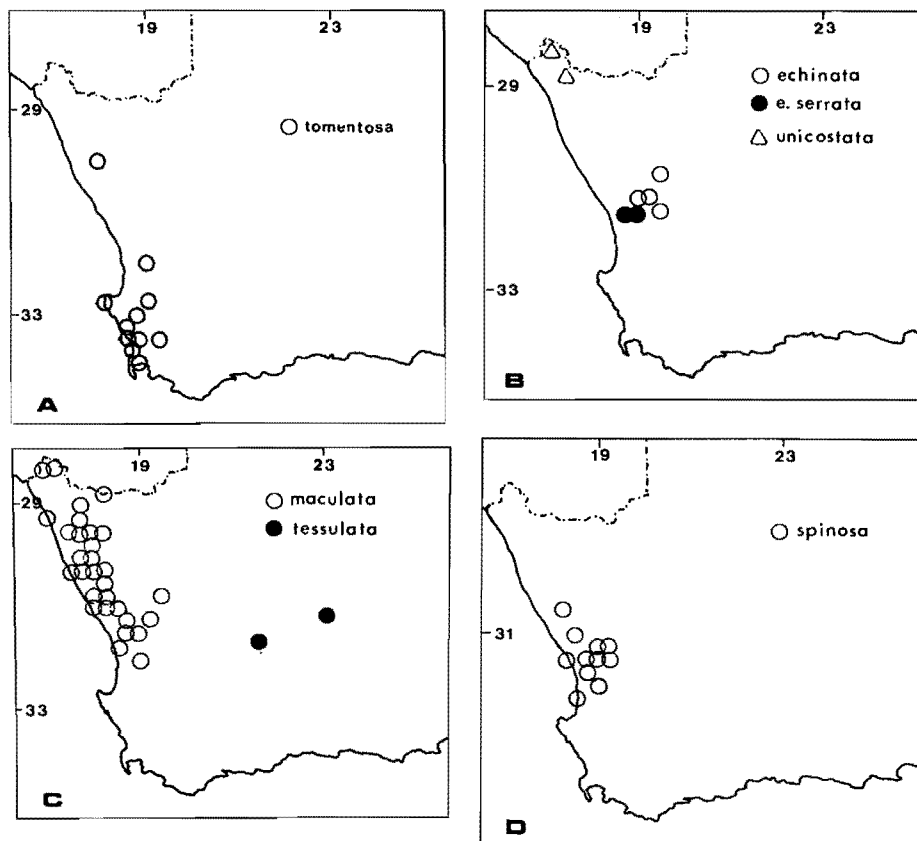


Fig. 57. Distribution of A: *Cryptochile tomentosa*; B: *C. echinata* f.t., *C. echinata serrata*, *C. unicostata*; C: *C. maculata*, *C. tessulata*; D: *C. spinosa*.

three lateral costae, only outer one variably carinate. Mesosternal apophysis broad, twice to almost three times mesocoxal width. Medial part of abdominal sternites with fine punctures. Protibia with flattened area on distal outer surface.

Description. Elytral length 5.0–10.0 mm. Integument black, at least apices of appendages reddish. Scales of dorsal surface bi- or tricoloured, white and brown, elytra with light to dark brown tomentose patches; vestiture of legs and sternites white.

Head of medium size. Clypeus emarginate, sides rounded, subparallel, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Scales of head extensive, pale. Clypeus and frons with small, moderately dense round granules bearing short procumbent dark setae. Antennae slender, apical two segments slightly enlarged, not dimorphic, penultimate segment subspherical.

Pronotum less than twice as broad as long, generally slightly broader in female, but variable; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate at middle, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior half; posterior angles subrectangular, slightly raised, just embraced by humeri. Posterior margin almost straight. Sculpture consisting of dense strioliform granules and ridges, midline not differentiated or indicated by larger scaled patches; areas between granules mainly with scales. Entire surface with very short, inconspicuous, erect dark setae.

Elytra rounded to ovate, convex; apical declivity vertical.

Humeri produced, just embracing pronotal base. Suture flat, closely flanked by two fine carinae, complete or interrupted anteriorly, dissolved into a row of granules posteriorly. Both discal costae complete, finely carinate, posteriorly undulating, strongly and about equally raised; lateral margin consisting of three rows, outer row carinate, partly or entirely formed by contiguous elongate granules, inner row composed of strongly raised and variably spaced, somewhat elongate granules; middle row composed of small to moderately large, subspherical, separated granules. Sutural and intercostal intervals with dense, bicoloured silvery and brown scales, and with scattered fine round granules, as well as inconspicuous fine punctures. First discal costa with pairs of dark brown tomentose patches on either side, alternating with white patches; second costa with less regular, smaller, similarly paired or alternating patches; granules of inner marginal row each with an associated dark brown patch medial to it. Deflected part of elytra with dense white or bicoloured scales concealing fine, scattered punctures, and with round to elongate, scattered to dense granules, extremely variable in size but always larger posteriorly. Epipleural area bare or partly scaled, smooth, upper edge consisting of elongate, approximated granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and weakly arcuate, prosternal apophysis about two-thirds or more of procoxal width, apex shallowly emarginate. Prosternum and proepisternum mainly bare, former with variable, irregular granules anteriorly and laterally, finely punctate medially, latter with moderately dense, mainly short and broad strioliform

granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis twice to almost three times as broad as mesocoxa. Metasternum short, slightly more than half of mesosternal length. Mes- and metepisterna mainly bare, with smoothed and flattened contiguous large granules. Abdominal sternites mainly bare, densely sculptured with flattened granules.

Legs stout. Male profemur with large rounded tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with a strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments very slightly shorter and thicker in female; all tarsi shorter than respective tibiae in both sexes. Claws equal in length, slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Lectotype: ♀, elytral length 7,3 mm (SSM); Cap. Krtz; Sammlung Haag-Rutenberg / *granulata* Haag / Type *Cryptochile granulata* Haag-R. [pink]. Paralectotype ♂ (SSM): Cap, Baulny / Sammlung Haag-Rutenberg.

Other material: 65♂, 93♀, 1 ex. (TM), 2♂, 2♀ (SMW), 14♂, 11♀ (SAM), 2♂, 2♀ (NMBL); localities: Augusfontein, Calvinia; Baievlei, 3 km SW; Bitterfontein, 10 km N; Dutoitsebaai; Garies; Groenrivier Mouth; Hondeklipbaai; Jackalswater; Klawer; Koekenaap; Kommandokraal; Koornhuis farm; Malmesbury; Nieuwoudtville; Nieuwoudtville, 5 mi. N; Nuwerust; Nuwerust farm; O'okiep; Rooidam farm; Skulpbaai, 2,5 km NW; betw. Soebatsfontein/Springbok; Stinkfontein; Stinkfontein, 4 km SSW; Swartdoorns R.; Vanrhynsdorp; Vredendal; Vredendal, 20 km W. Also Bulawayo (certainly incorrectly labelled).

Season. Mainly in spring (July – November).

Distribution (Fig. 58). Namaqualand, South Africa.

Remarks. The specimen in the best condition, although a female, was selected as lectotype.

***Cryptochile tessulata* Haag, Fig 57C**

Cryptochile tessulata Haag, 1872: 281; Gebien, 1937: 192.

Diagnosis. Clypeus with sides subparallel, separated from gena by a distinct notch. Lateral pronotal margin single. Elytra ovate, with two complete, carinate, undulating discal costae and two lateral costae, outer row almost complete to carinate, inner row irregular, granulate. Mesosternal apophysis about twice mesocoxal width. Medial part of abdominal sternites with flat round granules. Protibia with flattened area on distal outer surface.

Description. Elytral length 7,1–9,7 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, greyish or buff and brownish, elytra with dark brown

tomentose patches; vestiture of legs and sternites greyish.

Head of medium size. Clypeus emarginate, sides rounded, separated laterally from gena by a distinct notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head complete except for emergent granules. Clypeus with round granules, frons with elongate granules. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum less than twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles very broadly rounded. Lateral margins sinuate at middle, raised, denticulately carinate including posterior angles; posterior angles subrectangular, expanded and slightly raised, basally embraced by humeri. Posterior margin straight between bases of posterolateral angles, then curved forwards. Sculpture consisting of moderately fine, dense, strioliform granules and ridges on disc, at least part of midline free of granules; areas between granules mainly with vestiture of scales. Sides almost free of granules, densely scaled. Entire surface with short, recumbent dark setae.

Elytra ovate, convex; apical declivity vertical. Humeri produced, but not completely embracing pronotal base; apices of posterior angles situated in front of them. Suture flat, closely flanked by two fine undulating carinae dissolving into granules at end of apical declivity. Both discal costae complete, carinate, undulating, strongly and about equally raised; lateral margin consisting of two rows, outer row broadly carinate, almost complete or partly dissolved into contiguous granules, inner row irregular or appearing double in parts, smaller inner granules presumably representing a third, median row. Sutural and intercostal intervals with dense, bicoloured greyish and brown scales, and with scattered round granules in lateral interval; inner two intervals without granules or with scattered granules or a granular median row. First discal costa with pairs of tomentose patches on either side; second costa with less regular, smaller, paired or unpaired patches; larger granules of inner marginal row often with associated medial tomentose patch. Deflected part of elytra with dense, bicoloured scales concealing fine, scattered punctures, and with round, scattered granules, extremely variable in size but always larger posteriorly. Epipleural area narrow, scaled or bare, upper edge complete, undulating, subtended by a row of punctures.

Prosternum with anterior margin collar-like, arcuate, prosternal apophysis about half to two-thirds of procoxal width, apex emarginate. Prosternum and proepisternum sparsely scaled, former with variable, round granules laterally, apophysis punctate, latter with moderately dense strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis about twice as broad as mesocoxa or slightly narrower or wider. Metasternum only slightly shorter than mesosternum. Mes- and metepisterna mainly scaled, with scattered, large and flat granules. Abdominal sternites only laterally scaled, densely sculptured with flat, tessellate granules.

Legs stout. Male profemur with moderately large, round flattened tubercle at basal third, tubercle with apical pore or indentation. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly

thicker in female; all tarsi slightly to much shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Material examined. Holotype ♂, elytral length 7,9 mm (SSM): Cap, Kraatz / *Cryptochile tessulata* / Sammlung Haag-Rutenberg / *tessulata* Haag / Type: *Cryptochile tessulata* H-R [pink].

Other material: 2♂, 4♀ (TM), 5♂ (SAM), 3♂, 3♀ (NMBL); localities: Dunedin; Fraserburg; Victoria West. Also Stellenbosch (probably incorrect).

Season. Spring to early summer (September – December).

Distribution (Fig. 57C). Karoo.

***Cryptochile echinata* (Fabricius), Fig. 57B**

Pimelia echinata Fabricius, 1781: 317; Olivier, 1795: 37; Herbst, 1799: 94.

Cryptochile echinata: Haag, 1872: 278; Péringuey, 1899: 249, 1904: 296; Gebien, 1937: 192.

Diagnosis. Pronotum with posterior angle simple, angular to dentiform; sculpture of disc consisting of distinct strioliform granules. Both elytral discal primary costae with large spines or teeth.

Description. Elytral length 7,5–11,6 mm. Integument black, at least apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery; adherent sand grains often present.

Head of medium size. Clypeus emarginate, sides subparallel, slightly rounded, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Vestiture of head extensive, scales denser on sides, clypeal sulcus and posterior parts. Clypeus and frons with round to slightly elongate granules bearing procumbent setae. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum about twice as broad as long or slightly narrower, not conspicuously dimorphic; broadest at posterior angles. Anterior margin strongly raised and produced, medially notched; anterior angles acute, curved upwards. Lateral margins sinuate in front of posterior angles, complete, carinate and denticulate; posterior angles subrectangular to acute, strongly raised, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of moderately coarse strioliform granules and ridges, scattered to dense, at least part of midline free of granules; areas between granules mainly with vestiture of scales, denser on midline, anteromedially and laterally. Entire surface with short, recumbent setae.

Elytra ovate to oblong, convex; apical declivity vertical. Humeri produced, not embracing pronotal base. Suture carinate, carinae bearing dentiform granules at intervals. Both discal costae complete, carinate, both bearing large spines, those of inner costa more widely spaced, slightly and about equally raised. Lateral margin consisting of two major rows,

outer row composed of large raised ovate granules, inner row composed of widely spaced, large spines. Space between rows occupied by a row of punctures and by irregular smaller granules set at base of some spines. Intercostal intervals with dense scales, and dense coarse punctures, outer interval with sharp, spiniform granules, mainly scattered, but largest granules forming an irregular row inside upper marginal row. First discal costa with base obscured by a pair of tomentose brushes on either side; larger spines of costae and upper marginal row with less regular, smaller, paired or unpaired brushes. Deflected part of elytra with dense bicoloured scales, scattered punctures, and round, scattered granules. Epipleural area bare, smooth, upper edge formed by a row of ovate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and slightly arcuate, prosternal apophysis about two-thirds of procoxal width, apex subtruncate. Prosternum and proepisternum scaled, prosternum with variable, round granules anteriorly and laterally, apophysis punctate, proepisternum with scattered to moderately dense, round (medially) to slightly elongate granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis more than twice as broad as mesocoxa. Metasternum slightly shorter than mesosternum. Mes- and metepisterna mainly scaled, with scattered, round flat granules. Abdominal sternites mainly bare, densely sculptured and with large, contiguous, flattened granules.

Legs stout. Male profemur with moderately large tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, not dimorphic, variable; pro- and mesotarsi shorter than or as long as metatarsus, shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with its apex of median lobe) strongly curved dorsad.

Season. Mainly in spring (July – November).

Distribution (Fig. 57B). Southwestern Cape, South Africa.

***Cryptochile echinata echinata* (Fabricius)**

Material examined. Type material not seen.

Other material: 2♀ (TM), 5♂, 3♀ (SAM); localities: Augustfontein, Calvinia; Knersvlakte; Loeriesfontein, 7 mi. S.; Van Rhyn's Pass.

***Cryptochile echinata serrata* Péringuey stat. nov.**

Cryptochile serrata Péringuey, 1899: 250; Gebien, 1937: 192.

Diagnosis. Differs from nominate subspecies only in shape of posterolateral pronotal angle (generally broader, to obtuse and rounded, and not as strongly raised), and development of outer elytral costa, which generally consists of more and smaller spines, and may appear double, at least anteriorly.

Material examined. Holotype sex not determined, (SAM): SAM Ent 2061.

Other material: 15♂, 10♀ (TM), 3♂, 2♀ (SAM); localities: Vanrhynsdorp; Vanrhynsdorp, 4 mi. W.; Van Rhyn's Pass; Vredendal.

Remarks. The name *serrata* is retained, but there are many intermediates. Van Rhyn's Pass is on the boundary of the two subspecies. The *serrata* specimen was probably collected on the western side of the pass, while the *echinata* specimens were collected at or near the top.

***Cryptochile spinosa* Péringuey, Fig. 57D**

Cryptochile spinosa Péringuey, 1886: 121; Gebien, 1937: 192.

Diagnosis. Pronotum with posterior angles bearing two strong spines; sculpture of disc consisting of microgranules. Both elytral discal costae and both lateral costae with large spines; humeri produced as bispinate processes.

Description. Elytral length 5.5–13.5 mm. Integument black, apices of appendages and spines reddish. Scales of dorsal surface bicoloured, white and brownish; vestiture of sternites and legs silvery to brownish.

Head of medium size. Clypeus emarginate, sides strongly rounded, separated laterally from gena by a deep notch. Eyes narrowly reniform, not distinctly setose. Scales of head concentrated on sides, clypeal sulcus and posterior parts. Clypeus with minute granules bearing procumbent setae, frons with elongate granules bearing a scale at anterior end. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum less than twice as broad as long, not conspicuously dimorphic; broadest at posterior angles. Anterior margin strongly raised and produced, notched in middle; anterior angles acute to subrectangular. Lateral margins evanescent, indicated only by carina at anterior angle; posterior angles forwardly displaced, spiniform, strongly raised, pronotal base behind them embraced by humeri. Posterior margin straight. Sculpture consisting of fine round granules bearing long scale-like erect setae, at least part of midline free of granules; areas between granules bare or covered in pulverulent matter.

Elytra oblong, convex; apical declivity vertical. Humeri produced as a large bispinate process embracing pronotal base. Suture carinate, flanked on either side by a row of widely spaced spines. Both discal costae complete, carinate, with strong erect spines at intervals, slightly and about equally raised, development of spines about equal; lateral margin consisting of two spine-bearing carinae, fused and evanescent between humeral process and first spine, spines of outer carina much smaller and fewer than spines of inner carina. Intercostal intervals with sparse scales leaving much of cuticle exposed, or elytra extensively covered with pulverulent matter; with coarse punctures and scattered microgranules from which erect brown scale-like setae emerge. Costae with more numerous stiff, erect scale-like dark setae. Deflected part of elytra with scales leaving exposed coarse, dense punctures, and with round to spiniform, scattered granules. Epipleural area scaled, upper edge marked by sparse, subspherical, flattened granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and arcuate, prosternal apophysis about two-thirds of procoxal width, apex deflected, shallowly emarginate. Prosternum almost bare, laterally with a few scales emerging from granules, medially bare with sparse punctures; proepisternum scaled, with scales borne on dense microgranules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis much more than twice as broad as mesocoxa. Metasternum slightly shorter than mesosternum. Mes- and metepisterna mainly scaled, with or without scattered, round flat granules. Abdominal sternites mainly bare, finely punctured.

