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Three new species of the genus *Dicraspeda* Chaudoir from New Guinea

(Insecta, Coleoptera, Carabidae, Odacanthinae)

By **Martin Baehr**

Baehr, M. (1996): Three new species of the genus *Dicraspeda* Chaudoir from New Guinea (Insecta, Coleoptera, Carabidae, Odacanthinae). – Spixiana **19/2:** 137-146

Dicraspeda obsoleta, spec. nov. from central Irian Jaya, and *D. loebli*, spec. nov. and *D. ullrichi*, spec. nov., both from eastern and central Papua New Guinea are newly described. For comparison the male genitalia of the related species *D. brunnea* Chaudoir and *D. bispinosa* Darlington, respectively, are figured. A complete new key to the *Dicraspeda* species of New Guinea is given.

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Introduction

Within a sample of Carabid beetles, collected by A. Riedel on different occasions and in different parts of Irian Jaya (New Guinea), a new species of the Oriental-Australian genus *Dicraspeda* Chaudoir was found that is closely related to the widespread *D. brunnea* Chaudoir. When I identified the very rich sample of carabids from the Muséum d'Histoire naturelle, Genève, that was collected by W. G. Ullrich in Papua New Guinea in 1979/80, I found two further new species closely related to *Dicraspeda bispinosa* Darlington.

Due to the structural diversity of the genus *Dicraspeda* (in the sense of Darlington 1968) it may be disputable whether the genus is really a taxonomic unit. Perhaps it should be divided again in different genera, as it was done before Darlington united with *Dicraspeda* the old genera *Philemonia* Liebke for the bispinose species with deeply excised fourth tarsomeres, and *Macrocentra* Chaudoir for the quadrispinose species.

Measurements

Measurements have been made with a stereo microscope by use of an ocular micrometer. Length has been measured from apex of labrum to tip of elytra, in spinose specimens to the apex of the elytral spines. Hence, measurements may slightly differ from those of other authors, especially Darlington (1968).

Abbreviation of Collections mentioned in text

CBM	Collection M. Baehr, München
MCZ	Museum for Comparative Zoology, Cambridge/Mass.
MHNG	Muséum d'Histoire naturelle, Genève
NHMW	Naturhistorisches Museum, Wien

SMNS Staatliches Museum für Naturkunde, Stuttgart
ZSM Zoologische Staatssammlung, München
ZSM-CBM Zoologische Staatssammlung, München, as permanent loan in the working collection of author

Genus *Dicraspeda* Chaudoir

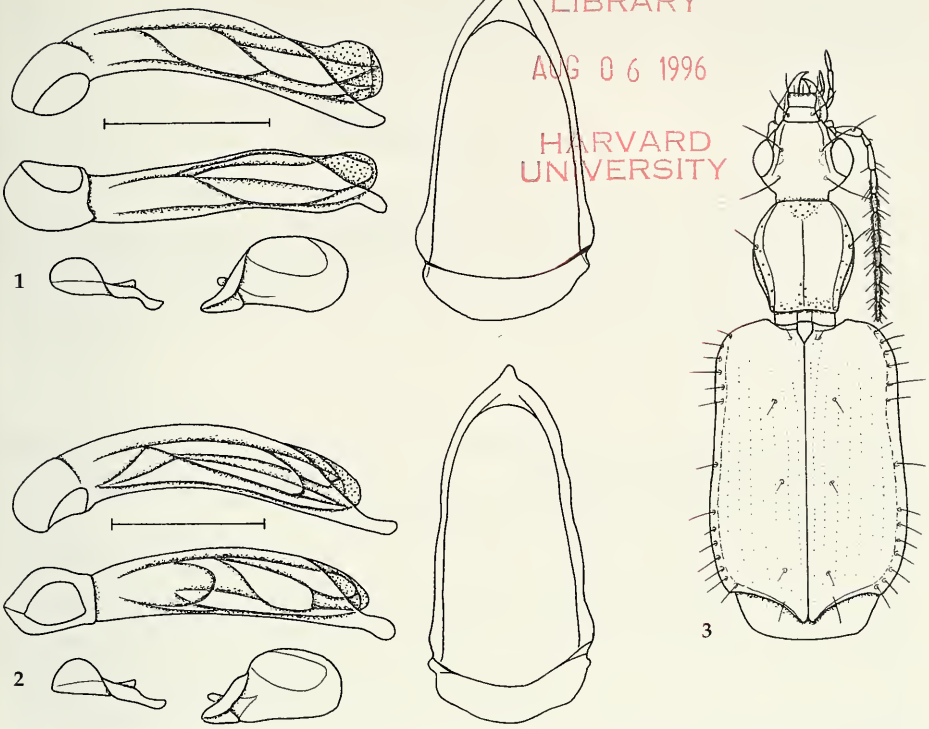
Dicraspeda Chaudoir, 1862, p. 300; Csiki 1932, p. 1536; Liebke 1938, p. 88; Darlington 1968, p. 210; Moore et al. 1987, p. 274.
Macrocentra Chaudoir, 1869, p. 205; Darlington 1968, p. 210.
Philemonia Liebke, 1938, p. 83; Darlington 1968, p. 210.

Type species: *Dicraspeda brunnea* Chaudoir, 1862, by monotypy.

Key to the New Guinean species of *Dicraspeda* Chaudoir

In parts, this key follows that of Darlington (1968, p. 211).

1. Apex of elytra not spinose or denticulate ..... 2.
– Apex of elytra spinose or denticulate ..... 4.
2. 4th tarsomere of metatarsus emarginate for c. 1/3 of length only ..... 3.
– 4th tarsomere of metatarsus emarginate for more than 2/3 of length ..... *longiloba* (Liebke)
3. Surface of elytra microreticulate, striae distinctly impressed, apex barely excised; aedeagus sinuate, apex not widened (Fig. 1) ..... *brunnea* Chaudoir
– Surface of elytra not microreticulate, striae not impressed, apex distinctly excised; aedeagus not sinuate, apex widened (Fig. 2) ..... *obsoleta*, spec. nov.
4. Apex of elytra spinose or denticulate at sutural angle only ..... 5.
– Apex of elytra bispinose at sutural and lateral angles ..... 8.
5. Body size smaller, <8.0 mm; 4th tarsomere of metatarsus emarginate for <1/2 of length only; sutural angle of elytra only denticulate ..... *dubia* (Gestro)
– Body size larger, >8.0 mm; 4th tarsomere of metatarsus emarginate for c. 2/3 of length; sutural angle of elytra denticulate or spinose ..... 6.
6. Sutural angle of elytra only denticulate (Fig. 13); eyes not protruding, lateral margin of head including eye evenly convex (Fig. 10); aedeagus compact, large near apex, apex turned up, angle between lower surface of aedeagus and apex inconspicuous (Fig. 6) ..... *ullrichi*, spec. nov.
– Sutural angle of elytra spinose (Figs 11-12); eyes protruding, lateral margin of head including eyes not evenly convex (Figs 8, 9); aedeagus narrower near apex, apex not distinctly turned up, angle between lower surface of aedeagus and apex conspicuous or not (Figs 4, 5) ..... 7.
7. Elytra slightly longer, ratio length/width >1.71, spines at apex longer (Fig. 11); microreticulation of elytra in females complete, in males distinct at least in apical half, intervals barely convex; aedeagus wider at apex, lower surface markedly bisinuate, angle between lower surface and apex conspicuous, outer surface rough (Fig. 4) ..... *bispinosa* Darlington.
– Elytra slightly shorter, ratio length/width c. 1.66, spines at apex shorter (Fig. 12); microreticulation of elytra in females visible only in apical half, in males almost absent, intervals distinctly convex; aedeagus narrower at apex, lower surface evenly concave, angle between lower surface and apex barely indicated, outer surface smooth (Fig. 5) ..... *loebli*, spec. nov.
8. Colour black; tarsi sulcate-carinate above ..... *quadrispinosa* (Chaudoir)
– Colour green-purple; tarsi not sulcate-carinate above ..... *violacea* (Sloane)