Legs moderately slender. Male profemur without tubercle. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi at least slightly shorter than respective tibiae. Claws equal in length, slender, shorter than ungual segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Holotype: sex not determined (SAM): Bitterftn, 28.9.98, L.P. SAM Ent 2062.

Other material: 82 ex. (TM), 139 ex. (SAM), 15 ex. (SMW), 23 ex. (NMBL); localities: Bitterfontein; Bulshoek; Caledon; Clanwilliam; Clanwilliam, 5 km SW, 4 mi. S, 6.2 km S; Droë R., Namaqualand; Garies; Klaver; Knersvlakte; Koebee Mts; Nuwerust farm; Olifants River valley S. Klaver; Papendorp; Strandfontein, Namaqualand; Vanrhynsdorp; Vanrhynsdorp, 4 mi. W, 3 mi. N, 9–11 mi. SE, 5 mi. S; Van Rhyn's Pass; Verlorevlei farm; Vredendal; Wiedou.

Season. Mainly in spring (July – November).

Distribution (Fig. 57D). Southwestern Cape, South Africa.

***Cryptochile consita* Haag, Figs 49B, 58**

Cryptochile consita Haag, 1872: 291; Gebien, 1937: 192.

Diagnosis. Clypeus with lateral margins continuous with gena, convergent anteriorly. Elytra with two carinate discal costae. Sutural interval of elytra scaled, flat-bottomed in caudal view. Protibia with flattened area distally on outer surface.

Description. Elytral length 4.4–8.5 mm. Integument black, apices of appendages and sometimes underside reddish. Scales of dorsal surface bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; vestiture of legs and sternites silvery. Vestiture of scales altogether absent in some specimens, such specimens smooth, shiny, and lacking microgranular sculpture on integument.

Head of medium size. Clypeus shallowly emarginate, continuous laterally with gena, sides convergent anteriorly. Eyes narrowly reniform, not distinctly setose. Scales of head dense, complete except where granules emerge. Clypeus and frons

with round granules. Antennae slender, apical two segments slightly enlarged, not dimorphic. Penultimate segment apically truncate, widest apically.

Pronotum slightly less than twice as broad as long in both sexes, not dimorphic; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins sinuate in middle, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles not raised or expanded, not embraced by humeri. Posterior margin almost straight. Sculpture consisting of elongate to strioliform granules laterally and strioliform ridges on disc, at least part of midline free of granules; areas between granules mainly with scales. Entire surface with very short, recumbent dark setae.

Elytra ovate to broadly oblong, convex; apical declivity vertical. Humeri weakly produced, not embracing pronotal base. Sutural interval narrow, flat, bordered by a strong and complete costa on either side. Both discal costae complete to near apex of elytra, dissolved into granules only near apical declivity, broadly carinate, very weakly undulating, inner one slightly, outer one more strongly raised; lateral margin consisting of three rows, outer one composed of contiguous elongate granules, inner row composed of widely spaced, elongate granules; middle row composed of widely spaced and small round granules, close to inner row. Intercostal intervals with dense, bicoloured silvery and brown scales, and with scattered, subspherical granules, largest and most numerous on lateral interval, on other intervals forming an obscure to distinct median row. First discal costa with pairs of large tomentose patches on either side; second costa with less regular, smaller, paired or unpaired patches; most granules of inner marginal row with an associated medial tomentose brush. Anterior half of deflected part of elytra with dense bicoloured scales and with subspherical, scattered granules, posterior half bare with large rounded to ovate granules and tubercles. Epipleural area bare, smooth, upper edge complete only at apex, otherwise consisting of almost completely contiguous granules, subtended by a row of very fine punctures. Costae with short and widely spaced erect dark bristles.

Prosternum with anterior margin collar-like, edge broadly carinate and almost straight, prosternal apophysis about one-third to half of procoxal width, apex emarginate. Prosternum and proepisternum scaled, former with variable, round granules, latter with scattered to moderately dense, mainly strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis more than twice as broad as mesocoxa. Metasternum short, about half of mesosternal length. Mes- and metepisterna mainly scaled, with moderately dense, smooth and flat tubercles. Abdominal sternites bare or sparsely scaled, densely sculptured, except on sides of first sternite, with flattish tubercles.

Legs stout. Male profemur with moderately large tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer distal angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; in male, tarsi shorter than respective tibiae, in female, all tarsi much shorter than respective tibiae. Claws equal in

length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus relatively stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Lectotype: ♀, elytral length 6,1 mm (BMNH): Type [printed, round, red-bordered] / Africa / *consita* m. [handwritten] / *consita* Haag / (Type) [handwritten, mauve ink] / F. Bates 81–19.

Other material: 170♂, 183♀, 6 ex. (TM), 22♂, 27♀ (SAM), 75♂, 89♀ (SMW), 1♂ (NMBL); localities: Abachaus; Aroab; Aughrabies; Awahuab; Barby; Blinkoog; Bullsport; Chanquas; Chulon; Claratal; Daheim; De Aar; Delhi; Dickdorn; Dordabis; Erfdeel; Felseneck; Gemsbok Pan; Glynberg; Gobabis; Gocheganas; Groenrivier; Hardap Dam; Harmonie; Helmeringhausen; Höhenheim; Hopetown, 60 mi. W; Ike; Kakamas; Kalahari Gemsbok National Park betw. 20 mi. N Twee Rivieren and 3 mi. S Mata Mata; Kamanjab; Kanaän; Kaoko Otavi; Karamba; Karibib; Katzensteg; Keimoes; Khomas Hochland; Kiriis; Klein Karas; Klein Okapuka; Kowares; Kuruman, 71 mi. NW; Kuruman R.; Langklip; Mara (Namibia); Mata Mata, 20 mi. S; Maun; Melton Wold; Modder River; Molopo River; Mukorob; Mynfontein; Narib Ost; Narudas; Naukluft; Neuhof-Kowas; N'gami; Niekerkshoop; Noachabeb; Ohopoho (= Opuwa); Ohopoho, 13 km N, 122 km SSE at 18.20S 14.02E; Okahandja; Okahandja Townlands; Okarukondovi; Olifantskloof, Sandfontein (Namibia); Onze Rust; Orumana; Orupembe; Orupembe – Rocky Point; Otjekongo; Otjihaenemaperero; Otjikotoberg; Otjiwarongo; Otjitundua; Portsmut; Prieska, 13 mi. S, 3 mi. S; Putsonderwater; Rehoboth; Richmond; Richthofen; Rio Muka [?]; Rudenau Nord; Samehaling; Sesriem; Solitaire; Stampriet; Swartbaas West; Swart Nossob R T'komsftn [?]; Tsane Pan; Tsumeb; Tugab; Twee Rivieren; Twee Rivieren, 10–20 mi. NW; Uhlenhorst; Us Pass, 23.05S 15.49E, 23.04S 15.55E, 23.03S 15.58E, 23.04S 15.56E; Valencia; Verdruk; Victoria West; Volmoed, 26.03S 22.40E; Waterberg (Namibia); Weissenfels; Westfalenhof; Wildheim Ost; Windhoek; Witdraai; Witvlei; Wolwefontein, Victoria West district.

Season. Recorded throughout the year, but most frequently in autumn and winter (March – July).

Habitat. Compact soils, at base of plants.

Distribution (Fig. 58). Widely distributed in the northwestern Karoo, South Africa; southwestern Kalahari, and throughout Namibia except the coastal Namib Desert.

Remarks. As in other species of this group, smooth specimens lacking vestiture are frequently encountered, often together with scaled specimens. These specimens lack the microgranular sculpture of the scaled specimens and their macrosculpture tends to be coarser.

Cryptochile concava Gebien, Fig. 58

Cryptochile concava Gebien, 1920: 70, 1937: 192.

Diagnosis. Clypeus with lateral margins continuous with gena, convergent anteriorly. Elytra with two carinate discal costae. Sutural interval of elytra bare or sparsely scaled,

V-shaped when seen in caudal view. Sutural costae strongly convergent anteriorly, not reaching scutellum. Protibia with flattened area distally on outer surface.

Description. Elytral length 5.4–8.2 mm. Integument black, apices of appendages reddish. Scales of dorsal surface unicoloured, silvery white; vestiture of legs and sternites silvery white.

Head of medium size. Clypeus weakly emarginate, continuous laterally with gena, sides convergent anteriorly. Eyes narrowly reniform, not distinctly setose. Scales of head fine, complete except where granules emerge. Clypeus and frons with smallish round granules. Antennae slender, apical two segments slightly enlarged, slightly larger in male, penultimate segment widest apically.

Pronotum usually less than twice as broad as long, usually slightly broader in female, but variable; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins slightly sinuate in front of posterior angles, almost complete, anteriorly consisting of approximated, sometimes coalescent granules, carinate on posterior angles; posterior angles subrectangular, slightly raised, not or incipiently embraced by humeri. Posterior margin almost straight. Sculpture consisting of long strioliform ridges, with granules anteriorly and laterally, moderately dense, midline not differentiated; areas between granules without scales except along lateral margins. Setae, if present, inconspicuous.

Elytra oblong, convex; apical declivity vertical. Humeri produced, but not, or just, embracing pronotal base. Suture flat, closely flanked by two coarse carinae originating just behind scutellum. Both discal costae complete, broadly carinate, weakly undulating, slightly to strongly and about equally raised, lateral costa sometimes slightly higher; lateral margin consisting of three rows, outer row composed of briefly elongate contiguous granules, inner row composed of very strongly raised, closely approximated, elongate granules; middle row composed of smaller, subspherical to slightly elongate, somewhat irregular granules. Sutural interval bare; intercostal intervals with dense, silvery white scales, and with scattered small subspherical granules, largest on lateral interval, forming a row on median interval. First discal costa straddled by a row of bare patches; second costa with less regular, smaller, bare patches, sometimes scarcely extending beyond costa. Deflected part of elytra with a patch of dense, whitish, scales anteriorly, otherwise bare, and with round to ovate, scattered granules, extremely variable in size but always larger posteriorly and dorsally. Epipleural area bare, smooth, upper edge formed by elongate, mainly contiguous granules, subtended by a row of small punctures.

Prosternum with anterior margin collar-like, even and almost straight to weakly arcuate, margin carinate at least laterally; prosternal apophysis at least half of procoxal width, usually wider, apex bilobed, with shallow to deep V-shaped median emargination. Prosternum and proepisternum partly scaled, prosternum with dense round granules, proepisternum with dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis more than twice as broad as mesocoxa. Metasternum short, about half of mesosternal length. Mes- and metepisterna bare or almost bare, with dense, flat, round

granules, or generally smooth. Abdominal sternites virtually bare, densely sculptured, with flat round granules.

Legs stout. Male profemur with moderately large conical tubercle at basal third, tubercle with apical pore. Female profemur with ventral margin strongly raised at same position. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; in male, pro- and mesotibiae as long as or slightly shorter than respective tibiae, metatarsus shorter than metatibia; in female all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short black bristles.

Aedeagus not examined.

Material examined. Type material not examined.

Other material: 2♂, 3♀ (TM), 2♂, 1♀ (SAM); localities: Aughrabies; Keetmanshoop; Klein Karas; Lower Bak R.; Narugas (Gordonia); Twee Rivieren, 100 km SE.

Season. Specimens whose dates of collection were recorded were collected in July.

Distribution (Fig. 58). Southwestern Kalahari, Namibia.

Remarks. The specimens that Dr Koch assigned to this species and which agree closely with the original description differ from *C. consita* in the more oblong shape, the bare sutural interval, the development of the sutural costae, and the unicoloured vestiture of scales. The short series examined shows some variation in some of these characters.

Cryptochile unicostata spec. nov., Figs 57B, 86

Diagnosis. Clypeus with lateral margins continuous with gena, convergent anteriorly. Elytra with a single strongly raised and broadly carinate discal costa, inner discal costa absent or reduced to a few granules. Size large. Protibia with flattened area on distal outer surface.

Description. Elytral length 7.9–10.7 mm. Integument black, apices of appendages reddish. Scales of dorsal surface when present unicoloured, white; vestiture of sternites when present sparse, white, legs with dense, silvery scales.

Head of medium size. Clypeus shallowly emarginate, sides convergent, straight, not or scarcely separated laterally from genae. Eyes narrowly reniform, not distinctly setose. Vestiture of head when present mostly confined to sides, clypeal sulcus and posterior parts. Clypeus and frons with round granules, those of clypeus with short procumbent setae. Antennae slender, apical two segments slightly enlarged, proportionately slightly larger in male.

Pronotum more than twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins slightly to strongly sinuate in front of posterior angles,

almost complete, medially consisting of approximated, sometimes coalescent granules, carinate anteriorly and on posterior angles; posterior angles broadly subrectangular, slightly raised, not embraced by humeri. Posterior margin curved. Sculpture consisting of rather fine strioliform granules and ridges, scattered, shorter on midline and ovate or rounded laterally, bare or with scales concentrated laterally. Granules with extremely short, recumbent dark setae posteriorly.

Elytra very broadly ovate to oblong, convex; apical declivity vertical. Humeri produced, but not embracing pronotal base. Suture flat, flanked on either side by a fine row of elongate granules not raised on costae. Outer discal costa complete, strongly raised and broadly carinate, inner costa absent or indicated by a few larger and elongate granules. Lateral margin consisting of a fine carina set with irregular, closely set denticulate granules. Intercostal intervals bare or with sparse white scales, and with moderately dense, coarse conical granules; without any conspicuous setation. Deflected part of elytra without or with rather sparse white scales, fine, scattered punctures, and round, scattered granules, extremely variable in size. Epipleural area bare or sparsely scaled, upper edge consisting of elongate granules, subtended by a row of fine punctures.

Prosternum with anterior margin collar-like, arcuate, prosternal apophysis more than half of procoxal width, horizontally projecting, apex shallowly to deeply emarginate. Prosternum and proepisternum bare or with very sparse scales, former with variable, small round granules, latter with scattered, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis almost three times as broad as mesocoxa; sides steep. Metasternum short, slightly less than half of mesosternal length. Mes- and metepisterna bare or scaled, with scattered, large but evanescent round granules. Abdominal sternites mainly bare, densely sculptured with flat round granules.

Legs stout. Male profemur with large subspherical tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of compressed meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora and tibiae with large tubercles bearing appressed bristles, tarsi with stiff short dark bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Holotype ♂, elytral length 8,2 mm (TM): S. Afr., Richtersv., Claim Peak, 28.20S 17.10E / 5.9.1975; E-Y:1218, groundtraps, leg. Endrödy-Younga. Allotype ♀, elytral length 7,4 mm (TM): same data as holotype. Paratypes: 8♂, 9♀ (TM): (4♂, 4♀) same data as holotype; (2♀) S. Afr., Richtersveld, Ganakom Riv. valley, 28.26S 17.12E / 5.9.1976, E-Y:1223, groundtraps, 35 days, leg. Endrödy-Younga / groundtraps, 1 with faeces, 1 with banana bait; (1♂) Richtersveldt, Orange R., Namaquald, 1921, G.E. Smith; (3♂, 2♀) Richtersveld, S.W.A., 6/1925 (2), 6.1927 (2); Jan. 1920 (1), G. [or J.] E. Smith; (1♀) 3 m. S. Vioolsdrif, C. Prov., S. Afr., 15.IX.1961, H. Dick Brown, W. Furst.

Season. Winter and spring (June – November).

Distribution (Fig. 57B). Richtersveld, South Africa.

Remarks. This species differs from other species of *Cryptochile* in the lack of sutural costae, and in the shape and development of the single discal costa. It is related to *C. consita* by the head shape and the shape of the pro- and mesosterna. Bare specimens appear to predominate in this species.

Etymology. The name of the new species refers to the single discal costa (Latin, *unus*, -a, -um, one; *costa*, -ae, f., rib).

Cryptochile carpi Koch, Fig. 59A

Cryptochile carpi Koch, 1952: 43.

Diagnosis. Clypeus with sides continuous with gena, converging anteriorly. Lateral pronotal margin double over entire length, formed by two carinae diverging posteriorly from anterior angle.

Description. Elytral length 5,5–10,5 mm. Integument black, apices of appendages reddish. Scales of dorsal surface when present bicoloured, silvery and light brownish, elytra with light to dark brown tomentose patches; vestiture of sternites and legs silvery; specimens lacking scales occur, with integument bare, black, shiny and lacking microgranulation.

Head of medium size. Clypeus shallowly emarginate, sides straight, anteriorly convergent, continuous with gena. Eyes narrowly reniform, not distinctly setose; dorsal part bordered by a deep and broad groove. Vestiture of head extensive when present. Clypeus and frons with round granules, those of clypeus bearing very short, procumbent setae. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum less than twice as broad as long, variable, not distinctly sexually dimorphic; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute. Lateral margins straight, complete, double, formed by two carinae diverging posteriorly from anterior angle, space between them either irregularly reticulate or concave with scattered granules, or with both sculptural patterns combined; posterior angles subrectangular, raised, basally embraced by humeri. Posterior margin curved. Sculpture consisting mainly of rather coarse strioliform granules and ridges, anterior parts with ovate granules, dense, at least part of midline free of granules; areas between granules mainly bare, juxtalateral area sometimes with scales. Granules posteriorly with extremely short setae.