Figs 1, 2. Genital ring, parameres, left side and lower surface of aedeagus. 1. *Dicraspeda brunnea* Chaudoir. 2. *D. obsoleta*, spec. nov. Scales: 0.5 mm.
Fig. 3. *Dicraspeda obsoleta*, spec. nov. Habitus. Length: 5.7 mm.

Discraspeda brunnea Chaudoir
Fig. 1

Dicraspeda brunnea Chaudoir, 1862, p. 300; Csiki 1932, p. 1536; Liebke 1938, p. 89; Jedlicka 1963; p. 503 (as *Discrapeda*!); Darlington 1968, p. 211.

Diagnosis. Rather wide, depressed species with depressed, coarsely punctate pronotum and regularly striate elytra with coarsely punctate striae. Further distinguished from *D. obsoleta*, spec. nov. by head wider with markedly protruding eyes, pronotum narrower, elytra posteriorly distinctly widened with impressed and deeply punctate striae, presence of microreticulation on elytra, oblique shoulders with angulate shoulder angle, barely excised apex of elytra, and sinuate aedeagus with not widened apex.

For comparison with the new species described below the ratios of five measured specimens of *D. brunnea* are dealt with and the male genitalia are for the first time described and figured.

Measurements. Length: 6.0-6.5 mm. Ratios. Width/length of pronotum: 0.87-0.88; width of head/width of pronotum: 1.09-1.10; length/width of elytra: 1.50-1.51.

♂ genitalia (Fig. 1). Genital ring elongate, slightly narowed to the obtusely rounded apex, with regular lateral margin of arms. Aedagus elongate, laterally sinuate, ventral surface slightly concave, apex not widened, slightly turned to the right.

Material examined: 1♂, S.-Sulawesi, Ujung Padang, Bantimurung, 29.8.1990, leg. A. Riedel (CBM); 2♀♀, Philippines: Leyte, Visca N Baybay, 100-200 m, leg. Schawaller et al., 21.II.1991 (SMNS); 1♀, Malaysia, Sarawak, Mulu NP, 3.-6.3.1993, leg. H. Zettel (NHMW); 2♂♂, Indonesia, Lombok Is., Senaro, N-slope of Rinjani, 1100 m, 2.-5. Feb 1994, Bolm lgt. (CBM, SMNS).

Distribution: According to Darlington (1968) this species is widely distributed in the southeastern Oriental region and in the Australian region and was known to him from northern Australia, New Guinea, New Britain, Timor, Celebes, some Philippine islands, and Java. The records from Borneo (Sarawak) and Lombok are new though not unexpected and further enlarge the known range.

Dicraspeda obsoleta, spec. nov.

Figs 2, 3

Types. Holotype: ♂, Irian Jaya, Biak Is. Umg. Sepse, 3.10.1990, leg. A. Riedel (ZSM-CBM).

Diagnosis. Rather wide, depressed species with depressed pronotum, distinguished from the most closely related species *D. brunnea* Chaudoir by smaller head with less protruding eyes, wider, almost impunctate pronotum, rather parallel elytra with striae not impressed but indicated by very fine punctures in anterior half only, absence of microreticulation on elytra, shoulders not oblique but evenly rounded with convex shoulder angle, distinctly excised apex of elytra, and not sinuate aedeagus with widened, slightly club-shaped apex.

Description

Measurements. Length: 5.7 mm. Ratios. Width/length of pronotum: 0.94; width of head/width of pronotum: 1.03; length/width of elytra: 1.50.

Colour. Upper and lower surfaces black. Mouth parts and antenna light piceous, three basal antennomeres reddish-piceous. Legs yellowish, tibiae and tarsi feebly darker.

Head (Fig. 3). Moderately large, depressed. Eyes large, laterally moderately projecting, orbits slightly >0.5× as long as eyes, slightly convex, forming an angle of c. 135° with the neck. Clypeus separated by a fine suture, labrum large, anteriorly straight, 6-setose. Mandibles and palpi of average size. Medially of eye with a strong ridge, medially of this with an irregularly sinuate furrow from apex of frons to about posterior third of eye. Frons rather depressed, surface slightly irregular. Neck separated from vertex by a transverse furrow. Posterior supraorbital seta situated well behind posterior margin of eye. Antenna moderately elongate, barely surpassing base of pronotum, median antennomeres slightly >2.5× as long as wide. Surface of head apart from labrum without micrireticulation, impunctate and impilose, highly glossy.

Prothorax (Fig. 3). Slightly longer than wide, surface faintly convex. Widest part slightly in front of middle, margin anteriorly evenly rounded, posteriorly fain tly concave. Lateral border distinct, angulate throughout. Behind middle proepipleuron and proepisternum narrowly visible from above. Apex almost straight, anterior angles rounded off, barely indicated. Base faintly excised, posterior angles right, though at apex obtuse. Inner margin with a wide channel that diminishes towards apex and narrows towards base. Inner border of the channel marked by a strong ridge. Surface with a distinctly impressed median line, a rather shallow, v-shaped anterior sulcus, and a barely impressed transverse basal sulcus. Anterior marginal seta situated at widest part, posterior marginal pore within the posterior angle, both posterior setae broken. Microreticulation absent. Surface impunctate, only anterior and posterior sulcus and lateral channel with scattered coarse punctures, and with some weak transverse strioles, glossy.

Elytra (Fig. 3). Rather short and wide, posteriorly barely widened, though lateral margin in anterior third faintly compressed. Surface slightly convex, in middle depressed, in anterior third with a very shallow, oblique impression on either side. Shoulders wide, evenly rounded, shoulder angle almost rounded off. Marginal channel rather wide throughout, distinctly crenulate. Apex oblique, perceptibly concave. Outer apical angle projecting but obtuse, inner angle rounded, apex with coarse border line. Striae marked by rows of very fine punctures, virtually not impressed, punctures becoming even finer towards apex, intervals absolutely depressed. Third interval with three setiferous punctures, the first adjacent to 3rd stria, the median and apical ones adjacent to 2nd stria. Surface impunctate and impilose, glossy, in anterior two thirds without microreticulation, though very superficial microreticulation present in apical third, consisting of transverse meshes. Fully winged.

Lower surface. Proepisternum with rather sparse though very coarse puncturation. Metepisternum elongate, almost 3× as long as wide. Abdominal sterna impunctate and impilose apart from a pair of ambulatory setae each segment. Terminal sternum apparently with one pair of ambulatory setae.

Legs. Medium sized. 5th tarsomer setose on lower surface. 4th tarsomer little excised at apex. Male

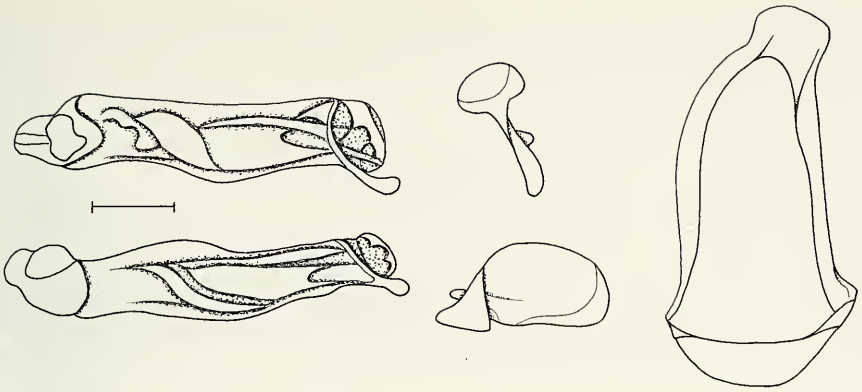


Fig. 4. *Dicraspeda bispinosa* Darlington. Genital ring, parameres, left side and lower surface of aedeagus. Scale: 0.5 mm.

anterior tarsus not enlarged, with a double row of adhesive hairs on 1st-3rd tarsomeres.

♂ genitalia (Fig. 2). Genital ring elongate, almost parallel, with acute apex and slightly irregular lateral margin of arms. Aedeagus elongate, laterally slightly curved, but not sinuate, ventral surface gently concave, apex slightly widened and club-shaped, not turned laterally.

♀ genitalia. Unknown.

Variation. Unknown.

Distribution. Biak Island, western Irian Jaya. Known only from type locality.

Habits. Largely unknown. The holotype was most probably collected in somewhat disturbed lowland rain forest.

Etymology. The name refers to the obsolete striation of the elytra.

Relationships. This species is certainly closely related to the widespread Oriental-Australian species *D. brunnea* Chaudoir and hence belongs to *Dicraspeda* in the original sense, whereas the remaining species from New Guinea and Australia are in various respects different and generally more apomorphic, and actually may belong to different genera.

Dicraspeda bispinosa Darlington
Figs 4, 8, 11

Dicraspeda bispinosa Darlington, 1968, p. 212, fig. 129.

Diagnosis. Rather narrow, convex species with unispinose elytral apex, distinguished from the most closely related species *D. loebli*, spec. nov. by longer elytra, longer apial spines (Fig. 11), more accentuate microreticulation of elytra in both sexes, less convex elytral intervals, and in apical half markedly rough aedeagus with wide apex and with lower surface remarkably bisinuate.

For comparison with the new species described below the ratios of 7 measured specimens of *D. bispinosa* (the type series from MCZ) are dealt with and the male genitalia are for the first time described and figured.

Measurements. Length: 8.5-8.8 mm. Ratios. Width/length of pronotum: 0-95-0.99; width of head/width of pronotum: 1.11-1.15; length/width of elytra: 1.71-1.78.

♂ genitalia (Fig. 4). Genital ring elongate, very stout, slightly asymmetric, slightly narrowed to the wide, rounded apex, with very strong lateral arms. Aedagus moderately elongate, laterally sinuate, lower surface deeply bisinuate, apex short, thin, knob-like, slightly upturned and turned left, with distinct angle on lower surface between aedeagus and apex. Orificium short, with large sclerite on right side. Apical part of aedeagus rough with many small tubercles.

♀ genitalia. Rather similar to that of *D. ullrichi*, spec. nov.

Material examined: 4♂♂, 3♀♀ Dobodura, Papua N. G. Mar-July 1944 Darlington, holotype!, paratypes! (MCZ).

Distribution: According to Darlington (1968) this species is so far known only from a rather restricted area in northeastern and central eastern Papua New Guinea.

Dicraspeda loebli, spec. nov.

Figs 5, 9, 12

Types. Holotype: ♂, Papua Nlle Guinée, Morobe Il 81 env. de Gurakor, W. G. Ullrich (MHNG). - Paratype: 1♀, Papua Nlle Guinée W. G. Ullrich, IV 79 PNG/WHProv. Bayer/Rokina (CBM).

Diagnosis. Rather narrow, convex species with unispinose elytral apex, distinguished from the most closely related species *D. bispinosa* Darlington by shorter elytra, shorter spines, less accentuate microreticulation of elytra in both sexes, more convex elytral intervals, and smooth aedeagus with narrow apex and evenly concave lower surface.

Description

Measurements. Length: 8.2-9.0 mm. Ratios. Width/length of pronotum: 0.97; width of head/width of pronotum: 1.12-1.18; length/width of elytra: 1.66.

Colour. Upper and lower surfaces of fore body black, elytra, meso- and methathorax, and abdomen dark piceous. Labrum, palpi, and antenna light reddish. Legs reddish-piceous, apex of tibiae and tarsi feebly lighter.

Head (Fig. 9). Large, slightly wider than pronotum, upper surface slightly convex, though rather uneven. Eyes rather small, by far shorter than orbits, laterally projecting, distinctly interrupting the lateral curve. Orbits convex, <1.5× as long as eye, forming a very wide angle with neck. Clypeus separated by a fine suture that is shortly interrupted in middle. Labrum large, anteriorly faintly concave, 6-setose. Mandibles and palpi of average size, mandibles anteriorly suddenly incurved. Labium with narrow, very elongate tooth. Medially of eye with a strong ridge. Frons in middle near clypeal suture with a horseshoe-shaped impression, laterally on either side with a strongly sinuate, irregular furrow that ends in a deep, elongate groove close to the supraorbital ridge. Medially of this groove with a deep, circular impression on either side. Neck separated from vertex by a shallow, transverse furrow. Posterior supraorbital seta situated far behind posterior margin of eye. Antenna elongate, surpassing base of pronotum by about two antennomeres, median antennomeres c. 3.5× as long as wide. Surface of head apart from labrum without micrireticulation, impunctate and impilose, highly glossy.

Prothorax. Slightly longer than wide, rather parallel, surface rather convex. Widest part slightly in front of middle, margin gently rounded, posteriorly faintly concave. Lateral border prominent, raised throughout and with deep channel. Proepipleura and proepisternum narrowly visible from above. Apex almost straight, unbordered, anterior angles rounded off, barely visible. Base straight, unbordered, posterior angles right though obtuse. Median line deeply impressed, not attaining apex, anterior sulcus shallow, v-shaped, transverse basal sulcus barely impressed, both sulci coarsely punctate. Both marginal setae absent. Surface without microreticulation, impunctate, only anterior and posterior sulcus, lateral channel, and basal third with scattered coarse punctures, in middle with some weak transverse strioles, glossy.