Elytra broadly ovate to oblong, convex; apical declivity vertical. Humeri produced, basally embracing pronotal base. Suture closely flanked on either side by a narrow to broad costa. Both discal costae complete, moderately narrowly to broadly carinate, strongly and about equally raised; lateral margin costate, consisting of one or two rows of closely approximated, large and coarse granules varying from slightly to strongly elongate. Intercostal intervals bare or with dense, bicoloured silvery and brown scales, and with scattered to dense small to large, round to ovate granules. First discal costa

with pairs of tomentose patches on either side; second costa with or without less regular, smaller, paired or unpaired patches; some granules of inner marginal row with associated medial tomentose patch. Deflected part of elytra bare, with fine, scattered punctures, and with round, scattered to moderately dense granules, extremely variable in size but always smaller when sparser. Epipleural area bare, slightly wrinkled, upper edge consisting of a row of granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, arcuate; prosternal apophysis about two-thirds of procoxal width or slightly wider or narrower; horizontally projecting, apex bilobed. Prosternum and preepisternum scaled, former with variable, round granules, latter with moderately dense, mainly short strioliform granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis considerably more than twice as broad as mesocoxa. Metasternum about half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, variable, flat granules. Abdominal sternites mainly scaled, with scattered round granules, third sternite partly bare anteriorly.

Legs stout. Male profemur with variable tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of compressed meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora and tibiae granular to tuberculate, with short, inconspicuous bristles, tarsi with stiff, short reddish bristles.

Aedeagus stout, apical of sheath (and with it apex of median lobe) strongly curved dorsad.

Season. Collected in February, April, May and July.

Distribution (Fig. 59A). Northwestern Namibia (Kaokoveld) and southwestern Angola.

Remarks. *Cryptochile carpi* is composed of three subspecies, diagnosed below. They are differentiated from one another by sculptural characters that appear to be consistent.

Cryptochile carpi carpi Koch

Diagnosis. Area between lateral pronotal carinae flat, foveate; granules of intercostae and deflected part of elytra large, coarse, and relatively dense.

Material examined. Holotype ♂, elytral length 8,0 mm (TM): Oropembe, Kaokoveld, June 1951, C. Koch. Allotype ♀, elytral length 10,5 mm (TM): same data as holotype. Paratypes: 3♂, 1♀ (no head), 6 cadavers (TM): same data as holotype.

Remarks. The material was erroneously listed by Koch (1952) as including one fewer male and female than are present in the TM collection.

Cryptochile carpi laevipleura Koch stat. nov.

Cryptochile laevipleura Koch, 1952: 44.

Diagnosis. Area between lateral pronotal carinae concave, with scattered granules, or foveate as well as granular; granules of intercostae and deflected part of elytra small, sparse.

Material examined. Holotype ♂, elytral length 6,3 mm (SAM): Kaross, S.W.A., Mus. Exp. Feb. 1925. Allotype ♀, elytral length 9,4 mm (TM): Franzfontein, Kaokoveld, 16-V-48, Koch. Paratypes: 1♂, 1♀ (TM), 1♂ (SAM): (2) same data as holotype; (1) same data as allotype.

Other material: 2♂ (TM), 3♂ (SMW); localities: Hoas; Kowaribschlucht; Ohopoho.

Cryptochile carpi angolensis subsp. nov.

Diagnosis. Area between pronotal lateral carinae shallowly concave, with scattered granules, in one specimen (the southernmost specimen) partly foveate as well; granules of intercostae moderately large, moderately dense on outer interval, granules of deflected part of elytra coarse and dense.

Material examined. Holotype ♂, elytral length 7,7 mm (TM): Pedibas [= Pediva], S.W. Ang. VI.1954, Vernay - Tvl Mus. Expedition. Paratypes: 1♂, 3 damaged cadavers (TM): (1♂) same data as holotype; (1♀ headless) Furnas; (1 ex.) S. Angola, Sa de Bandiera [sic], Feb. 1968, Hamilton [on back S.W. Africa, Rössing: an improbable locality for any species of this group]; (1 ex.) Junction east branch Marienfluss – Cunene Riv., NW Kaokoveld, VIII.1956, C. Koch.

Cryptochile grossa Erichson, Figs 54A, 59B

Cryptochile grossa Erichson, 1843: 242; Haag, 1872: 290; Gebien, 1937: 192; Koch, 1952: 44.

Cryptochile grossa denudata Koch, 1952: 45. **syn. nov.**

Diagnosis. Clypeus (Fig. 54A) with sides rounded, subparallel, separated from gena by a distinct notch. Lateral pronotal margin strongly raised and carinate, posteriorly very broad, apparently composed of two fused costae. Size large.

Description. Elytral length 7,0–12,8 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and light brownish; vestiture of legs and sternites silvery. Bare, black and shiny specimens occur that lack vestiture of scales and microgranulation.

Head of medium size. Clypeus emarginate, sides rounded, subparallel, separated laterally from gena by a shallow notch. Eyes narrowly reniform, not distinctly setose. Scales of head dense, extensive. Clypeus and frons with round granules. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum less than to about twice as broad as long, weakly dimorphic, narrower in male; broadest at posterior angles, sides strongly convergent anteriorly. Anterior margin slightly

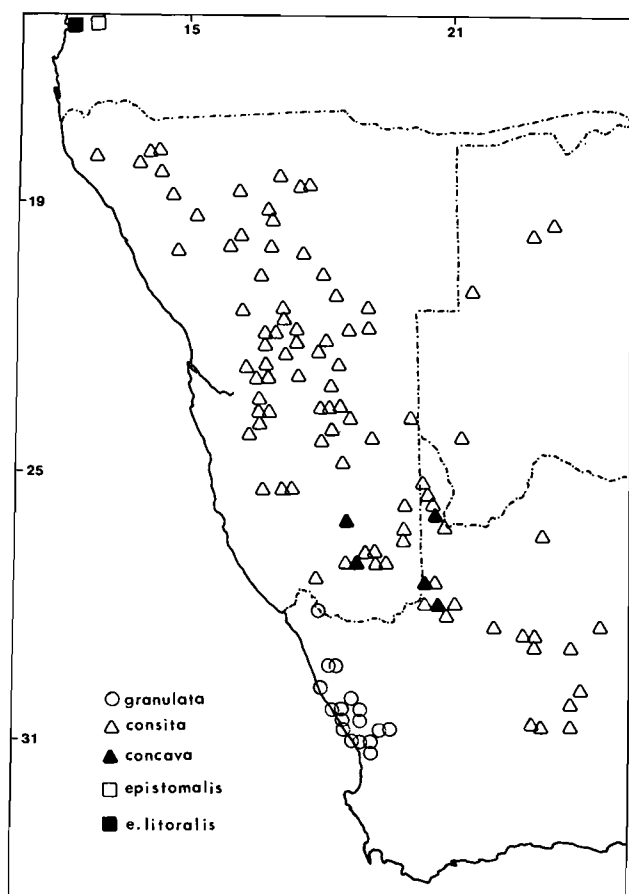


Fig. 58. Distribution of *Cryptochile granulata*, *C. consita*, *C. concava*, *C. epistomalis* f.t. and *C. epistomalis litoralis*.

raised and produced; anterior angles acute. Lateral margins straight, complete, strongly raised, carinate, carina very broad on posterior angles, and punctate, appearing double; posterior angles broadly rounded, raised, just embraced by humeri basally. Posterior margin bisinuate. Sculpture consisting of briefly elongate to strioliform granules, moderately dense, at least part of midline free of granules; areas between granules variably scaled, integument finely punctate.

Elytra broadly ovate, convex; apical declivity vertical. Humeri produced, just embracing pronotal base. Suture closely flanked on either side by a complete, distinctly raised carina. Both discal costae complete, raised, carinate, outer costa weakly undulating, higher; lateral margin consisting of two rows, outer row composed of broad, elongate, contiguous granules, inner row composed of more widely spaced, long to very long granules. Sutural interval scaled, intercostal intervals with dense, bicoloured white and brown scales, and with scattered to dense round granules. First discal costa with pairs of brown patches on either side; second costa with less regular, smaller, paired or unpaired brown patches; granules of inner marginal row usually each with an associated medial brown patch. Deflected part of elytra with bicoloured scales partly concealing large, scattered punctures, and with round, scattered to dense granules, extremely variable in size but always larger posteriorly. Epipleural area scaled, upper edge

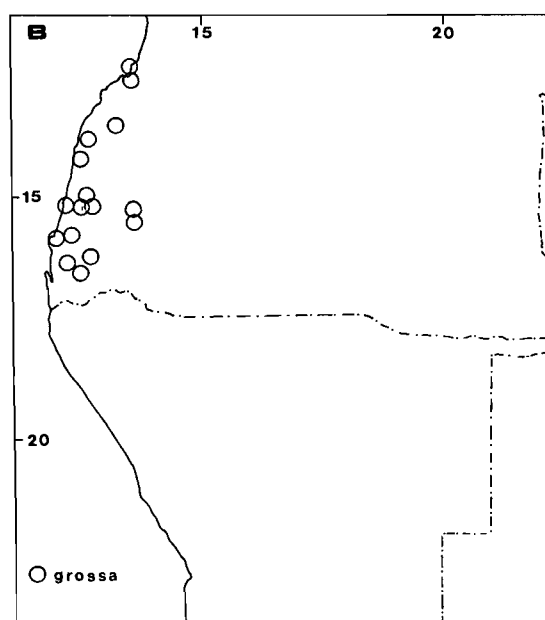
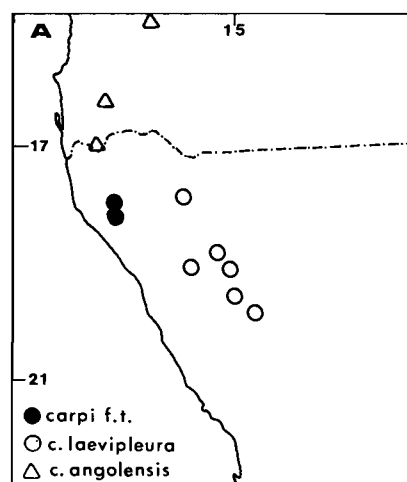


Fig. 59. Distribution of A: *Cryptochile carpi* f.t., *C. carpi laevipleura*, *C. carpi angolensis* and B: *C. grossa*.

consisting of a row of ovate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and weakly arcuate, prosternal apophysis about two-thirds to three-fourths of procoxal width, apex bilobed. Prosternum and proepisternum scaled, former with scattered, round granules, latter with scattered to moderately dense, round granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis about three times as broad as mesocoxa. Metasternum short, about half of mesosternal length. Mes- and metepisterna mainly scaled, with scattered, round, flat granules. Abdominal sternites mainly scaled, with small scattered granules.

Legs stout. Male profemur with moderately elevated tubercle at basal third, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer

distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments slightly shorter and thicker in female; all tarsi shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, moderately short, brown bristles.

Aedeagus stout, apicale of sheath (and with it apex of median lobe) strongly curved dorsad.

Material examined. Type material not seen.

Other material: 54♂, 85♀, 5 ex. (TM), 34♂, 40♀ (SMW); localities: Benguela; Dolondolo; Espinheira; Karakul; Lobito; Lucira; Moçamedes; Onguéria; Pastoril do Sul; Pedibas (= Pediva); Pedras Aguas; betw. Pedibas – Rio Curoca; Pico Azeverdo – Morro Mamma; Porto Alexandre; São Nicolau; Vanevelombe.

Season. Mainly autumn and winter (May – July); also November.

Distribution (Fig. 59B). Southwestern Angola.

Remarks. Koch (1952) examined the type material of *C. grossa* and it is clear that the name refers to this species, and not to the superficially similar but smaller sympatric species described as new below.

Specimens from the northern and coastal parts of the range frequently have the lateral pronotal margin thinner, sharper, and more markedly reflected, but the difference is not geographically consistent. The specimens that Koch (1952) described as the subspecies *denudata* correspond with similar bare specimens of *C. consita* and *C. maculata*, and show no geographical pattern.

***Cryptochile epistomalis* spec. nov., Figs 54B,C, 58, 87**

Diagnosis. Clypeus (Fig 54B) with sides continuous with gena, converging anteriorly. Lateral pronotal margins complete, carinate, reflected over entire length, thickened posteriorly.

Description. Elytral length 5,9–9,8 mm. Integument black, apices of appendages reddish. Scales of dorsal surface bicoloured, silvery and brownish; vestiture of sternites and legs silvery.

Head of medium size. Clypeus emarginate, sides straight, convergent anteriorly, continuous with gena. Eyes narrowly reniform, dorsal part bordered by a narrow groove, not distinctly setose. Vestiture of head extensive. Clypeus and frons with small sparse round granules, those of clypeus with short, anteriorly inclined setae. Antennae slender, apical two segments slightly enlarged, not dimorphic.

Pronotum about twice as broad as long in female, narrower in male; broadest at posterior angles. Anterior margin slightly raised and produced; anterior angles acute to subrectangular. Lateral margins straight, complete, reflected upwards in pos-

terior half or over entire length (Fig. 54C); posterior angles broadly rounded, raised, basally embraced by humeri. Posterior margin weakly curved. Sculpture consisting of round to elongate or strioliform granules, scattered to dense, at least part of midline free of granules; areas between granules mainly bare, scales mainly confined to margins, especially juxtalateral area. Granules with very short, inconspicuous dark setae.

Elytra broadly ovate, convex; apical declivity vertical. Humeri produced, basally embracing pronotal base. Suture closely flanked on either side by a complete or interrupted carina. Both discal costae complete, carinate, slightly and about equally raised; lateral margin consisting of two close rows, outer row composed of approximated elongate and broad granules, inner row composed of very elongate granules, variably spaced or uniting to form an almost complete carina. Intercostal intervals with or without dense, bicoloured silvery and brown scales, and with scattered to dense small to large granules, sometimes forming a median row on inner intercostal interval. Inner two intercostal intervals and lateral interval variably with brown patches of scales. Deflected part of elytra with or without white scales, and with fine, scattered punctures and round to ovate, scattered granules, extremely variable in size. Epipleural area bare or scaled, upper edge consisting of a row of elongate granules, subtended by a row of punctures.

Prosternum with anterior margin collar-like, even and almost straight, prosternal apophysis more than half of procoxal width, horizontally projecting, apex shallowly emarginate. Prosternum and proepisternum scaled, both with round granules. Procoxal cavity apparently open behind. Mesosternum strongly bituberculate anteriorly, apophysis much more than twice as broad as mesocoxa. Metasternum short, less than half of mesosternal length. Mes- and metepisterna mainly scaled, with sparse, round granules. Abdominal sternites mainly scaled, with small scattered round granules.

Legs stout. Male profemur with subconical tubercle proximal to middle, tubercle with apical pore. Protibia quadrate in cross-section, outer margin carinate at expanded outer distal angle only. Outer angle of subcylindrical meso- and metatibiae with strong spiniform process. Tibial calcaria spiniform, not dimorphic, protibial pair longer and thicker. Tarsi slender, cylindrical, segments thicker in female; all tarsi slightly shorter than respective tibiae. Claws equal in length, slender, shorter than unguis segment. Femora, tibiae and tarsi with stiff, short, pale to reddish bristles.

Aedeagus stout, apicale of sheath (and with it apex of median lobe) strongly curved dorsad.

Season. Autumn and winter (May, June).

Distribution (Fig. 59). Southwestern Angola.

Remarks. The new species differs from *C. grossa* in the shape of the clypeus, the pronotal margin, and the smaller size. Two subspecies, which differ as indicated in their diagnoses, are recognized.

Etymology. The name of the new species refers to the shape of the clypeus (epistome = clypeus; both terms of Greek origin).

Cryptochile epistomalis epistomalis

Diagnosis. Lateral pronotal margin raised only in posterior half; pronotal granules coarser.