Elytra (Fig. 12). Large in comparison with fore body, fairly elongate, posteriorly slightly widened, lateral margin in anterior third faintly compressed. Surface markedly convex. Shoulders wide, evenly rounded, with small, obtuse angle. Marginal channel narrow. Apex oblique, deeply concave. Outer apical angle projecting but obtuse, sutural angle shortly spined, spines slightly dehiscent, apex with coarse border line. Striae deeply impressed, coarsely, very regularly punctate, intervals distinctly convex. Third interval with three setiferous punctures, the anterior more close to 3rd stria, the median and apical ones adjacent to 2nd stria. Surface in male without microreticulation, in females with highly superficial microreticulation only in apical third, consisting of irregular, transverse meshes. Intervals impunctate and impilose, glossy. Winged.

Lower surface. Proepisternum and mesothorax with dense and coarse puncturation. Metepisternum elongate, c. 2.5× as long as wide. Metathorax and abdominal sterna impunctate and impilose apart from a pair of ambulatory setae each segment. Terminal sternum in male with one pair, in females

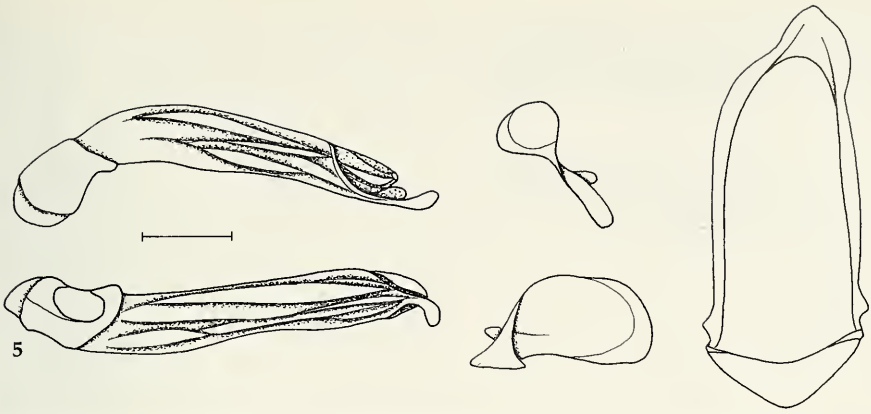


Fig. 5. *D. löbli*, spec. nov. Genital ring, parameres, left side and lower surface of aedeagus. Scale: 0.5 mm.

with two pairs of ambulatory setae.

Legs. Elongate. 5th tarsomer setose on lower surface. 4th tarsomer deeply (>½ of length) excised. Male anterior tarsus not enlarged, with a double row of adhesive hairs on 1st-3rd tarsomeres.

♂ genitalia (Fig. 5). Genital ring narrow and elongate, markedly parallel, apex rather wide, lateral arms moderately strong, base markedly triagonal. Aedagus elongate, narrow, laterally barely sinuate, lower surface regularly concave, apex fairly elongate, thin, slightly knob-like, slightly upturned and markedly turned left, without angle on lower surface between aedeagus and apex. Orificium elongate, with rather small sclerite on right side. Apical part of aedeagus smooth.

♀ genitalia. Rather similar to that of *D. ullrichi*, spec. nov.

Variation. Some variation noted in size of eyes which are slightly larger and more protruding in the female paratype, and in size of punctures of striae which are likewise slightly larger in the female paratype.

Distribution. Eastern and central Papua New Guinea.

Habits. Unknown.

Etymology. Named in honour of Dr. Ivan Löbl of the Museum of Genève who kindly made available the Ullrich collection to me.

Relationships. This species is certainly very closely related to *D. bispinosa* Darlington and also to *D. ullrichi*, spec. nov. and would belong to *Philemonia* when the genus *Dicraspeda* would be acknowledged in its restricted sense.

Dicraspeda ullrichi, spec. nov.

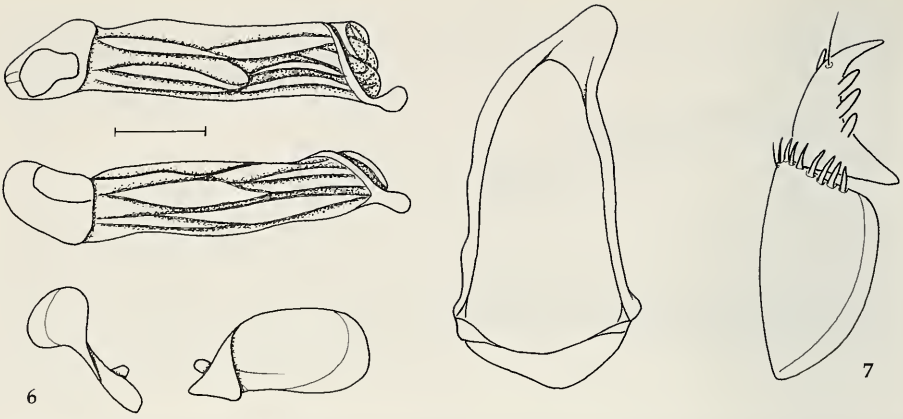
Figs 6, 7, 10, 13

Types. Holotype: ♂, Papua-N.Guinea Mainyanda I.1980 25 km W Bulolo W. G. Ullrich 600 m (MHNG). - Paratypes: 3♀♀, Papua Nlle Guinée W. G. Ullrich, 16 IX 79 PNG/Morobe Umg. Mumeng Wampu River (CBM, MNHG).

Diagnosis. Rather narrow, convex species with denticulate elytral apex, distinguished from the most closely related species *D. bispinosa* Darlington and *D. loebli*, spec. nov. by denticulate rather than spinose sutural apex, smaller eyes that do not interrupt the outline of head, and smooth and near apex distinctly widened aedeagus with apex considerably turned up.

Description

Measurements. Length: 8.0-8.6 mm. Ratios. Width/length of pronotum: 0.94-0.96; width of head/width of pronotum: 1.04-1.08; length/width of elytra: 1.63-1.65.



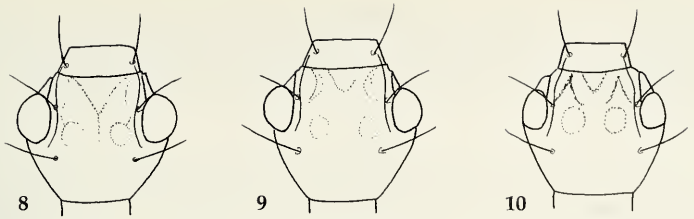
Figs 6-7. *D. ullrichi*, spec. nov. 6. Genital ring, parameres, left side and lower surface of aedeagus. Scale: 0.5 mm. 7. Stylomeres. Scale: 0.2 mm.

Colour. Upper and lower surfaces of fore body black, elytra, meso- and methathorax, and abdomen dark piceous. Labrum, palpi, and antenna light reddish. Legs reddish-piceous, apex of tibiae and tarsi feebly lighter.

Head (Fig. 10). Large, slightly wider than pronotum, upper surface slightly convex, though rather uneven. Eyes comparatively small, by far shorter than orbits, laterally barely projecting, not interrupting the lateral outline of head. Orbits convex, c. 1.5× as long as eye, forming a very wide angle with neck. Clypeus separated by a fine suture that is shortly interrupted in middle. Labrum large, anteriorly faintly concave, 6-setose. Mandibles and palpi of average size, mandibles anteriorly suddenly incurved. Labium with narrow, very elongate tooth. Medially of eye with a strong ridge. Frons in middle near clypeal suture with a horseshoe-shaped impression, laterally on either side with a markedly sinuate, irregular furrow that ends in a deep, elongate groove close to the supraorbital ridge. Medially of this groove with a deep, circular impression on either side. Neck separated from vertex by a shallow, transverse furrow. Posterior supraorbital seta situated far behind posterior margin of eye. Antenna elongate, surpassing base of pronotum by about two antennomeres, median antennomeres c. 3.5× as long as wide. Surface of head apart from labrum without micrireticulation, impunctate and impilose, highly glossy.

Prothorax. Slightly longer than wide, rather parallel, surface fairly convex. Widest part slightly in front of middle, margin gently rounded, posteriorly faintly concave. Lateral border prominent, raised throughout and with deep channel. Proepipleura and proepisternum narrowly visible from above. Apex almost straight, unbordered, anterior angles rounded off, barely visible. Base straight, unbordered, posterior angles right though obtuse. Median line deeply impressed, not attaining apex, anterior sulcus shallow, v-shaped, transverse basal sulcus barely impressed, both sulci coarsely punctate. Both marginal setae absent. Surface without microreticulation, impunctate, only anterior and posterior sulcus, lateral channel, and basal third with scattered coarse punctures, in posterior half with some weak transverse strioles, glossy.

Elytra (Fig. 13). Large in comparison with fore body, fairly elongate, posteriorly slightly widened, lateral margin in anterior third faintly compressed. Surface markedly convex. Shoulders wide, evenly rounded, with small, obtuse angle. Marginal channel narrow. Apex oblique, deeply concave. Outer apical angle projecting but obtuse, sutural angle denticulate, apex with coarse border line. Striae deeply impressed, coarsely, very regularly punctate, intervals distinctly convex. Third interval with three setiferous punctures, the anterior more close to 3rd stria, the median and apical ones adjacent to 2nd stria. Surface in male without microreticulation, in females with highly superficial microreticulation only in apical third, consisting of irregular, transverse meshes. Intervals impunctate and impilose, glossy. Winged.



Figs 8-10. Head. 8. *Dicraspeda bispinosa* Darlington. 9. *D. löbli*, spec. nov. 10. *D. ullrichi*, spec. nov.

Figs 11-13. Apex of elytra. 11. *Dicraspeda bispinosa* Darlington. 12. *D. löbli*, spec. nov. 13. *D. ullrichi*, spec. nov.

Lower surface. Proepisternum and mesothorax with dense and coarse puncturation. Metepisternum elongate, c. 2.5× as long as wide. Metathorax and abdominal sterna impunctate and impilose apart from a pair of ambulatory setae each segment. Terminal sternum in male with one pair, in females with two pairs of ambulatory setae.

Legs. Elongate. 5th tarsomer setose on lower surface. 4th tarsomer very deeply (>½ of length) excised. Male anterior tarsus not enlarged, with a double row of adhesive hairs on 1st-3rd tarsomeres.

♂ genitalia (Fig. 6). Genital ring elongate, fairly stout, slightly asymmetric, slightly narrowed to the moderately wide, rounded apex. Aedagus moderately elongate, laterally little sinuate, lower surface very gently bisinuate, apex short, thin, knob-like, distinctly upturned but barely turned left, with feeble angle on lower surface between aedeagus and apex. Orificium very short, with large sclerite on right side. Apical part of aedeagus smooth.

♀ genitalia (Fig. 7). Stylomere 2 rather elongate, slightly curved, with acute apex; with 3 stout ventral ensiform setae, a large dorsal ensiform seta, and a rather short nematiform seta raising from a groove in apical third. Base of stylomere 1 medially with 5-6 stout ensiform setae, laterally with additional 3 more slender, rather nematiform setae.

Variation. Very little variation noted.

Distribution. Eastern central Papua New Guinea.

Habits. Unknown.

Etymology. Named in honour of the collector W. G. Ullrich.

Relationships. This species is certainly closely related to *D. bispinosa* Darlington and *D. loebli*, spec. nov. and would belong to *Philemonia* when the genus *Dicraspeda* would be acknowledged in its restricted sense.

Due to their high external similarity the three taxa *D. bispinosa*, *D. loebli*, and *D. ullrichi* could be regarded as members of a superspecies, but their partly sympatric distribution and the rather important differences of the structure of the male genitalia do not support this idea. While in certain external features (shape of head, elytral spines) *D. bispinosa* and *D. loebli* seem to be more similar (Figs 8, 9, 11, 12), in structure of aedeagus *D. bispinosa* and *D. ullrichi* are more alike (Fig. 4, 6). The actual relationships of the three species are, therefore, still uncertain.

Certainly the species of the *bispinosa*-group are more advanced in many external and genitalic respects than those of the *brunnea*-group that constitute the most generalized members of the genus. In a future revision of all species of *Dicraspeda* including the Australian ones, it might be necessary to subdivise the genus again and to reintroduce the old generic names *Philemonia* Liebke and *Macrocentra* Chaudoir at least as subgeneric names.

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SPIXIANA	19	2	147–154	München, 01. Juli 1996	ISSN 0341–8391

Forschungen über die Pselaphidae Siziliens. XI. Eine neue Art der Gattung *Pselaphostomus* Reitter, 1909 aus Sizilien und Betrachtungen über die Arten der *kiesenwetteri*-Gruppe*

(Insecta, Coleoptera, Pselaphidae)

Von **Giorgio Sabella**

Sabella, G. (1996): Studies on the Pselaphidae of Sicily. XI. A new sicilian species of *Pselaphostomus* Reitter, 1909 with considerations about the species of the *kiesenwetteri*-group (Insecta, Coleoptera, Pselaphidae) – Spixiana **19/2:** 147-154

The author describes a new Sicilian species of *Pselaphostomus* Reitter, 1909, *P. adornoi*, spec. nov., closely related to *P. globiventris*, from which it can be essentially distinguished by the aedeagus morphology and the larger and deeper median pit of the pronotum. The new species belongs to the *kiesenwetteri*-group, with a Sardinian-Sicilian-Corsican geonomy, that is composed of nine species: three from Corsica (*P. kiesenwetteri*, *P. revelierei* and *P. medius*); four from Sardinia (*P. ganglbaueri*, *P. argutus*, *P. sardous*, and *P. insulcatulus*) and two from Sicily (*P. globiventris* and *P. adornoi*, spec. nov.). They are distinguishable on the basis of several external morphological characteristics (head length/width ratio; head reticulate and more or less opaque or shiny; antennae with segments 3-8 more or less prolonged; club of the last segment of the palpi more or less developed; depression between the frontal tubercules more or less deep; eyes more or less developed; interocular pits either big or small; humeral carina of the elytra more or less prolonged and protruding); and from the apex morphology of the basal capsule and of the ventral lamina of the aedeagus. For each species the distribution and some distinctive characters are specified. The genus *Pselaphogenius* Reitter, 1910 is considered valid and not synonymous with *Dicentrius* Reitter, 1882.