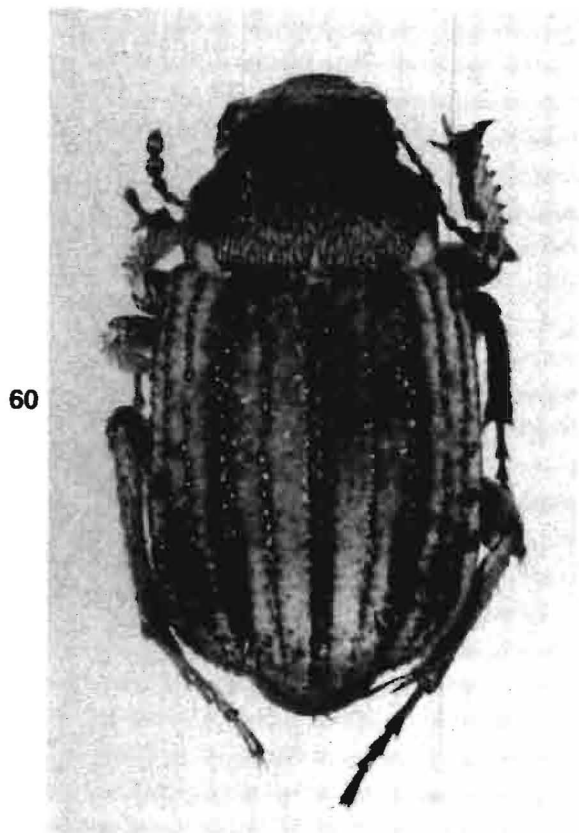
Material examined. Holotype ♂, elytral length 7,2 mm (SMW): Pastoril do Sul, Moçamedes, Angola, SE 1512 Ba, 8–10 May 1974 / H18982 [collected by M.J. & M.-L. Penrith]. Allotype ♀, elytral length 8,9 mm (SMW): same data as holotype. Paratypes: 23♂, 34♀ (SMW), 1♂, 7♀ (TM): (57) same data as holotype; (7) Angola, Moçamedes, Pastoril do Sul, 12.5.1974, Penrith / Dr L. Schulze, insectary no. 1375; (1) Karakul, S.W. Ang., VI.1954, Vernay - Tvi Mus. Expedition.

***Cryptochile epistomalis litoralis* subsp. nov.**

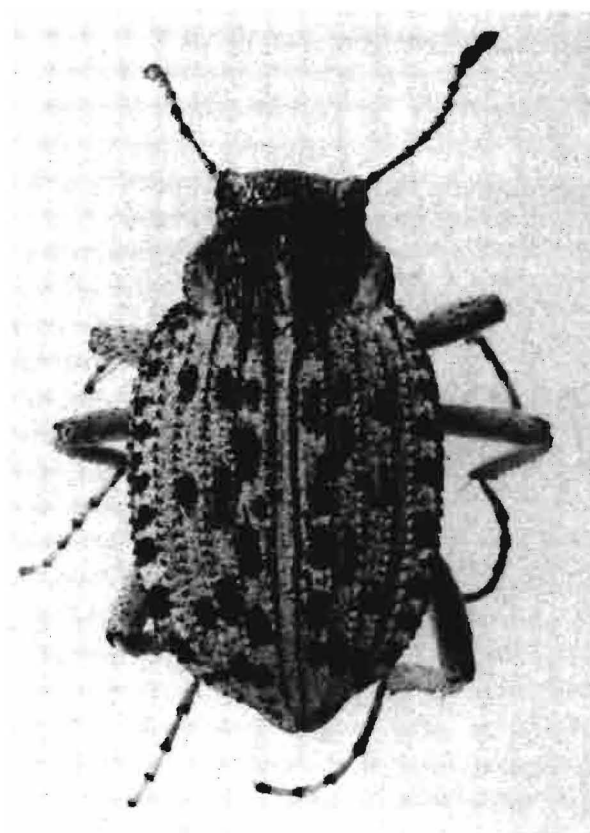
Diagnosis. Lateral pronotal margin raised over entire length, narrow anteriorly, and serrate; pronotal granules mainly strioliform.

Material examined. Holotype ♂, elytral length 6,5 mm (SMW): Praia das Conchas, Moçamedes, Angola, SE 1512 Aa, 11–16 May 1974 / H 19406 [coll. by M.-L. Penrith]. Allotype ♀, elytral length 8,6 mm (SMW): same data as holotype. Paratypes: 1♂, 1♀ (SMW, TM), same data as holotype.

Etymology. The name of the subspecies refers to its type locality on the beach (Latin, *litoralis*, -e, of the shore)



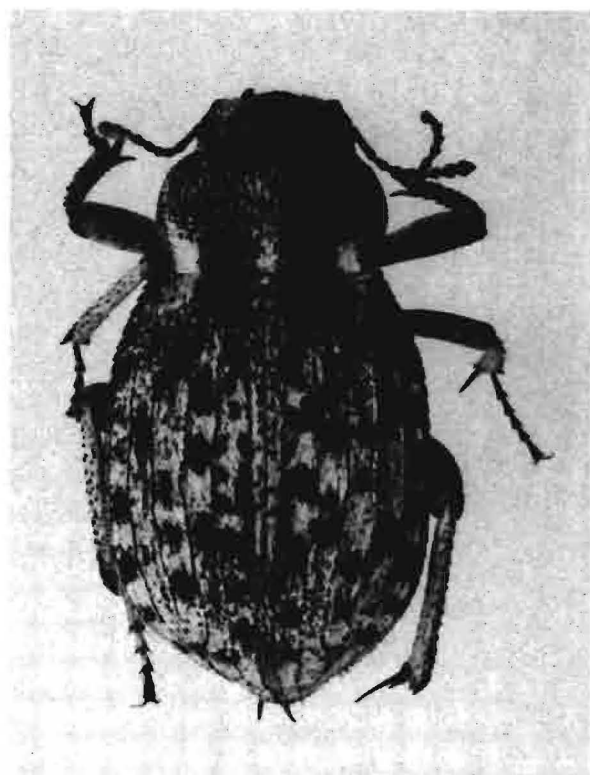
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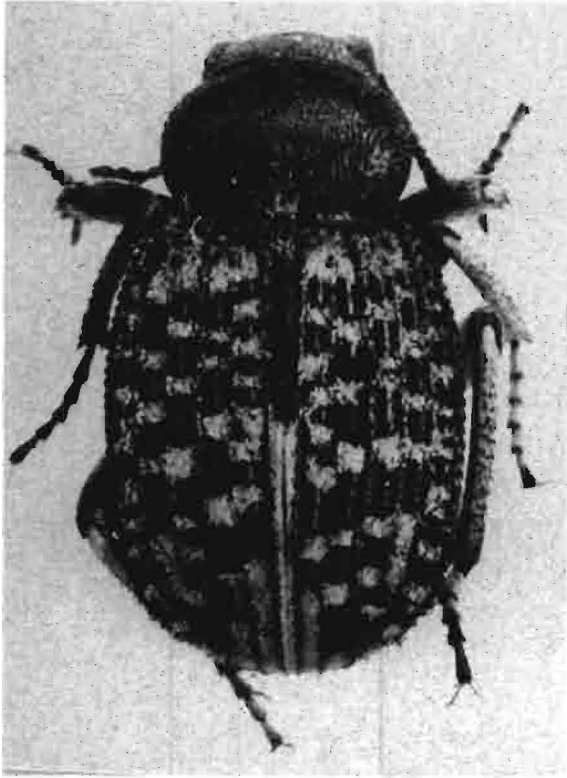
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Figs 60–63. 60: *Horatoma striata* spec. nov.; 61: *Horatoma convexcicollis* spec. nov.; 62: *Horatoma angulata* spec. nov.; 63: *Pachynotelus damarinus* spec. nov.

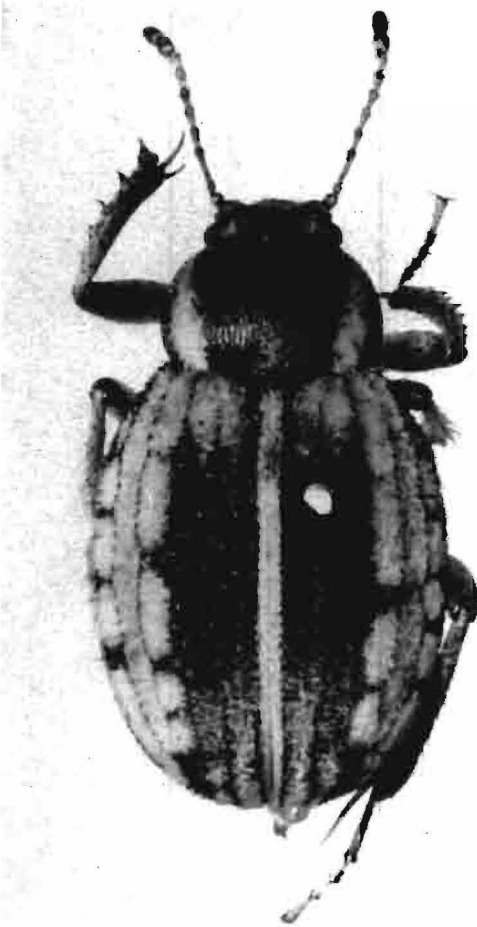
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Figs 64–67. 64: *Pachynotelus punctipennis* spec. nov.; 65: *Pachynotelus ponderosus* spec. nov.; 66: *Pachynotelus adamantinus* spec. nov.; 67: *Pachynotelus kochi* spec. nov.

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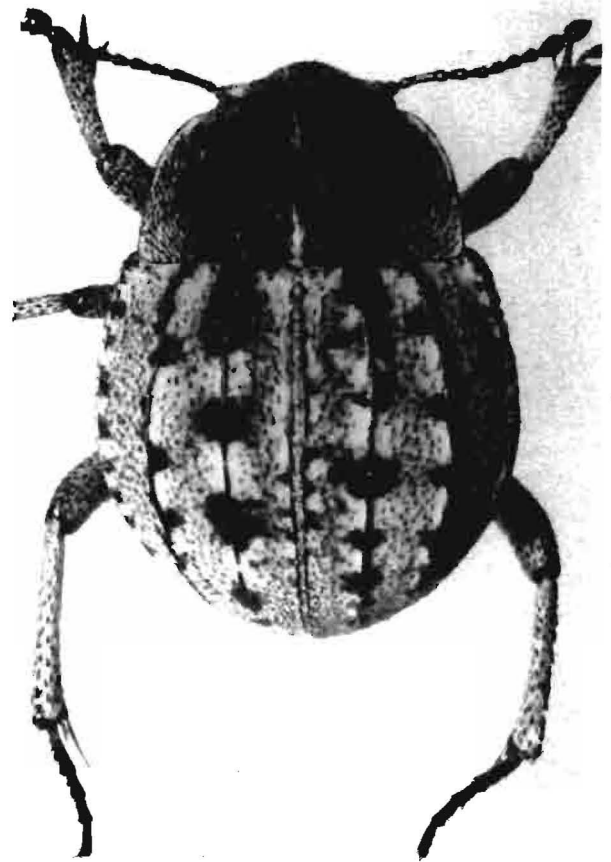
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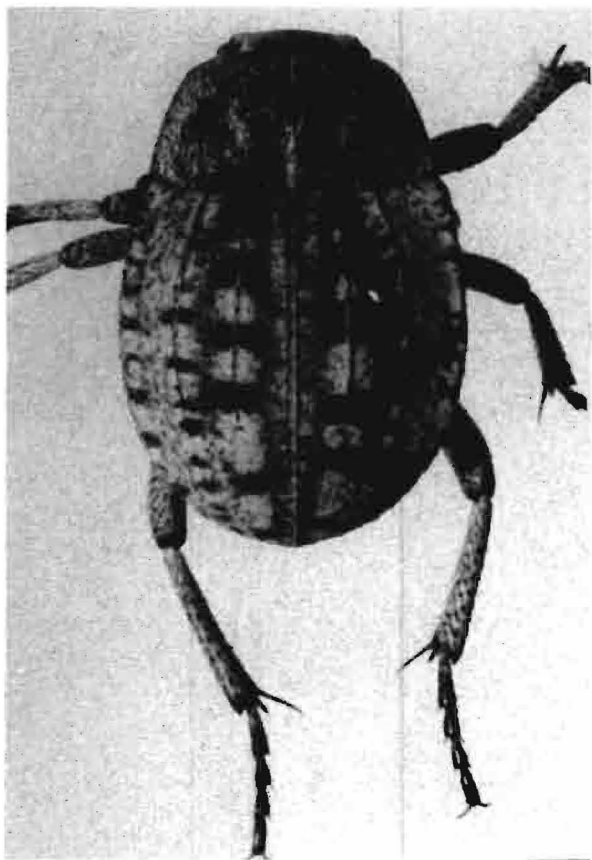


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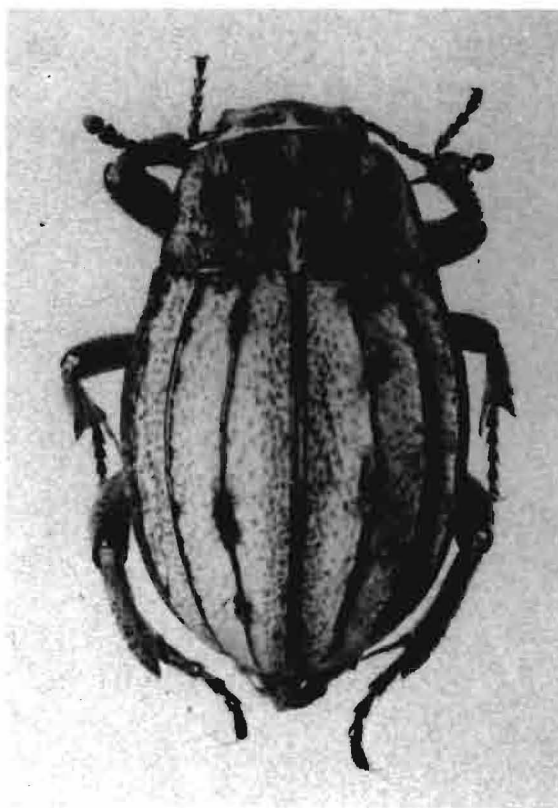


Figs 68–71. 68: *Cychrochile grisea* spec. nov.; 69: *Cychrochile krugeri* spec. nov.; 70: *Cychrochile pluricostata* spec. nov.; 71: *Cryptochile arcuata* spec. nov.

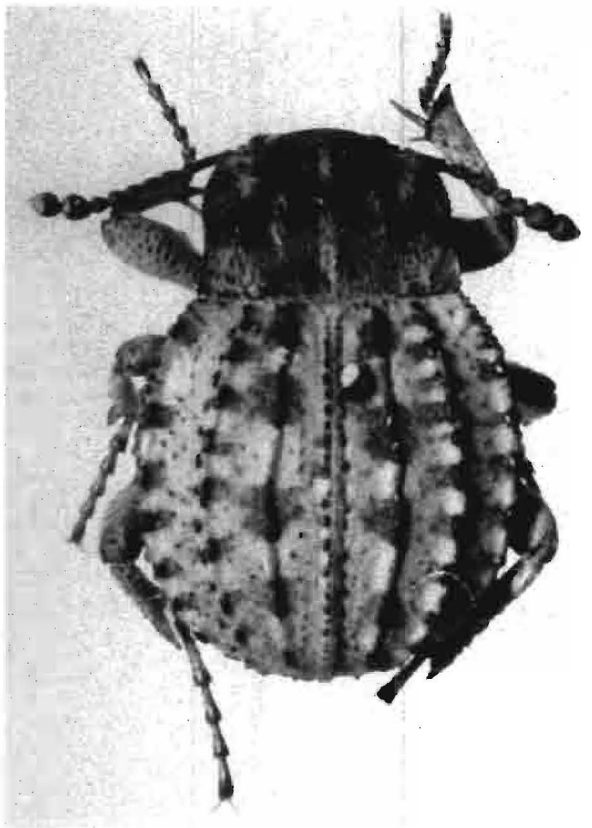
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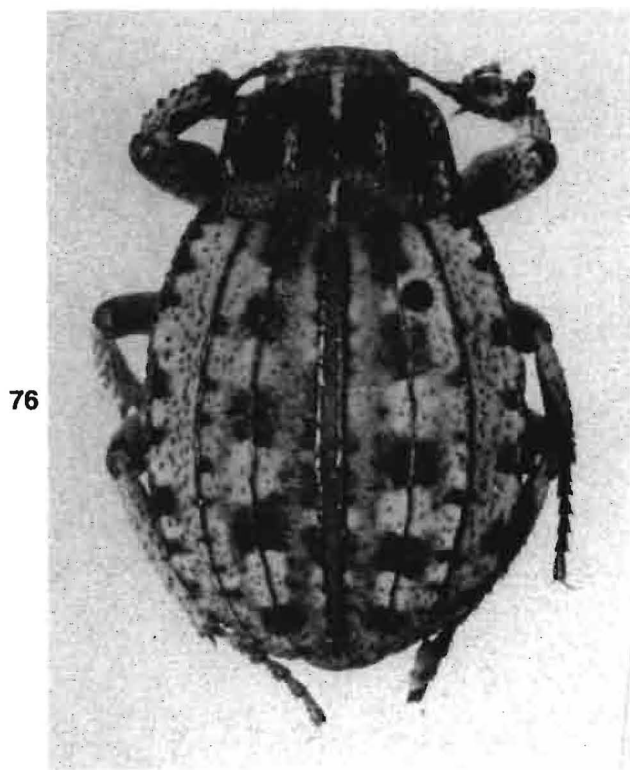
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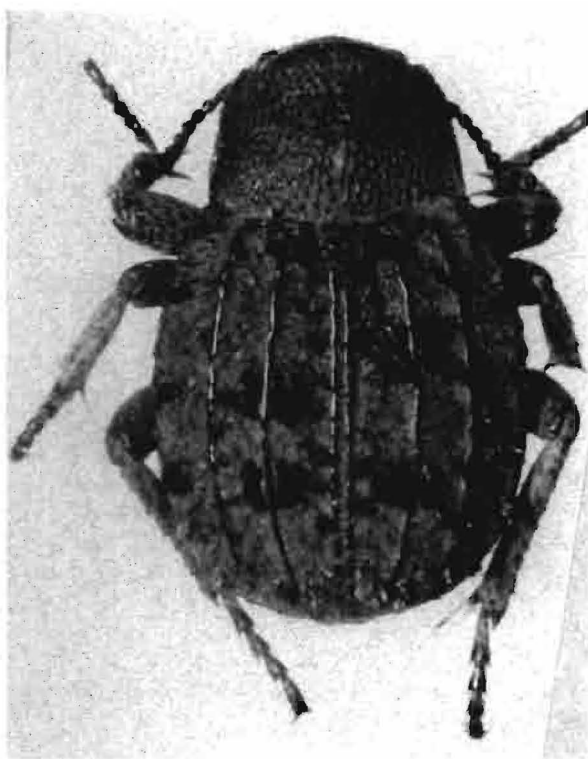
Figs 72–75. 72: *Cryptochile arcuata whiteheadi* subspec. nov.; 73: *Cryptochile namaquana* spec. nov.; 74: *Cryptochile protibialis* spec. nov.; 75: *Cryptochile fallax grandior* subspec. nov.



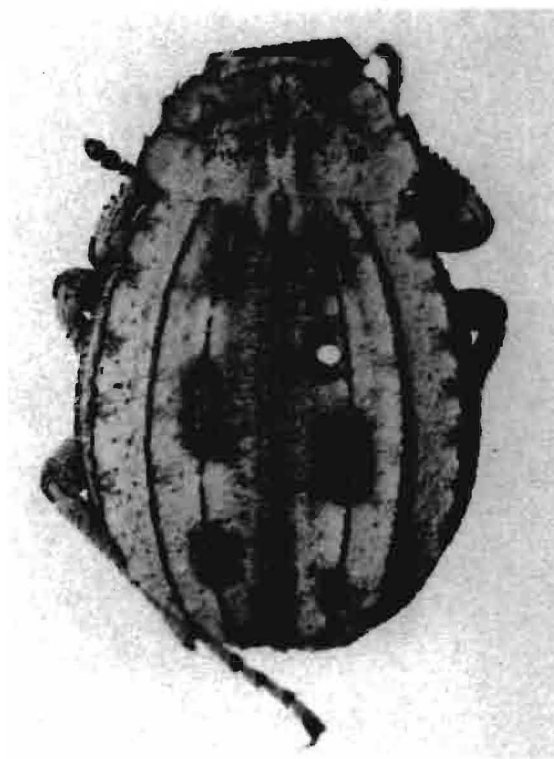
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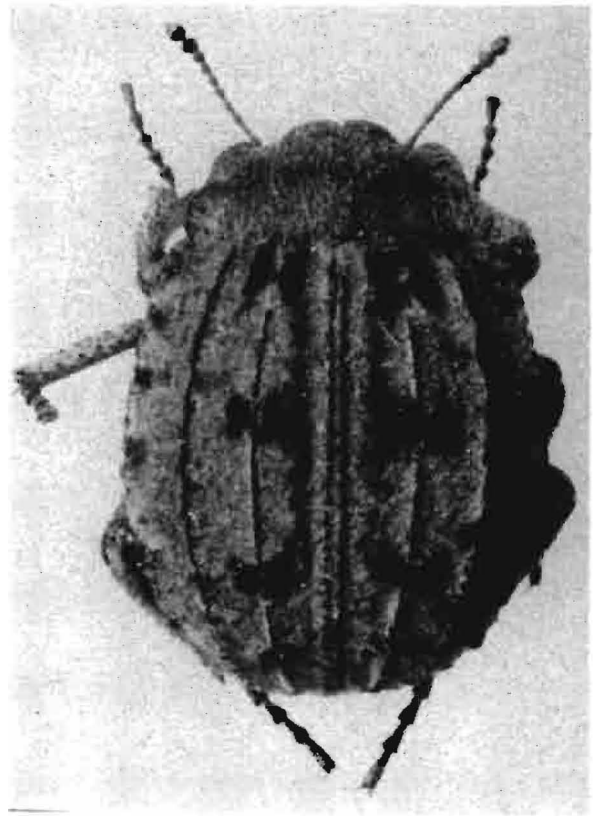
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Figs 76–79. 76: *Cryptochile montiscedris* spec. nov.; 77: *Cryptochile angulicollis* spec. nov.; 78: *Cryptochile setipennis* spec. nov.; 79: *Cryptochile dimorphisterna* spec. nov.

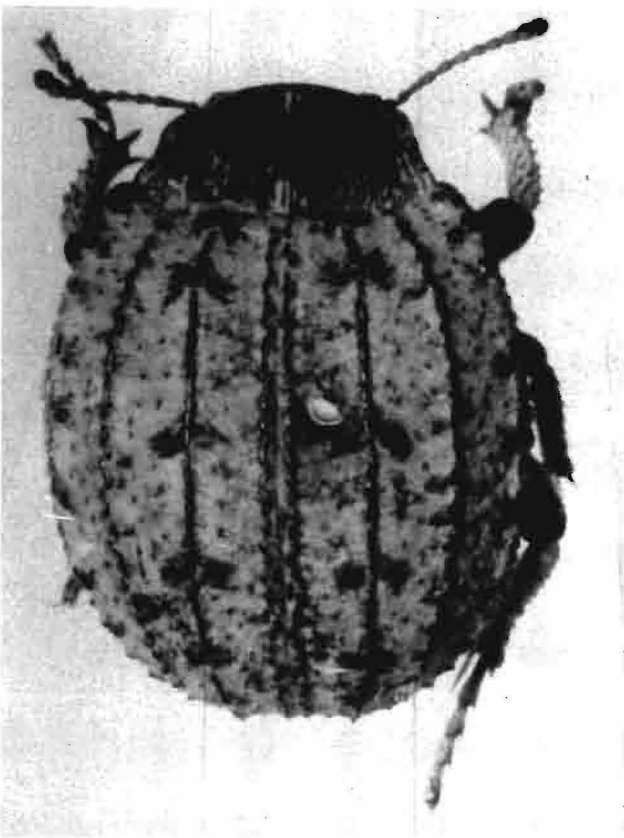
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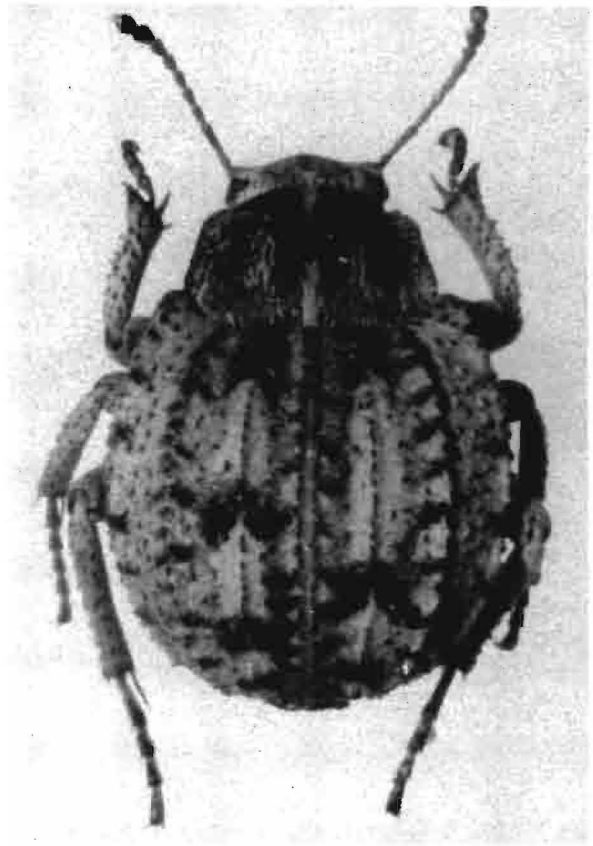
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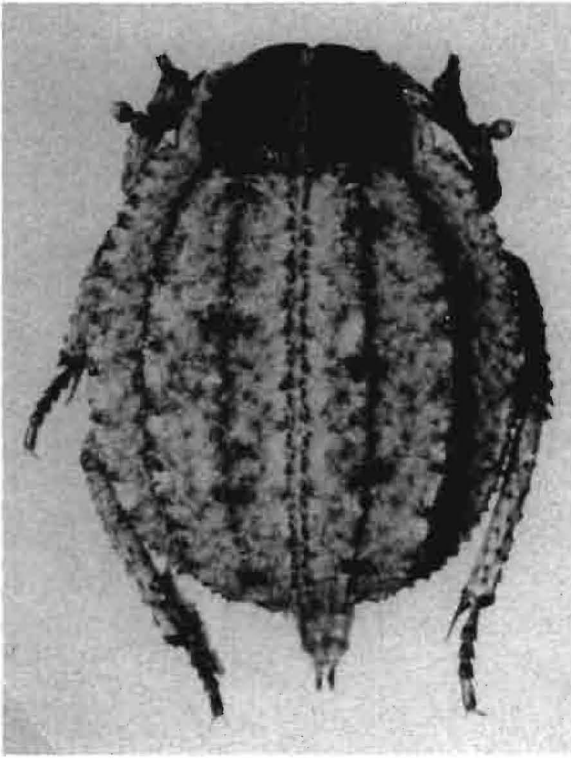


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Figs 80–83. 80: *Cryptochile crassicollis* spec. nov.; 81: *Cryptochile supramontis* spec. nov.; 82: *Cryptochile hessei* spec. nov.; 83: *Cryptochile karrooensis* spec. nov.

84



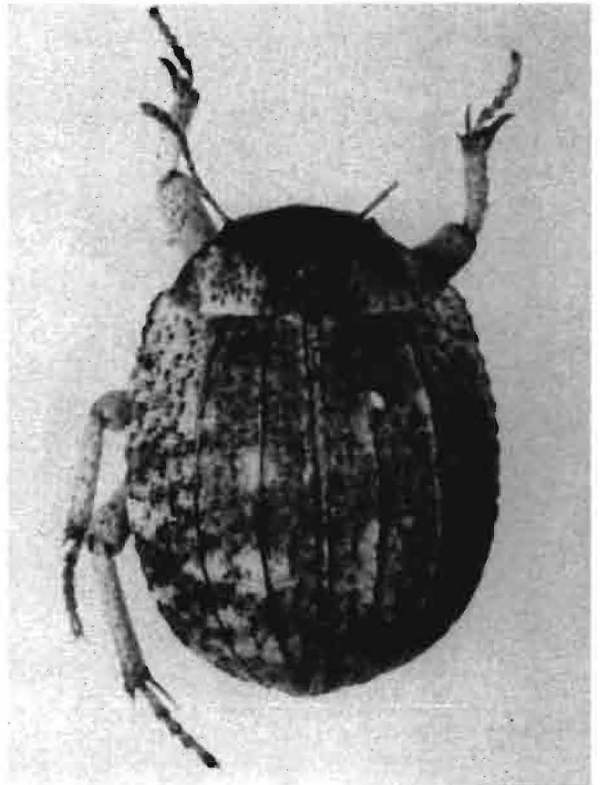
85



86



87



Figs 84–87. 84: *Cryptochile digitalis* spec. nov.; 85: *Cryptochile rotundior* spec. nov.; 86: *Cryptochile unicastata* spec. nov.; 87: *Cryptochile epistomalis* spec. nov.

References

- ACOCKS, J. P. H., 1988. Veld types of South Africa, 3rd edn. *Memoirs of the Botanical Survey of South Africa* No. 57: 1–146.
- CASTELNAU DE LAPORTE, F. L., 1840. *Histoire naturelle des insectes. Vol. 2: Histoire naturelle et iconographie des coléoptères*. P. Dumenil, Paris.
- ENDRÓDY-YOUNGA, S., 1989. Restructuring of the tribe Cryptochilini (Coleoptera: Tenebrionidae: Tentyriinae). *Annals of the Transvaal Museum* 35(6): 109–145.
- ERICHSON, W. F., 1843. Beitrag zur Insekten-Fauna von Angola. *Archiv für Naturgeschichte* 9: 199–267.
- FABRICIUS, J. C., 1781. *Species insectorum exhibentes eorum natalia, differentias specificas, synonyma auctorum, loca metamorphosin, adiectis observationibus, descriptionibus*. Vol. 1. Carl-Ernst Bohn, Hamburg.
- FABRICIUS, J. C., 1801. *Systema eleutheratorum secundum ordines, genera, species*. Vol. 1. Impensis Bibliopoli Academici Novi, Kiliae.
- GEBIEN, H., 1910. *Coleopterorum catalogus, pars 15, Tenebrionidae*. I. W. Junk, Berlin.
- GEBIEN, H., 1920. Käfer aus der Familie Tenebrionidae gesammelt auf der "Hamburger deutschsüdwestafrikanischen Studienreise 1911". *Abhandlungen der Hamburg Universität* 5: 1–168.
- GEBIEN, H., 1937. *Katalog der Tenebrioniden (Col. Heteromera). Teil 1*. Tipografia D. del Bianco e Figlio, Udine.
- GEBIEN, H., 1938. Die Tenebrioniden (Coleoptera, Heteromera) der Namib-Wüste in Südwestafrika. *Abhandlungen von naturwissenschaftlichen Verein zu Bremen* 30: 20–107.
- GERSTAECKER, A., 1854. Bearbeitung der Diagnosen der von Peters Mossambique gesammelten Käfer und Hymenopteren, aus der Familie der Melasomen. *Sitzberichte der preussische Akademie für Wissenschaft* 1854: 530–534.
- GERSTAECKER, A., 1862. Melasoma. In: PETERS, W. C. H., *Naturwissenschaftliche Reise nach Mossambique in den Jahren 1842 bis 1848*. Berlin.
- GRIDELLI, E., 1940. Coleotteri dell'Africa orientale Italiana. 11 contributo. Materiali per lo studio della fauna Eritrea raccolti nel 1901–03 dal Dott. Alfredo Andreini. *Memorias della Societa entomologica italiana* 18: 219–258.
- GUÉRIN-MÉNÉVILLE, F. E., 1836. Description du genre *Calognathus, C. chevrolati*. *Magasin de Zoologie, d'Anatomie comparée et de Palaeontologie* (1)6: 172.
- HAAG-RUTENBERG, C., 1872. Monographie der Cryptochilinen. *Berliner entomologische Zeitschrift* 16: 273–313.
- HAAG-RUTENBERG, C., 1878. Beschreibung neuer Arten von Heteromeren als Nachtrag zu Monographien. *Mitteilungen der Münchener entomologische Verein* 2: 77–95.
- HERBST, J. F. W., 1799. Der Käfer. In: JABLONSKY, C. G., *Natursystem aller bekannten in- und ausländischen Insekten, als eine Fortsetzung der von Buffonschen Naturgeschichte*. Vol. 8. Geh. Commerzien – Raths Pauli, Berlin.
- KOCH, C., 1950. The Tenebrionidae of southern Africa. 1. First account of the Tenebrionidae collected on the University of California - Transvaal Museum Expedition, 1948. *Annals of the Transvaal Museum* 21: 273–267.
- KOCH, C., 1952. The Tenebrionidae of southern Africa. VI. The Angolan Cryptochilini. *Publicações culturais de Companhia Diamantes de Angola* 15: 37–90.
- KOCH, C., 1953. The Tenebrionidae of southern Africa. XI. New Epitragini and Cryptochilini from the British Museum. *Proceedings of the Royal Entomological Society* (9/10)22: 155–163.
- KOCH, C., 1955. Monograph of the Tenebrionidae of southern Africa. 1. (Tentyriinae, Molurini – Trachynotina: *Somaticus* Hope). *Transvaal Museum Memoir* No. 7: 1–242.
- KOCH, C., 1957. The Tenebrionidae of southern Africa. XXXV. Two new Cryptochilini from Little Namaqualand. *Annals of the Transvaal Museum* 23(1): 103–108.
- KOCH, C., 1958. Tenebrionidae of Angola. *Publicações culturais de Companhia de Diamantes de Angola* 39: 11–231.
- KOCH, C., 1962. The Tenebrionidae of southern Africa. XXXII. New psammophilous species from the Namib desert. *Annals of the Transvaal Museum* 24: 61–106.
- LACORDAIRE, J. T., 1859. *Histoire naturelle des insectes. Généra des coléoptères. Vol. 5. Tenebrionides – Oedermerides*. Roret, Paris.
- LATREILLE, P. A., 1829. *Les crustacés, les arachnides et les insectes. Cuvier's Le règne animal, 2nd ed. V*. Paris.
- OLIVIER, A., 1795. *Entomologie, ou histoire naturelle des insectes, avec leurs caractères génériques et spécifiques, leur description, leur synonymie, et leur figure enluminée*. Vol. 3. Lanneau, Paris.
- PENRITH, M.-L., 1973. Redescription of *Pachynotelus kuehnelti* Koch, 1962 (Coleoptera: Tenebrionidae: Cryptochilini). *Cimbebasia* (A)2: 125–130.
- PENRITH, M.-L., 1986a. Relationships in the tribe Adesmiini (Coleoptera: Tenebrionidae) and a revision of the genus *Stenodesia* Reitter. *Annals of the Transvaal Museum* 34: 275–302.
- PENRITH, M.-L., 1986b. Revision of the Zophosini (Coleoptera: Tenebrionidae) Part 10. Key to the subgenera, supplement, evolution and biogeography of the tribe, and catalogue. *Cimbebasia* (A)6: 417–502.
- PÉRINGUEY, L., 1886. Second contribution to the South African coleopterous fauna. *Transactions of the South African Philosophical Society* 4(2): 67–194.
- PÉRINGUEY, L., 1899. Fifth contribution to the South African coleopterous fauna. *Annals of the South African Museum* 1: 240–330.
- PÉRINGUEY, L., 1904. Sixth contribution to the South African coleopterous fauna. *Annals of the South African Museum* 3: 167–300.
- PIC, M., 1912. Coléoptères exotiques nouveaux ou peu connus. *Exchange Moulins* 28: 29–32.
- SOLIER, A. J. J., 1840. Essai d'une division des coléoptères hétéromères et d'une monographie de la famille Collap-térides. *Annales de la Société entomologique de France* 9: 207–370.
- STRAND, E., 1935. Miscellanea nomenclatoria zoologica et palaeontologica. *Folia zoologica et hydrobiologica* 7: 300–306.
- THUNBERG, C. P., 1784. *Donatio thunbergiana. Dissertationes: Uppsala. Museum naturalium academiae upsaliensis. Pars 3*.
- WATT, J. C., 1974. A revised subfamily classification of Tenebrionidae. *New Zealand Journal of Zoology* 1: 381–452.
- ZIMSEN, E., 1964. *The type material of I. C. Fabricius*. Munksgaard, Copenhagen.