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Einleitung

Pselaphostomus ist eine westpalaearktische Gattung mit gegenwärtig 21 bekannten Arten (Besuchet 1961: 232; Newton & Chandler 1989: 63). Sie wurde von Reitter aufgestellt (1909: 218, Typusart *Pselaphus stussineri* Reitter, 1881) und gegenüber den anderen damals bekannten Pselaphini anhand der folgenden Merkmale charakterisiert: Elytren verkürzt, eindeutig breiter als lang; Augen klein; Endglied der Maxillarpalpen lang, keulenförmig und unbehaart; Kopf durch eine deutliche ventrale Vorwölbung verdickt, ohne einen tomentierten Bereich auf der Unterseite; erstes Abdominaltergit sehr groß, konvex. Ein Jahr später teilte derselbe Autor (Reitter 1910: 154) die Gattung *Pselaphostomus* in zwei Untergattungen auf, *Pselaphostomus* s. str. und *Pselaphogenius*, die er aufgrund folgender Charakteristika für natürliche Einheiten hielt: Elytren mit nur einem einzigen, mehr oder weniger entwickelten Humeralkiel und nur einem Basalgrübchen bei *Pselaphostomus* (bei *Pselaphogenius* findet sich außer

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dem Humeralkiel noch ein weiterer Kiel, der zwischen den beiden Basalgrübchen verläuft); Metasternum der Männchen bei *Pselaphostomus* wenig erhoben und posterior durch zwei divergierende Kiele begrenzt (gewöhnlich konisch aufgewölbt bei *Pselaphogenius*). Aus heutiger Sicht sind diese beiden Untergattungen aufgrund der von Reitter richtig erkannten Merkmale als wohldefinierte eigenständige Gattungen anzuerkennen. Besuchet (1968: 295) hat vorgeschlagen, *Pselaphogenius* als Synonym von *Dicentrius* Reitter, 1882 zu betrachten - ein Vorschlag, der jüngst auch von Newton & Chandler (1989: 63) wiederholt wurde -, doch derselbe Autor hat (1980: 630) eine neue Art von Circeo (Latium) unter dem Namen *Pselaphogenius latinus* (und nicht *Dicentrius latinus*) beschrieben, da er die beiden Gattungen inzwischen nicht mehr als synonym betrachtete (Besuchet, pers. comm.). Aufgrund des Unterschiedes in der Morphologie des Palpenendglieds (gekeult bei *Pselaphogenius*, fein und zugespitzt bei *Dicentrius*) sind diese beiden Gattungen als zwar nahe verwandt, aber doch deutlich getrennt zu betrachten.

Wiederum war es Reitter, der wenig später (1918: 75) die Ansicht vertrat, daß sich die damals bekannten palaearktischen Gattungen der Pselaphini in zwei große natürliche Gruppen aufteilen lassen. Die erste umfaßt die Gattungen *Pselaphopterus* Reitter, 1891 (mit der Untergattung *Faradayus* Reitter, 1909) und *Pselaphus* Herbst, 1792 (mit der Untergattung *Pselaphaulax* Reitter, 1909), mit stets geflügelten Arten, deren Elytren lang sind und einen vollständigen Humeralkiel sowie hervorstehende Schulterbeulen tragen, deren Kopf einen tomentierten ventralen Bereich aufweist und deren erstes Abdominalsternit kürzer ist als der Rest des Abdomens. Zur zweiten Gruppe, mit flügellosen Arten, deren Elytren kurz sind und nur schwach angedeutete Schulterbeulen sowie 1-2 sehr kurze Humeralkiele tragen, deren Kopfunterseite keine tomentöse Zone aufweist und deren vorderstes Abdominalsternit länger ist als der Rest des Abdomens, rechnete er die Gattungen *Dicentrius* und *Pselaphostomus*. Der letzteren Gattung gehören nach Ansicht des Autors (p. 75, Anm. 4) alle terricolen Arten von *Pselaphus* an, die unter den Nummern 20-27 im "Genera et Catalogue des Psélaphides" von Raffray (1904) enthalten sind, unter diesen viele, die heute zur Gattung *Pselaphogenius* gerechnet werden. Auf diese letztere Gattung nimmt Reitter jedoch in keiner Weise Bezug. Auch Karaman (1940) berücksichtigt nur die Gattung *Pselaphostomus* und erwähnt *Pselaphogenius* weder als Untergattung, noch als Synonym der ersteren, obwohl sie unter dem Namen *Pselaphostomus* zahlreiche Arten aufzählt, die heute zu *Pselaphogenius* zu stellen sind.

Jeannel (1950, 1951) unterteilt die Gattung *Pselaphostomus* in drei Untergattungen: *Pselaphostomus* s. str., *Pselaphogenius* und *Afropselaphus* Jeannel, 1950, die heute alle drei als einander nahestehende, aber deutlich voneinander unterschiedene Gattungen anzusehen sind. Derselbe Autor errichtet außerdem die Gattung *Pselaphopsis* Jeannel, 1950 und teilt sie in zwei Untergattungen: *Pselaphodinus* Jeannel, 1950, heute synonym zu *Pselaphogenius*, und *Pselaphopsis* s. str., die als Synonym von *Pselaphostomus* anzusehen ist. Bei der Neudefinition von *Pselaphostomus* arbeitete Besuchet (1961) innerhalb der Gattung fünf phyletische Linien heraus, unter denen eine, die *kiesenwetteri*-Gruppe, alle *Pselaphopsis*-artigen Arten vereinigt. Diesen gemeinsame Merkmale sind die große Grube auf dem ersten Abdominalsternit der Männchen und die stets wohlentwickelte, von der capsula basalis ausgehende Ventrallamina auf dem Aedeagus. Es handelt sich um eine Gruppe mit Corso-Sardo-Siculischer Verbreitung, die bis jetzt acht Arten zählt und in Sizilien nur durch *Pselaphostomus globiventris* Reitter, 1904 vertreten war.

Die im folgenden beschriebene zweite sizilianische Art aus der *kiesenwetteri*-Gruppe stammt aus der Provinz Trapani (Westsizilien); sie ist in ihrer äußeren Morphologie *globiventris* recht ähnlich, unterscheidet sich jedoch eindeutig in der Gestalt des Aedeagus. Da es mir in den vergangenen Jahren möglich war, die meisten der *Pselaphostomus*-Arten der *kiesenwetteri*-Gruppe zu untersuchen, ergreife ich hier die Gelegenheit, diese alle mit einzubeziehen und einige noch wenig klare Aspekte ihrer Morphologie und Verbreitung vorzustellen.