Catalogue of the *Cryptochilini*

Tribe CRYPTOCHILINI

Type genus: *Cryptochile* Latreille, 1829.

Cryptochilini Solier, 1840: 248; Lacordaire, 1859: 87;
Haag, 1872: 273; Gebien, 1910: 191; Koch, 1952:
39, 1955: 13, 1962: 124; Endrödy-Younga, 1989:
111 *sensu novo*.

Subtribe CRYPTOCHILINA

Cryptochilini Solier, 1840: 248; Lacordaire, 1859: 87;
Haag, 1872: 273; Gebien, 1910: 115, 1937: 191;
Koch, 1952: 39, 1955: 13, 1962: 124.
Cryptochilina Endrödy-Younga, 1989: 113.

Genus HORATOMELLA Penrith & Endrödy-Younga

Penrith & Endrödy-Younga, 1994: 7.

Type species: *Parapachynotela johni* Koch, 1957.

Distribution. Northern Namaqualand.

johni Koch, 1957: 105; Penrith & Endrödy-Younga, 1994: 8.
Namaqualand.

louwi Penrith & Endrödy-Younga, 1994: 8.
Namaqualand.

piliscutata Penrith & Endrödy-Younga, 1994: 9.
Namaqualand.

Genus HORATOMA Solier

Solier, 1840: 364; Haag, 1872: 274, 309; Gebien, 1910:
116, 1937: 193; Koch, 1952: 47; Penrith & Endrödy-
Younga, 1994: 10.

Type species: *Horatoma parvula* Solier, 1840.

Horatomodes Haag, 1872: 305; Gebien, 1910: 116, 1937: 193;
Koch, 1952: 81.

Saccophorus (*nec* Kuhl) Haag, 1872: 303 (*nom. preocc.*); Gebien,
1910: 116.

Saccophorella Strand, 1935: 303.

Parapachynotela Koch, 1952: 54.

Distribution. Southwestern Cape to northern Namibia;
one species recorded from Transvaal.

parvula Solier, 1840: 267; Haag, 1872: 309; Gebien,
1910: 116, 1937: 193; Koch, 1957: 105; Penrith &
Endrödy-Younga, 1994: 14.
Western Cape.

var. *sedecimcostata* Solier, 1840: 267; Haag, 1872: Gebien,
1910: 117, 1937: 193.

pulchra Koch, 1957: 103; Penrith & Endrödy-Younga,
1994: 15.
Namaqualand.

levis Penrith & Endrödy-Younga, 1994: 16.
Southern Namib Desert.

hessei Penrith & Endrödy-Younga, 1994: 17.
Southwestern Cape.

thoracica Penrith & Endrödy-Younga, 1994: 19.
Namaqualand.

ovula Penrith & Endrödy-Younga, 1994: 19.
Namaqualand.

diabolica Penrith & Endrödy-Younga, 1994: 20.
Namaqualand.

porosa Penrith & Endrödy-Younga, 1994: 21.
Southern Namib Desert.

tomentifera Penrith & Endrödy-Younga, 1994: 22.
Southern Namib Desert.

altera Penrith & Endrödy-Younga, 1994: 23.
Southwestern Cape.

irregularis Haag, 1878: 84; Gebien, 1910: 116, 1937: 193;
Penrith & Endrödy-Younga, 1994: 24.
Karoo.

praetoriusi Koch, 1952: 83 (*Horatomodes*); Penrith &
Endrödy-Younga, 1994: 24.
Western Kalahari.

hereroensis Koch, 1952: 83 (*Horatomodes*); Penrith &
Endrödy-Younga, 1994: 25.
Northern Namibia, Southern Angola.

scherzi Koch, 1952: 84 (*Horatomodes*); Penrith &
Endrödy-Younga, 1994: 26.
Central Namibia.

minimus Koch, 1952: 84 (*Horatomodes*).

delicata Penrith & Endrödy-Younga, 1994: 26.
Northern Namib Desert.

schulzeae Penrith & Endrödy-Younga, 1994: 28.
Northern Namib Desert.

deserticola Penrith & Endrödy-Younga, 1994: 29.
Central Namib Desert.

rupicola Penrith & Endrödy-Younga, 1994: 30.
South-central Namib Desert.

pronamibensis Penrith & Endrödy-Younga, 1994: 31.
South-central Namib Desert.

humidens Penrith & Endrödy-Younga, 1994: 32.
South-central Namib Desert.

nocturna Penrith & Endrödy-Younga, 1994: 33.
South-central Namib Desert.

rupestris Penrith & Endrödy-Younga, 1994: 34.
Central Namib Desert.

singularis Penrith & Endrödy-Younga, 1994: 35.
Central Namib Desert.

minuta Penrith & Endrödy-Younga, 1994: 36.
Namaqualand.

bushmanica Koch, 1952: 62 (*Parapachynotela*); Penrith &
Endrödy-Younga, 1994: 38.
Northwestern Cape.

cretacea Koch, 1952: 63 (*Parapachynotela*).

carinulata Gebien, 1920: 79 (*Horatomodes*), 1937: 193;
Koch, 1952: 61 (*Parapachynotela*); Penrith &
Endrödy-Younga, 1994: 39.
Southern Namib Desert.

eberlanzi Gebien, 1938: 82 (*Pachynotelus*); Koch, 1952:
61 (*Parapachynotela*); Penrith & Endrödy-Younga,
1994: 39.
Southern Namib Desert.

striolidiscus Koch, 1952: 61 (*Parapachynotela*, subspecies
of *eberlanzi*); Penrith & Endrödy-Younga 1994: 40.
Southern Namib Desert.

tessellata Gebien, 1920: 73, 78 (*Pachynotelus*), 1937:
193; Koch 1952: 56 (*Parapachynotela*). Penrith &
Endrödy-Younga 1994: 40.
Southern Namib Desert; Namaqualand.

batesi Haag, 1872: 305 (*Horatomodes*); Gebien, 1910:
116, 1937: 193; Koch, 1952: 81 (*Horatomodes*);
Penrith & Endrödy-Younga, 1994: 41.
Southern Namib Desert.

granulatula Koch, 1952: 60 (*Parapachynotela*).

richtersveldea Koch, 1952: 60 (*Parapachynotela*); Penrith
& Endrödy-Younga, 1994: 42.
Namaqualand.

apicalis Penrith & Endrödy-Younga, 1994: 42.
Southern Namib Desert.

piscefluminis Penrith & Endrödy-Younga, 1994: 44.
Southern Namib Desert.

spinipes Koch, 1952: 58 (*Parapachynotela*); Penrith &
Endrödy-Younga, 1994: 45.
Northern Namibia.

grisea Koch, 1952: 58 (*Parapachynotela*, subspecies of

- spinipes*).
aureosetosa Koch, 1952: 56 (*Parapachynotela*).
munroi Koch, 1952: 58 (*Parapachynotela*); Penrith & Endrödy-Younga, 1994: 46. Northern Transvaal.
peringueyi Koch, 1952: 59 (*Parapachynotela*); Penrith & Endrödy-Younga, 1994: 46. Namaqualand.
pulcherrima Koch, 1952: 48 (*Saccophorella*); Penrith & Endrödy-Younga, 1994: 47. Northwestern Cape.
tuberculata Haag, 1872: 310; Gebien, 1910: 117, 1937: 193; Koch, 1952: 52 (*Saccophorella*); Penrith & Endrödy-Younga, 1994: 48. Namaqualand.
squamicollis Koch, 1952: 49 (*Saccophorella*); Penrith & Endrödy-Younga, 1994: 48. Northwestern Cape.
horatomoides Koch, 1952: 54 (*Saccophorella*). Penrith & Endrödy-Younga, 1994: 49. Namaqualand.
striata Penrith & Endrödy-Younga, 1994: 49. Namaqualand.
antennalis Koch, 1952: 54 (*Saccophorella*); Penrith & Endrödy-Younga, 1994: 49. Namaqualand.
dutoitii Penrith & Endrödy-Younga, 1994: 50. Namaqualand.
convexicollis Penrith & Endrödy-Younga, 1994: 51. Namaqualand.
crenulata Haag, 1872: 304 (*Saccophorus*); Strand, 1935: 303 (*Saccophorella*); Gebien, 1910: 116, 1937: 193; Koch, 1952: 52 (*Saccophorella*); Penrith & Endrödy-Younga, 1994: 51. Namaqualand.
namaquoides Koch, 1952: 52 (*Saccophorella*, subspecies of *crenulata*).
namaqua Koch, 1952: 52 (*Saccophorella*).
namaquula Koch, 1952: 53 (*Saccophorella*).
fitzsimonsi Koch, 1952: 54 (*Saccophorella*).
angulata Penrith & Endrödy-Younga, 1994: 52. Namaqualand.
cephalica Koch, 1952: 50 (*Saccophorella*); Penrith & Endrödy-Younga, 1994: 53. Southern Namaqualand.
pantherina Koch, 1952: 51 (*Saccophorella*, subspecies of *cephalica*).
lentiginosa Koch, 1952: 50 (*Saccophorella*).
callosa Koch, 1952: 49 (*Saccophorella*); Penrith & Endrödy-Younga, 1994: 54. Southern Namaqualand.
- Genus PACHYNOTELUS Solier**
 Solier, 1840: 267; Lacordaire, 1859: 89; Haag, 1872: 306; Gebien, 1910: 117, 1937: 193; Koch, 1952: 65; Penrith & Endrödy-Younga, 1994: 54.
 Type species: *Pachynotelus albiventris* Solier, 1840.
Fossilochile Koch, 1952: 63.
- Distribution.** Namaqualand to southern Angola.
- damarinus* Penrith & Endrödy-Younga, 1994: 57. Northern Namib Desert.
punctipennis Penrith & Endrödy-Younga, 1994: 58. Northern Namib Desert.
ponderosus Penrith & Endrödy-Younga, 1994: 58. Northern Namib Desert.
machadoi Koch, 1952: 74; Penrith & Endrödy-Younga, 1994: 59. Northern Namib Desert.
laevimargo Koch, 1952: 75 (subspecies of *machadoi*).
tigrum Koch, 1958: 61 (subspecies of *machadoi*).
herminiferus Koch, 1958: 62.
comma Gebien, 1920: 77, 1937: 194; Koch, 1952: 69, 76; Penrith & Endrödy-Younga, 1994: 60. Southern Namib Desert.
niveus Koch, 1952: 77 (subspecies of *comma*).
damarensis Koch, 1952: 69 (subspecies of *comma*).
granaticollis Gebien, 1920: 74, 1937: 194; Koch, 1952: 79; Penrith & Endrödy-Younga, 1994: 61. Southern Namib Desert.
streyi Koch, 1952: 73; Penrith & Endrödy-Younga, 1994: 62. Central Namib Desert.
scaccarium Koch, 1952: 80; Penrith & Endrödy-Younga, 1994: 62. Southwestern Kalahari to Namaqualand.
albostriatus Haag, 1872: 308; Gebien, 1910: 117, 1937: 194; Koch, 1952: 68; Penrith & Endrödy-Younga, 1994: 63. Central Namib Desert.
lineatus Haag, 1878: 85; Gebien, 1910: 117, 1937: 194; Koch, 1952: 68.
junior Koch, 1952: 67 (subspecies of *strigicollis*).
strigicollis Gebien, 1920: 71, 1937: 193; Koch, 1952: 30; Penrith & Endrödy-Younga, 1994: 64. Southern Namib Desert.
albonotatus Haag, 1872: 308; Gebien, 1910: 117, 1937: 193; Koch, 1952: 68; Penrith & Endrödy-Younga, 1994: 65. South-central Namib Desert.
kuehnelti Koch, 1962: 126; Penrith, 1973: 126; Penrith & Endrödy-Younga, 1994: 65. Southern Namib Desert.
albiventris Solier, 1840: 267; Haag, 1872: 308; Gebien, 1910: 117, 1937: 194; Koch, 1952: 71; Penrith & Endrödy-Younga, 1994: 66. Namaqualand.
leopardinus Koch, 1952: 71.
catulus Koch, 1952: 73; Penrith & Endrödy-Younga, 1994: 67. Southern Namib Desert to Namaqualand.
striolipennis Koch, 1952: 71; Penrith & Endrödy-Younga, 1994: 67. Namaqualand.
dimorphus Koch, 1952: 71; Penrith & Endrödy-Younga, 1994: 68. Southern Namib Desert to Namaqualand.
kaszabi Koch, 1952: 70; Penrith & Endrödy-Younga, 1994: 69. Lower Orange River.
adamantinus Penrith & Endrödy-Younga, 1994: 69. Southern Namib Desert.
rufus Koch, 1952: 63 (*Fossilochile*); Penrith & Endrödy-Younga, 1994: 70. Southern Namib Desert.
kochi Penrith & Endrödy-Younga, 1994: 71. Southern Namib Desert.
haagi Péringuey, 1899: 250; Gebien, 1910: 117, 1937: 193; Koch, 1952: 78; Penrith & Endrödy-Younga, 1994: 71. Lower Orange River.
garipepinus Koch, 1952: 78.
leucinus Koch, 1952: 78; Penrith & Endrödy-Younga, 1994: 72. Southern Namib Desert.
namibensis Koch, 1952: 77; Penrith & Endrödy-Younga, 1994: 73. Southern Namib Desert.

longipilis Gebien, 1920: 75, 1937: 193; Koch, 1952: 76; Penrith & Endrödy-Younga, 1994: 74. Southern Namib Desert.

Genus *EPIPAGUS* Haag

Haag, 1872: 311; Gebien, 1910: 117, 1937: 194; Koch, 1952: 85; Penrith & Endrödy-Younga, 1994: 75.

Type species: *Epipagus benguelensis* Haag, 1872.

Distribution. Southwestern Angola.

luridus Haag, 1878: 86; Gebien, 1910: 117, 1937: 194; Koch, 1952: 86; Penrith & Endrödy-Younga, 1994: 76. Southwestern Angola.

argentescens Koch, 1952: 87.

benguelensis Haag, 1872: 312; Gebien, 1910: 117, 1937: 194; Koch, 1952: 86; Penrith & Endrödy-Younga, 1994: 76. Southwestern Angola.

angolensis Koch, 1952: 86; Penrith & Endrödy-Younga, 1994: 77. Southwestern Angola.

Genus *CYCHROCHILE* Koch

Koch, 1953: 160; Penrith & Endrödy-Younga, 1994: 77.

Type species: *Cychrochile erodioides* Koch, 1953.

Distribution. Kalahari to Mozambique and Eastern Transvaal.

erodioides Koch, 1953: 160; Penrith & Endrödy-Younga, 1994: 78. Kalahari.

grisea Penrith & Endrödy-Younga, 1994: 78. Eastern Mozambique.

krugeri Penrith & Endrödy-Younga, 1994: 79. Northeastern Transvaal.

pluricostata Penrith & Endrödy-Younga, 1994: 80. Northeastern Transvaal.

Genus *ORIENTOCHILE* Penrith

Penrith & Endrödy-Younga, 1994: 82.

Type species: *Cryptochile elegans* Gerstaecker, 1854.

Distribution. East Africa.

elegans Gerstaecker, 1854: 531 (*Cryptochile*), 1862: 278; Haag, 1872: 301; Gebien, 1910: 115, 1937: 193; Gridelli, 1940: 459; Koch, 1953: 159; Penrith & Endrödy-Younga, 1994: 82. Eastern Africa.

sordida Gerstaecker, 1854: 531 (*Cryptochile*), 1862: 279; Haag, 1872: 302; Gebien, 1910: 116, 1937: 193; Koch, 1953: 159 (synonym of *elegans*).

patrizii Gridelli, 1940: 460 (*Cryptochile*); Koch, 1953: 159 (subspecies of *elegans*).

multicostata Koch, 1953: 157; Penrith & Endrödy-Younga, 1994: 83. East Africa.

Genus *CRYPTOCHILE* Latreille

Latreille, 1829: 7 (*Cryptochyle*); Solier, 1840: 248; Lacordaire, 1859: 88; Haag, 1872: 274; Gebien, 1910: 115, 1937: 192; Gridelli, 1940: 459; Penrith & Endrödy-Younga, 1994: 85.

Type species: *Pimelia maculata* Fabricius, 1781.

Distribution. Southern Cape Province to southern Angola.

assimilis Solier, 1840: 263; Haag, 1872: 298; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 89. Southern Cape.

gayi Solier, 1840: 262; Haag, 1872: 298 (synonym of *assimilis*).

crassipes Solier, 1840: 264; Haag, 1872: 298 (synonym of *assimilis*).

arcuata Penrith & Endrödy-Younga, 1994: 90. Southwestern Cape.

subspecies *whiteheadi* Penrith & Endrödy-Younga, 1994: 91.

inflata Haag, 1878: 82; Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 91. Southern Namaqualand.

namaquana Penrith & Endrödy-Younga, 1994: 92. Namaqualand.

subspecies *curtisetosa* Penrith & Endrödy-Younga, 1994: 93.

subspecies *crassisculpta* Penrith & Endrödy-Younga, 1994: 94.

subspecies *setosissima* Penrith & Endrödy-Younga, 1994: 94.

protibialis Penrith & Endrödy-Younga, 1994: 94. Southwestern Cape.

fallax Solier, 1840: 228; Haag, 1872: 294; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 95. Southwestern Cape.

subspecies *grandior* Penrith & Endrödy-Younga, 1994: 96.

montiscedris Penrith & Endrödy-Younga, 1994: 96. Southwestern Cape.

affinis Haag, 1872: 295; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 98. Southwestern Cape.

angulicollis Penrith & Endrödy-Younga, 1994: 99. Southwestern Cape.

setipennis Penrith & Endrödy-Younga, 1994: 100. Southwestern Cape.

decorata Solier, 1840: 255; Haag, 1872: 303, 1878: 83; Gebien, 1910: 115, 1937: 193; Penrith & Endrödy-Younga, 1994: 100. Southwestern Cape.

dimorphisterna Penrith & Endrödy-Younga, 1994: 101. *minuta* Fabricius, 1781: 318 (*Pimelia*); Olivier 1795: 29; Haag, 1872: 296 (*Cryptochile*); Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 102. Southwestern Cape.

penicillata Solier, 1840: 257; Haag, 1872: 296 (synonym of *minuta*).

bipunctata Haag, 1872: 285; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 103. Southwestern Cape, southern Karoo.

undata Haag, 1872: 288; Gebien, 1910: 116, 1937: 192.

porosa Herbst, 1799: 109 (*Pimelia*); Haag, 1872: 292 (*Cryptochile*); Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 104. Southwestern Cape, southern Karoo.

puncticosta Haag, 1872: 293; Gebien, 1910: 116, 1937: 192.

denticollis Haag, 1872: 289; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 105. Southwestern Cape.

crassicollis Penrith & Endrödy-Younga, 1994: 106. Southwestern Cape.

supramontis Penrith & Endrödy-Younga, 1994: 107. Southwestern Cape.

circulum Haag, 1872: 299; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 108. Southern Cape.

globulum Solier, 1840: 259; Haag, 1872: 300; Gebien, 1910: 115 (*globulus*), 1937: 192; Penrith & Endrödy-Younga, 1994: 108. ?Cape.

trilineatum Solier, 1840: 261; Haag, 1872: 300 (synonym of *globulum*).

hessei Penrith & Endrödy-Younga, 1994: 109. Karoo.

- karroensis* Penrith & Endrödy-Younga, 1994: 110.
Karoo.
- digitalis* Penrith & Endrödy-Younga, 1994: 111.
Karoo.
- rotundior* Penrith & Endrödy-Younga, 1994: 112.
Karoo.
- tomentosa* Herbst, 1799: 105 (*Pimelia*); Haag, 1872: 283 (*Cryptochile*); Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 112.
Southwestern Cape to Namaqualand.
- pusilla* Herbst, 1799: 107 (*Pimelia*).
- punctatus* Thunberg, 1784: 123 (*Erodium*; *nom. preocc.*).
- costata* Fabricius, 1801: 132 (*Pimelia*); Solier, 1840: 252 (*Cryptochile*); Haag, 1872: 286; Gebien, 1910: 115, 1937: 192.
- distinctum* Solier, 1840: 254; Haag, 1872: 284 (synonym of *tomentosa*).
- vicinum* Solier, 1840: 286; Haag, 1872: 286 (synonym of *tomentosa*); Gebien, 1910: 116, 1937: 192 (variety of *tomentosa*).
- curta* Haag, 1872: 287; Gebien, 1910: 115, 1937: 192.
- maculata* Fabricius, 1781: 317 (*Pimelia*); Olivier 1795: 28; Haag, 1872: 279 (*Cryptochile*); Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 114.
Namaqualand.
- granulata* Haag, 1872: 282; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 114.
Namaqualand.
- maculatum* (*nec* Fabricius) Solier, 1840: 251.
- tessulata* Haag, 1872: 281; Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 116.
Karoo.
- echinata* Fabricius, 1781: 317 (*Pimelia*); Olivier 1795: 37; Herbst 1799: 94; Haag, 1872: 278 (*Cryptochile*); Péringuey, 1899: 249, 1904: 296; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 117.
Southwestern Cape.
- subspecies *serrata* Péringuey, 1899: 250; Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 117.
- spinosa* Péringuey, 1886: 121; Gebien, 1910: 116, 1937: 192; Penrith & Endrödy-Younga, 1994: 118.
Southwestern Cape to southern Namaqualand.
- consita* Haag, 1872: 291; Gebien, 1910: 115, 1937: 192; Penrith & Endrödy-Younga, 1994: 118.
Throughout interior of southwestern Africa.
- concava* Gebien, 1920: 70, 1937: 192; Penrith & Endrödy-Younga, 1994: 119.
Southwestern Kalahari.
- unicostata* Penrith & Endrödy-Younga, 1994: 120.
Northern Namaqualand.
- carpi* Koch, 1952: 43; Penrith & Endrödy-Younga, 1994: 121.
Northern Namib Desert.
- subspecies *laevipleura* Koch, 1952: 44; Penrith & Endrödy-Younga, 1994: 122.
- subspecies *angolensis* Penrith & Endrödy-Younga, 1994: 122.
- grossa* Erichson, 1843: 242; Haag, 1872: 290; Gebien, 1910: 115, 1937: 192; Koch, 1952: 44; Penrith & Endrödy-Younga, 1994: 122.
Southwestern Angola.
- denudata* Koch, 1952: 45 (subspecies of *grossa*)
- epistomalis* Penrith & Endrödy-Younga, 1994: 124.
Southwestern Angola.
- subspecies *litoralis* Penrith & Endrödy-Younga, 1994: 125.

Genus *CERASOMA* Endrödy-Younga

Endrödy-Younga, 1989: 113.

Type species: *Cerasoma cerasus* Endrödy-Younga, 1989: 113.

- irreale* Endrödy-Younga, 1989: 115.
Southwestern Cape.
- cerasus* Endrödy-Younga, 1989: 116.
Southern Namaqualand.
- kochi* Endrödy-Younga, 1989: 117.
Southwestern Cape.

Subtribe VANSONINA

- Vansonini Koch, 1955: 12, 1962: 124.
Vansonina Endrödy-Younga, 1989: 118.
Type genus: *Vansonium* Koch, 1950.

Genus *VANSONIUM* Koch

Koch, 1950: 355, 1955: 12, 1962: 124; Endrödy-Younga, 1989: 118.

Type species: *Vansonium bushmanicum* Koch, 1950.

Distribution. Western southern Africa.

- bushmanicum* Koch, 1950: 355, 1955: 12, 1962: 124; Endrödy-Younga, 1989: 118.
subspecies *bushmanicum* Koch, 1950: 355, 1955: 12, 1962: 124; Endrödy-Younga, 1989: 119.
Northwestern Cape, southern Namibia.
subspecies *namibense* Koch, 1962: 126; Endrödy-Younga, 1989: 119.
Southern Namib Desert.

Subtribe CALOGNATHINA

- Calognathini Lacordaire, 1859: 85; Gebien, 1937: 194, 1938: 78; Koch, 1950: 352, 1955: 12, 1962: 124.
Calognathina Endrödy-Younga, 1989: 120.
Type genus: *Calognathus* Guérin, 1836.

Genus *CALOGNATHUS* Guérin

- Guérin, 1836: 172; Gebien, 1937: 194, 1938: 78; Koch, 1950: 352, 1952: 186; Endrödy-Younga, 1989: 120.
Type species: *Calognathus chevrolati* Guérin, 1836.

Distribution. Western parts of southern Africa, from Namaqualand to Angola.

- chevrolati* Guérin, 1836: 172; Gebien, 1937: 194, 1938: 78; Koch, 1950: 352, 1952: 186; Endrödy-Younga, 1989: 120.
Namaqualand, Namib Desert, southern Angola.
subspecies *chevrolati* Guérin, 1836 (references as above); Endrödy-Younga, 1989: 122.
subspecies *eberlanzi* Koch, 1950: 354, 1952: 186; Endrödy-Younga, 1989: 122.
subspecies *lucanoides* Endrödy-Younga, 1989: 123.
subspecies *atricolor* Pic, 1912: 31; Gebien, 1937: 194, 1938: 78; Koch, 1952: 185 (subspecies of *chevrolati*), 1962: 125; Endrödy-Younga, 1989: 123.

Subtribe HOMEBIINA

- Endrödy-Younga, 1989: 124.
Type genus *Homebius* Endrödy-Younga, 1989.

Genus *HOMEBIUS* Endrödy-Younga

- Endrödy-Younga, 1989: 124.
Type-species: *Homebius kaszabi* Endrödy-Younga, 1989.

Distribution. Central Namib Desert.

- kaszabi* Endrödy-Younga, 1989: 124.
Central Namib Desert.

Gazetteer

A

Ababis = Abbabis, Namibia	23.56 S - 16.04 E
Abachaus = Abachaub, Namibia	19.47 S - 16.44 E
Abrahamskraal farm	33.14 S - 18.09 E
Agate Beach, Namibia	26.36 S - 15.10 E
Aggeneys = Aggeneis	29.12 S - 18.51 E
Agub Mt, Namibia	26.58 S - 15.58 E
Ameib, Namibia	21.49 S - 15.36 E
Anenus Pass	29.14 S - 17.40 E
Annisfontein	28.25 S - 16.52 E
Anniskop	28.23 S - 16.52 E
Arandis, Namibia	22.27 S - 14.59 E
Arasab Mt, Namibia	27.05 S - 16.19 E
Arechsadamaberg, Namibia	23.00 S - 15.37 E
Arniston	34.41 S - 20.18 E
Aroab, Namibia	26.48 S - 19.49 E
Aruab, Namibia	21.16 S - 14.42 E
Ashton	33.50 S - 20.04 E
Aughrabies = Aughrabies Falls	28.35 S - 20.21 E
Augusfontein	31.37 S - 19.22 E
Augustfelde, Namibia	26.36 S - 16.17 E
Aurus Mts, Namibia	27.39 S - 16.19 E
Aus, Namibia	26.41 S - 16.16 E
Awahuab (Bethanis), Namibia	20.24 S - 14.19 E
Awasib, Namibia	25.25 S - 15.29 E

B

Baia dos Tigres, Angola	16.36 S - 11.43 E
Baievlei (3 km SW)	31.24 S - 17.28 E
Bak River, Namibia	27.18 S - 19.18 E
Barby, Namibia	25.52 S - 16.35 E
Baviaanskop	28.56 S - 17.49 E
Beira, Mozambique	19.49 S - 34.52 E
Benguela, Angola	12.35 S - 13.20 E
Bethanis, Namibia	20.25 S - 14.24 E
Bidouw Pass	32.05 S - 19.15 E
Bitterfontein	31.02 S - 18.17 E
Blaauwberg	33.48 S - 18.27 E
Blackie's Prospect (= ?Prospecting shafts)	28.38 S - 17.03 E
Blinkoog, Namibia	27.40 S - 19.06 E
Bloeddrif, Orange River	28.21 S - 16.50 E
Bloemhof, Namibia	22.27 S - 15.17 E
Bogenfels (Mine), Namibia	27.27 S - 15.24 E
Bontebok National Park	34.04 S - 20.27 E
Boshof	31.52 S - 21.47 E
Bowesdorp	30.09 S - 17.52 E
Brackfontein farm	32.56 S - 18.15 E
Brakfontein, Richtersveld	28.56 S - 17.05 E
Brakrivier mouth	31.06 S - 17.44 E
Brandberg, Namibia	21.07 S - 14.33 E
Brandkaross	28.28 S - 16.40 E
Buchuberg Mts, Namibia	27.53 S - 15.54 E
Buffelsrivier	29.41 S - 17.04 E
Buffelsbaai	34.06 S - 22.59 E
Bulawayo, Zimbabwe	20.10 S - 28.35 E
Bulhoek = Bulshoek	32.01 S - 18.47 E
Bullsport, Namibia	24.10 S - 16.22 E
Burgersdorp	30.59 S - 26.19 E
Bynes Krans	30.20 S - 17.32 E

C

Caledon	34.13 S - 19.25 E
Calvinia	31.28 S - 19.46 E
Cape Columbine	32.49 S - 17.51 E
Cape Cross	21.47 S - 13.56 E
Cape Flats	34.02 S - 18.38 E
Cape Point	34.22 S - 18.30 E

Cape Town	33.55 S - 18.25 E
Cederberg	32.26 S - 19.13 E
Ceres	33.22 S - 19.19 E
Chanquas = Changas, Namibia	23.02 S - 15.57 E
Chefu River, Mozambique	22.13 S - 32.28 E
Chulon, Namibia	24.12 S - 17.47 E
Churutabis, Namibia	27.28 S - 17.26 E
Citrusdal	32.35 S - 19.01 E
Clanwilliam	32.11 S - 18.54 E
Claratal, Namibia	22.49 S - 16.47 E
Colesberg	30.44 S - 25.06 E
Coroca River see Curoca River	
Curoca River, Angola	15.43 S - 11.55 E

D

Dabenoris farm	28.58 S - 18.38 E
Daberas dunes, Namibia	28.13 S - 16.45 E
Daheim, Namibia	21.48 S - 15.50 E
Danse Kraal	29.48 S - 17.48 E
Darling	33.23 S - 18.23 E
De Aar	30.40 S - 24.00 E
De Doorns	33.29 S - 19.41 E
De Hoop farm	32.08 S - 22.24 E
Delhi (farm), Namibia	20.20 S - 15.43 E
Dembergsdraai farm	30.47 S - 17.43 E
Dickdorn	30.43 S - 18.00 E
Dikbome, Merweville (Koup dist.)	33.08 S - 21.16 E
Dolomite Peaks, Richtersveld	28.42 S - 17.02 E
Dolondolo, Angola	13.49 S - 13.07 E
Doornbosch	31.58 S - 19.17 E
Doomfontein farm	32.48 S - 18.17 E
Doompoort = Doringpoort	28.34 S - 16.56 E
Dordabis, Namibia	22.56 S - 17.43 E
Doringbaai	31.49 S - 19.01 E
Doringpoort	28.34 S - 16.56 E
Dreizackberg, Namibia: S. Namib; not traced	
Droë R., Namaqualand; not traced	
Duiker Island	32.43 S - 17.56 E
Duineveld, Namibia	20.47 S - 14.42 E
Dunedin	31.55 S - 22.25 E
Dutoitsebaai see Doringbaai	

E

Ebony, Namibia	22.04 S - 15.16 E
Eendracht	33.37 S - 19.53 E
Eksteenfontein see Stinkfontein	28.40 S - 17.24 E
Ehombé Mt = Ehomba Mts, Namibia	17.33 S - 13.52 E
Elands Bay	32.17 S - 18.20 E
Elands Bay Forestry	32.18 S - 18.21 E
Engo River, Namibia	17.48 S - 12.24 E
Erfdeel	29.20 S - 22.43 E
Erongo West, Namibia	21.40 S - 15.50 E
Eselsfontein	30.24 S - 18.05 E
Espinheira, Angola	16.47 S - 12.20 E

F

Farquarson	29.15 S - 17.19 E
Felseneck, Namibia	24.21 S - 16.00 E
Fish River Canyon, Namibia	27.37 S - 17.36 E
Franschoek = Franshoek	33.55 S - 19.08 E
Franzfontein = Fransfontein Namibia	20.13 S - 15.00 E
Fraserburg	31.55 S - 21.31 E
Fumas, Angola	16.15 S - 12.25 E

G

Ganab, Namibia	23.06 S - 15.29 E
Ganakom River (valley)	28.26 S - 17.12 E
Gansbaai	34.35 S - 19.21 E
Garies	30.30 S - 18.00 E
Gaub-Pad, Namibia	19.36 S - 17.31 E