Die genetzte und eher opake Oberfläche des Kopfes erlaubt, die sardischen Arten *(P. ganglbaueri, argutus, sardous* und *insulcatulus)* leicht und zweifelsfrei von den korsischen und sizilianischen zu unterscheiden, die stets eine glänzende Kopfoberfläche besitzen (mit Ausnahme von *P. globiventris*, dessen Kopf im hinteren Bereich schwach retikuliert ist). Ansonsten konnte ich feststellen, wie ähnlich sich viele Arten der *kiesenwetteri*-Gruppe sind. Die wichtigen Unterscheidungsmerkmale des Exoskeletts betreffen das Verhältnis Länge/Breite des Kopfes und die Beschaffenheit seiner Oberfläche (retikuliert und opak oder glänzend), die Gestalt der Glieder des Antennen-Funiculus (mehr oder weniger verlängert), die Form der Keule des Endgliedes der Maxillarpalpen (mehr oder weniger stark angeschwollen), die Tiefe der Grube zwischen den Frontaltuberkeln, die Ausbildung der Augen, die

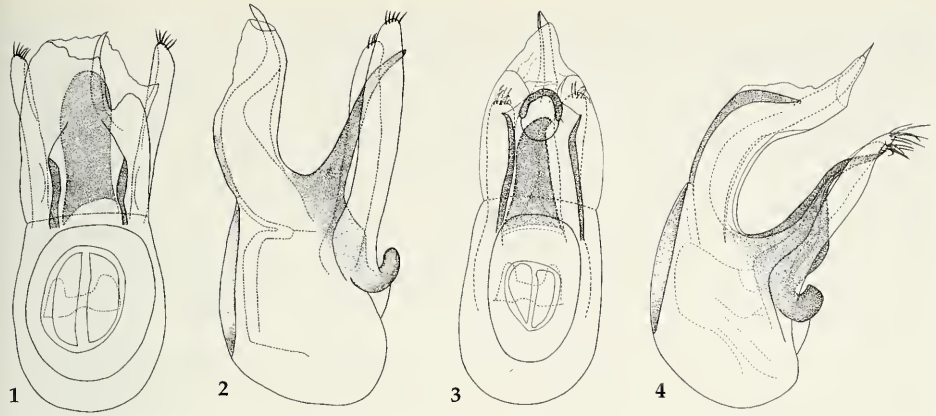

Abb. 1, 2. *Pselaphostomus adornoi*, spec. nov., Holotypus, Aedeagus (ZSM). 1. Dorsalansicht. 2. Seitenansicht.
Abb. 3, 4. *Pselaphostomus globiventris* (Reitter), Exemplar aus dem Bosco del Fanuso (Ficuzza, Palermo) in Coll. Sabella. 3. Dorsalansicht. 4. Lateralansicht.

Größe der Interokulargrübchen, sowie Länge und Aufwölbung des Humeralkiels der Elytren. Diese Merkmale sind zwar grundsätzlich für die Trennung der Taxa tauglich, lassen jedoch aufgrund der intraspezifischen Variabilität gelegentlich auch Zweifel offen.

Konstante diagnostische Merkmale finden sich hingegen in der Morphologie des Aedeagus, und zwar in der Gestalt des Apex sowohl der capsula basalis, als auch der lamina ventralis; die Form der Parameren erweist sich dagegen als von geringem diagnostischem Wert. Aus diesem Grunde schien es mir angebracht, den apikalen Bereich der Aedeagi aller Arten der *kiesenwetteri*-Gruppe schematisch in Lateralansicht so abzubilden, daß nur die capsula basalis und die lamina ventralis hervorgehoben sind. Um den Vergleich mit dem nah verwandten *P. adornoi*, spec. nov.zu erleichtern, habe ich hingegen den Aedeagus von *P. globiventris*, der übrigens noch nie abgebildet worden ist, vollständig dargestellt.

Pselaphostomus adornoi, spec. nov.
Abb. 1, 2, 12

Typen. Holotypus: ♂, Sizilien, Abhänge von Erice Richtung Valderice (U.T.M. Koordinaten TC8812) (Erice, Trapani), 600 m NN, 10.12.1993 (ZSM). - Paratypen: 1♀, dito (ZSM); 2♂♂, 1♀, dito (Mus. Stor. Nat. Genf); 1♂, 2♀♀, dito (Coll. Sabella); 2♂♂, dito, 03.03.1994 (Coll. Sabella); 1♀, Erice, Steineichenwald (Erice, Trapani), 02.01.1995 Gardini leg. (Coll. Sabella); 3♀♀, Abhänge Monte Inici (U.T.M. UC1208) (Castellammare del Golfo, Trapani), 900 m NN., 03.03.1994 (Coll. Sabella).

Beschreibung

Länge 1.85-2.1 mm, Färbung einheitlich hellbraun, Palpen rötlich. Die Behaarung besteht aus langen, goldglänzenden, anliegenden Haaren, in Gruppen auf den Seiten der Schläfen, verstreut auf dem Pronotum, und auf jeder der Elytren in zwei parallelen Reihen angeordnet sind, die eine nahe der Naht, die andere quasi in Fortsetzung des Schulterkiels. Kurze gelbe Haare finden sich reichlich an der Spitze der Elytren und auf dem Vorderrand des ersten Abdominaltergits und -sternits.

Der Kopf ist eindeutig länger (0.37-0.38 mm) als breit (0.25 mm), mit schmalem (0.13-0.15 mm) Frontallobus, der in der Mitte durch eine Längsfurche tief eingeschnitten ist. Die Ränder dieser Furche sind kräftig erhoben und enden auf der Höhe zweier deutlich eingegrabener Interoculagrübchen, welche um das doppelte ihres Durchmessers voneinander entfernt sind. Die Augen sind klein, bestehend aus 7-8 Ommatidien, die Schläfen kurz und abgerundet. Das Endglied der Maxillarpalpen ist 0.38-0.39 mm lang; die Endkeule, die mehr als ein Drittel ihrer Länge einnimmt, ist apikal durch eine

breite, wenig eingetiefte Rinne eingeschnitten, die sich, allmählich verschmälert, ungefähr über die Hälfte der Keule erstreckt. Das Integument des Kopfes ist glänzend, ohne irgendeine Spur von Punktierung oder Retikulation. Die Antennen sind relativ lang (0.88-1.00 mm), der Scapus doppelt so lang als breit, der eiförmige Pedicellus wenig länger als breit und breiter als alle Glieder des Funiculus. Die Antennenglieder 3, 5 und 6 sind wenig länger als breit, die Glieder 4 und 8 so lang wie breit, aber das Glied 7 eindeutig länger als breit. Die Antennenkeule, die nicht deutlich vom Funiculus abgesetzt ist, wird von den letzten drei Gliedern gebildet, die sich vom 9 zum 11 allmählich und nur geringfügig verbreitern. Das 9 und 10 Glied sind so lang wie breit, das Endglied ist deutlich länger als breit und länger als die drei vorhergehenden Glieder zusammen.