Geiaus, Namibia	27.43 S - 17.42 E	K	
Gelykswerf	approx. 28.25 S - 17.08 E	Kakamas	28.45 S - 20.33 E
Gemsbok Pan, Botswana	21.40 S - 21.25 E	Kamanjab, Namibia	19.38 S - 14.51 E
Gemsbokvlakte farm = Gemsbok Vlakte	30.30 S - 17.25 E	Kamieskroon	30.12 S - 17.56 E
George	33.58 S - 22.27 E	Kanaän, Namibia	25.52 S - 16.07 E
Ghaub, Namibia	19.27 S - 17.46 E	Kaoko Otavi, Namibia	18.18 S - 13.39 E
Glynberg, Namibia	22.25 S - 16.35 E	Karakul, Angola	15.03 S - 12.39 E
Goagas = Goagosberg, Namibia	23.09 S - 15.43 E	Karamba, Namibia	21.50 S - 18.48 E
Goanikontes, Namibia	22.40 S - 14.47 E	Karibib, Namibia	21.57 S - 15.47 E
Gobabeb, Namibia	23.34 S - 15.03 E	Kaross (= Otjimurungo), Namibia	19.23 S - 14.31 E
Gobabis, Namibia	22.27 S - 18.58 E	Katdoringvlei	31.07 S - 17.52 E
Gocheganas, Namibia	22.49 S - 17.12 E	Katzensteg, Namibia	24.47 S - 18.59 E
Good Hope, Namibia	22.12 S - 19.21 E	Kaukasib River, Namibia	26.23 S - 15.25 E
Goodhouse	28.54 S - 18.15 E	Kawares see Kowares	
Gordon's Bay	34.10 S - 18.52 E	Keetmanshoop, Namibia	26.34 S - 13.07 E
Gorob Mine, Namibia	23.33 S - 15.25 E	Keimoes	28.41 S - 20.59 E
Gorrasis, Namibia	25.19 S - 15.56 E	Khomas Hochland, Namibia	22.42 S - 16.28 E
Gouph see Laingsburg	33.12 S - 20.51 E	Khowarib River, Namibia	19.20 S - 13.55 E
Graafwater	32.09 S - 18.36 E	Khumib River (mouth), Namibia	18.53 S - 12.25 E
Graskom	30.18 S - 17.23 E	Kimberley	28.45 S - 24.46 E
Grass Flat = 36 mile Grass Flat	29.12 S - 17.26 E	Kiriis, Namibia	26.20 S - 19.36 E
Great Karas Mts, Namibia	27.25 S - 18.39 E	Klawer (or Klaver)	31.45 S - 18.36 E
Grillental, Namibia	27.01 S - 15.21 E	Kleinberg see Kleinbegin	
Groenrivier mouth	30.42 S - 17.35 E	Kleinbegin = Kleinberg	32.59 S - 18.08 E
Grootderm, Orange River	28.31 S - 16.37 E	Klein Helskloof	28.46 S - 17.28 E
Grootdrif farm	32.24 S - 18.27 E	Klein Karas, Namibia	27.34 S - 18.05 E
Grootmist	29.39 S - 17.05 E	Klein Klipheuwel	32.14 S - 18.26 E
Guiniasib Mt, Namibia	25.20 S - 15.35 E	Klein Kogelfontein	31.10 S - 17.50 E
Gunias, Namibia; not traced: probably Guiniasib		Klein Okapuka, Namibia	22.16 S - 17.06 E
H		Klinghardt Mts, Namibia (also Klinghardts Mts, Klinghardtsberge)	27.18 S - 15.41 E
Haalenberg, Namibia	26.38 S - 15.29 E	Klipfontein, Namaqualand	29.14 S - 17.40 E
Hanover	31.04 S - 24.27 E	Kliphoutkop	32.17 S - 18.24 E
Hardap Dam, Namibia	24.31 S - 19.54 E	Klip Vlei (or Klipvlei)	30.25 S - 17.53 E
Haris (Central Namib), Namibia	22.46 S - 16.56 E	Knersvlakte	31.15 S - 18.45 E
Haris (Southern Namib; 3 km E), Namibia	26.34 S - 15.25 E	Koabendus, Namibia	19.18 S - 14.30 E
Harmonie, Namibia: several possibilities		Koebee Mts	31.41 S - 19.03 E
Harus Mt, Namibia	25.23 S - 15.10 E	Koebeg	33.43 S - 18.34 E
Heioab, Namibia	27.25 S - 15.58 E	Koekenaap	31.32 S - 18.14 E
Helmeringhausen, Namibia	25.53 S - 16.49 E	Kogman's Kloof	33.49 S - 20.06 E
Helskloof	28.20 S - 16.59 E	Koichab Pan, Namibia	26.18 S - 15.36 E
Henkries	28.58 S - 18.09 E	Koichab River (mouth), Namibia	20.30 S - 13.14 E
Het Kruis	32.35 S - 18.44 E	Komaan, Richtersveld	approx. 29.08 S - 17.22 E
Hex River	33.29 S - 19.35 E	Kommandokraal farm	31.30 S - 18.12 E
Hoarusib River (mouth), Namibia	19.04 S - 12.33 E	Koomhuis farm	29.55 S - 17.43 E
Hoas, Namibia	19.55 S - 14.44 E	Koras	28.18 S - 21.33 E
Hoekbaai (2 km ENE)	31.11 S - 17.47 E	Koos-Djab see Kos	
Höhenheim, Namibia	23.17 S - 16.24 E	Kos, Namibia	23.16 S - 16.08 E
Holgat	28.56 S - 16.47 E	Kotzesrus	30.57 S - 17.50 E
Holgat, Upper	28.43 S - 17.07 E	Kowares, Namibia	19.03 S - 14.20 E
Homeb, Namibia	23.39 S - 15.10 E	Kowaribschlucht see Khowarib River	
Hondeklip Bay (or Hondeklipbaai)	30.20 S - 17.18 E	Krom River, s. Cedarberg Mts	32.33 S - 19.32 E
Hondewater	33.39 S - 20.46 E	Kuboos (or Kuboes)	28.27 S - 16.59 E
Hoogland, Namibia	24.46 S - 16.15 E	Kubub, Namibia	26.47 S - 16.59 E
Hopefield	33.04 S - 18.21 E	Kuibis, Namibia	26.41 S - 16.52 E
Hope Mine, Namibia	23.34 S - 15.15 E	Kuikup see Tsirub	
Hopetown	29.37 S - 24.05 E	Kuiseb River (Delta), Namibia	23.07 S - 14.33 E
Houwhoek	34.12 S - 19.10 E	Kunene River (mouth), Namibia	17.16 S - 11.48 E
Huab River, Namibia	20.37 S - 13.54 E	Kuruman	27.28 S - 23.27 E
	or 20.49 S - 13.24 E	Kwessiegat, Namibia	24.55 S - 15.52 E
Huns, Namibia	27.24 S - 17.11 E		
I		L	
Ike, Namibia	19.44 S - 16.39 E	Ladismith, Cape Province	33.30 S - 21.16 E
Island Point	30.56 S - 17.58 E	Laingsburg	33.12 S - 20.51 E
J		Lambert's Bay (or Lambertsbay)	32.05 S - 18.18 E
Jackals Water see Jakkalswater		La Motte	33.53 S - 19.05 E
Jakkalsputs	28.40 S - 16.57 E	Langebaan	33.06 S - 18.02 E
Jakkalswater, Bushmanland	29.49 S - 22.34 E	Langebaanweg	32.55 S - 18.09 E
Jakkalswater, Namaqualand	29.03 S - 17.53 E	Langklip	28.12 S - 20.22 E
		Leipoldtville	32.13 S - 18.29 E
		Lekkersing	28.59 S - 17.06 E
		Lobito, Angola	12.21 S - 13.33 E

Loeriesfontein	30.59 S - 19.29 E	Oorlog River = ?Oorlogskloof R.	31.31 S - 19.09 E
Lorelei, Namibia	28.03 S - 16.58 E	Op die Berg (34 km N)	approx. 32.53 S - 19.08 E
Lucira, Angola	13.52 S - 12.32 E	Opuwa, Namibia see Ohopoho	
Lüderitz, Namibia	26.35 S - 15.10 E	Oranjemund, Namibia	28.33 S - 16.27 E
M			
Malindi, Kenya	03.14 S - 40.08 E	Orumana, Namibia	18.15 S - 13.54 E
Malmesbury	33.27 S - 18.44 E	Orupembe, Namibia (or Oropembe)	18.10 S - 12.33 E
Mamre	33.31 S - 18.28 E	Ostrich Gorge, Lower, Namibia	22.30 S - 14.58 E
Manganese Mine	28.40 S - 16.58 E	Ostrich Gorge, Upper, Namibia	22.29 S - 15.59 E
Mapai, Mozambique	22.51 S - 32.00 E	Otjekongo, Namibia	21.09 S - 17.55 E
Mara farm, Namibia	27.51 S - 17.19 E	Otjibumbe = Otjimbembe, Namibia	17.30 S - 14.15 E
Marais Dam (Worcester)	33.39 S - 19.26 E	Otjiguinas, Namibia	19.09 S - 17.28 E
Marienfluss, Namibia (at junction with Cunene R.)	17.08 S - 12.17 E	Otjihaenemaperero, Namibia	21.03 S - 16.19 E
Mata Mata	25.47 S - 20.00 E	Otjikotoberg, Namibia	19.13 S - 17.29 E
Matjiesfontein	33.14 S - 20.35 E	Otjinjerese = Otjingerese, Namibia	18.08 S - 13.52 E
Maun, Botswana	20.00 S - 23.25 E	Otjiseva, Namibia	22.18 S - 16.57 E
Melton Wold	31.27 S - 22.45 E	Otjitambi, Namibia	19.14 S - 15.11 E
Mesklip (Springbok)	29.49 S - 17.52 E	Otjitundua, Namibia	18.39 S - 14.14 E
Messum Mts, Namibia	21.22 S - 14.13 E	Otjive = Otjiu, Namibia	18.11 S - 13.14 E
Milnerton	33.52 S - 18.29 E	Otjiwarongo, Namibia	20.27 S - 16.40 E
Mirabib, Namibia	23.28 S - 15.17 E	Oudebosch, Riviersonderend Mts	approx. 34.01 S - 19.32 E
Moçamedes, Angola	15.10 S - 12.10 E	Oudtshoorn	33.35 S - 22.12 E
Modder River	29.01 S - 24.38 E	Oukraal, Cedarberg	32.25 S - 19.25 E
Molopo River	28.31 S - 20.13 E	Outiep	30.35 S - 17.52 E
Montagu	33.47 S - 20.07 E	Owingi, Namibia	21.52 S - 18.54 E
Moorreesburg	33.09 S - 18.40 E	P	
Morro Mamma, Angola; not traced		Paarl	33.44 S - 18.58 E
Mossel Bay	34.12 S - 22.08 E	Pakhuis Pass	32.08 S - 19.00 E
Mukorob, Namibia	25.24 S - 18.09 E	Paleisheuvel	32.28 S - 18.43 E
Mungobi, Angola	approx. 17.25 S - 15.20 E	Palmwag, Namibia	19.50 S - 13.53 E
Mynfontein	30.54 S - 23.57 E	Papendorp	31.42 S - 18.12 E
N			
Nababeep	29.35 S - 17.46 E	Pastoril do Sul, Angola	15.03 S - 12.33 E
Namib, Namibia	25.54 S - 16.16 E	Patemoster	32.49 S - 17.53 E
Namuskluft, Namibia	27.53 S - 16.50 E	Pedibas = Pediva, Angola	16.17 S - 12.34 E
Namutoni, Namibia	18.48 S - 16.56 E	Pedras Aguas, Angola	14.59 S - 12.33 E
Nardouw	31.55 S - 18.45 E	Perdekraal farm (3 km W)	30.45 S - 17.53 E
Narib Ost, Namibia	24.10 S - 17.43 E	Pico Azeverdo, Angola	15.32 S - 12.31 E
Narudas, Namibia	27.24 S - 18.53 E	Piquetberg (= Piketberg)	32.53 S - 18.45 E
Narugas	28.09 S - 20.09 E	Plateau, Namibia	26.39 S - 16.30 E
Natab, Namibia	23.39 S - 15.05 E	Pofadder	29.09 S - 19.25 E
Naukluft, Namibia	24.14 S - 16.14 E	Pomona Island, Namibia	27.12 S - 15.14 E
Neisip, Namibia	26.17 S - 16.36 E	Port Nolloth	29.17 S - 16.51 E
Neuhof-Kowas, Namibia	23.10 S - 18.02 E	Porto Alexandre, Angola	15.48 S - 11.50 E
N'Gami Lake, Botswana	20.27 S - 22.51 E	Portsmut, Namibia	23.09 S - 16.24 E
Niekerkshoop	29.19 S - 22.50 E	Praia Azul, Angola	15.10 S - 13.10 E
Nieuwoudtville	31.22 S - 19.07 E	Praia das Conchas, Angola	15.07 S - 12.07 E
Njelele Reserve (Nzhelele Dam)	22.44 S - 30.06 E	Pretoria	25.45 S - 28.12 E
Noachabeb, Namibia	27.23 S - 18.30 E	Prieska	29.40 S - 22.45 E
Noenieput	27.31 S - 20.08 E	Punda Milia	22.41 S - 31.01 E
Noordoewer, Namibia	28.42 S - 17.37 E	Pungwe Bay, Mozambique	19.34 S - 34.38 S
Nortier farm	32.03 S - 18.19 E	Putsonderwater	29.14 S - 21.53 E
Numies	28.18 S - 16.58 E	Q	
Numis farm, Namibia	26.15 S - 18.24 E	Quaggafontein	30.13 S - 17.33 E
Nuwerust = Nuwerus (settlement and farm)	31.10 S - 18.24 E	R	
O			
Obib dunes, Namibia	28.06 S - 16.38 E	Ratelfontein	32.03 S - 18.35 E
Obib Mts, Namibia	28.02 S - 16.40 E	Rawsonville	33.41 S - 19.19 E
Ohopoho, Namibia	18.03 S - 13.50 E	Rehoboth, Namibia	23.19 S - 17.05 E
Okahandja, Namibia	21.58 S - 16.56 E	Richmond	31.25 S - 23.56 E
Okarukondovi, Namibia	21.30 S - 18.12 E	Richthofen, Namibia	22.34 S - 17.45 E
Olifantskloof see Sandfontein		Rietpoort farm	30.59 S - 18.06 E
Olyfheuwel, Cedarberg: Not traced		Rio Curoca see Curoca R.	
Onguéria, Angola	15.19 S - 13.32 E	Robertson	33.48 S - 19.53 E
Onverwag, Namibia	20.48 S - 14.55 E	Rocky Point, Namibia	18.59 S - 12.29 E
Onze Rust, Namibia	24.09 S - 18.02 E	Rondabel farm	30.47 S - 17.50 E
Oograbies	29.13 S - 17.08 E	Rondevlei	34.04 S - 18.30 E
O'okiep = Okiep	29.35 S - 17.52 E	Roodag gate, Namibia	19.17 S - 19.14 E
		Rooddam farm	31.04 S - 17.48 E
		Rooilepel, Namibia	28.15 S - 16.38 E
		Rosh Pinah, Namibia	27.53 S - 16.50 E

Rössing Mts and mine, Namibia	22.31 S - 14.45 E	Tsirub, Namibia	26.46 S - 16.02 E
Rostock, Namibia	23.22 S - 15.48 E	Tsondab, Namibia	23.57 S - 15.24 E
Rotkop, Namibia	26.43 S - 15.23 E	Tsondap River see Tsondab	
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		Tugab, Namibia	22.17 S - 16.33 E
		Tulbagh	33.17 S - 19.09 E
		Twee Rivieren	26.29 S - 20.37 E
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Saaron, Tulbagh	33.11 S - 19.01 E	Uhienhorst, Namibia	23.40 S - 17.55 E
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Sa de Bandeira (= Lubango), Angola	14.55 S - 13.30 E	Ururas, Namibia	23.15 S - 14.43 E
St Helena Bay	32.46 S - 18.02 E	Usakos, Namibia	21.59 S - 15.35 E
St Helenafontein	32.36 S - 18.20 E	Us Pass, Namibia	22.59 S - 16.20 E
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Schakalsberge, Namibia	28.12 S - 16.42 E	Vanwyksdorp	33.45 S - 21.28 E
Sea Point	33.56 S - 18.23 E	Velddrif	32.47 S - 18.10 E
Sechomib River (10 km N), Namibia	18.47 S - 12.27 E	Verdruk, Namibia	22.52 S - 17.10 E
Sederberg (Seder Berg)	32.26 S - 19.13 E	Verloreplei farm	32.19 S - 18.22 E
Sekoke = Sokoke, Kenya	03.32 S - 39.49 E	Vermont	34.25 S - 19.10 E
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Skulpbaai (2,5 km NW)	31.23 S - 17.56 E	W	
Skurfkop (station)	31.57 S - 18.57 E	Wallekraal	30.23 S - 17.31 E
Soebatsfontein	30.07 S - 17.35 E	Walvis Bay, Namibia	22.58 S - 14.30 E
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Strand	34.07 S - 18.50 E	Witdraai	26.58 S - 20.41 E
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Parapachynotela (syn. of *Horatoma spinipes*) 45
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