Das Pronotum ist eindeutig länger (0.38-0.40 mm) als breit (0.28-0.30 mm), erreicht seine größte Breite auf halber Länge, ist posterior nur geringfügig, anterior aber deutlicher verschmälert und hier schwach gebuchtet. An seiner Basis findet sich ein medianes Grübchen, das größer und deutlicher eingegraben ist als die lateralen, die sich an den Hinterecken befinden. Das Tegument ist glatt und glänzend.

Die Elytren sind deutlich quer (Länge 0.40-0.42, Breite 0.61-0.65 mm) und von der Basis zum Apex hin stark verbreitert. Auf jeder Elytre findet sich ein großes und tiefes basales Grübchen, das seitlich von einem klar erkennbaren Humeralkiel begrenzt wird, der sich ungefähr über ein Drittel der Länge der Elytren erstreckt.

Das Abdomen ist sehr groß, sein erstes Tergit ist länger als alle übrigen zusammen; seine Scheibe ist wenig länger (0.59-0.60 mm) als breit (0.55-0.56 mm) und in der Mitte leicht aufgewölbt.

Die Femora aller Beine sind in der Mitte verdickt, die Mitteltibien distal leicht verbreitert.

Sondermerkmale des Männchens: Metasternum tiefer eingedrückt, mit stark aufgewölbten Rändern, die richtiggehende Kiele bilden. Das erste Abdominalsternit mit einem eiförmigen Grübchen, das seinen ganzen Medianbereich einnimmt. Aedeagus (Abb. 1-2) 0.30-0.31 mm lang; der Apex seiner großen capsula basalis endet in einer dorsad gerichteten Spitze, lamina ventralis stark sklerifiziert, in einer ventrad gerichteten Spitze endend.

P. adornoi, spec. nov. ist wahrscheinlich eine waldbewohnende Art des Fallaubs, sind doch alle Exemplare beim Sieben von Fallaub in Steineichen- oder Mischwald (Steineiche, Ahorn, Flaumeiche, Esche) gefunden worden. Gemeinsam mit der neuen Art fand ich *Amaurops sulcatula sulcatula* Dodero 1919, *Trimium zoufali* Krauss, 1900 und *Euplectus bonvouloiri siculus* Raffray, 1910.

Die neue Art ist meinem Freund und Kollegen Antonio Adorno gewidmet, der mir in den letzten Jahren eine große Hilfe beim Sammeln von Käfern war und mir stets großzügig die von ihm gesammelten Pselaphiden überlassen hat.

Diskussion. *Pselaphostomus adornoi*, spec. nov. steht *P. globiventris* sehr nahe, von dem er sich jedoch leicht aufgrund der Morphologie des Apikalbereiches des Aedeagus unterscheiden läßt. Bei *P. globiventris* endet der Apex der capsula basalis in eine stärker sklerifizierte und weniger stark dorsad aufgebogene Spitze (Abb. 4); außerdem ist die lamina ventralis bei *P. adornoi* gleichmäßig spitz zulaufend, während sie bei *P. globiventris* basal stark verdickt, unterhalb der Spitze aber abrupt verengt ist (vergl. Abb. 2 und 11 mit Abb. 4 und 12). Die Unterscheidung der beiden Arten anhand von Merkmalen des Exoskeletts erweist sich als schwieriger, wenngleich durchaus möglich. Die Occipitalregion des Kopfes von *P. globiventris* ist schwach, aber eindeutig genetzt, also nicht glänzend, während in *P. adornoi* dieser Bereich immer glänzend ist, ohne irgendeine Spur von Punktierung oder Retikulierung. Das auffallendste Merkmal findet sich jedoch in den Abmessungen des medialen Basalgrübchens des Pronotums das bei *P. adornoi* breit und deutlich erkennbar ist, bei *P. globiventris* hingegen klein, manchmal geradezu winzig und sehr schwer zu erkennen. Ein weiteres Merkmal findet sich in der Wölbung der Scheibe des ersten Abdominaltergites. Diese ist bei *P. globiventris* eindeutig konvex und im medianen Posteriorbereich aufgewölbt und überragt in Seitenansicht deutlich die Seitenränder des Tergits, während bei *P. adornoi* die Aufwölbung weniger stark ist und nicht über die Seitenränder des Tergites hinausragt. Schließlich ist das mediane Grübchen des ersten Abdominalsternites der Männchen bei *P. adornoi* vor allem anterior schmäler als bei *P. globiventris*.

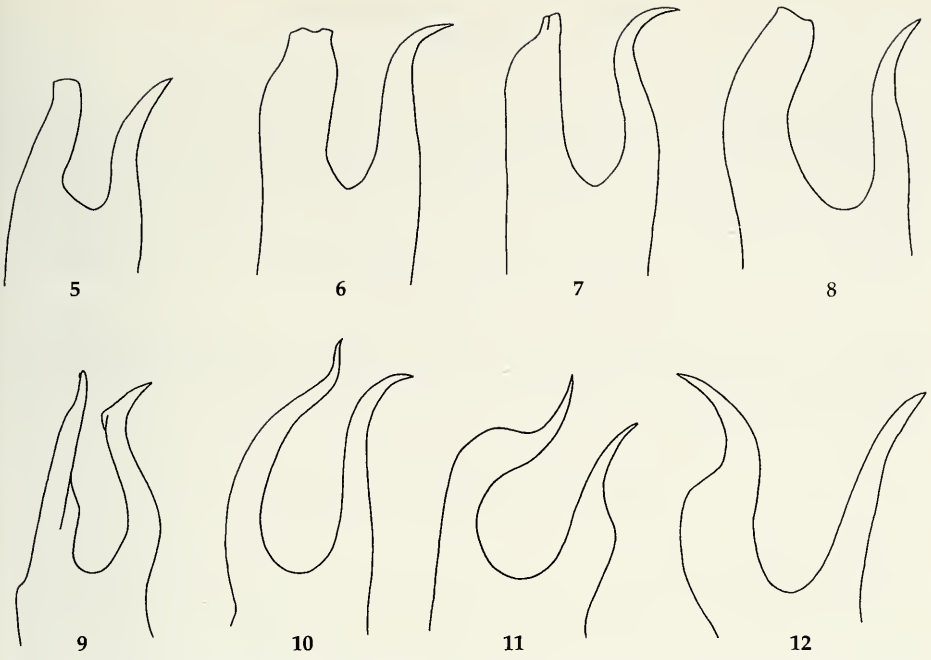

Abb. 5-12. Apikalbereich der Aedeagi der *Pselaphostomus*-Arten aus der *kiesenwetteri*-Gruppe. Schematische Darstellung in Seitenansicht, Parameren nicht berücksichtigt. 5. *P. kiesenwetteri* (Reitter). 6. *P. revelierei* (Reitter). 7. *P. medius* (Sainte Claire Deville). 8. *P. sardous* (Dodero). 9. *P. ganglbaueri* (Reitter). 10. *P. argutus* (Reitter). 11. *P. globiventris* (Reitter). 12. *P. adornoi*, spec. nov.

Pselaphostomus kiesenwetteri (Reitter, 1881)
Abb. 5

Abbildungen des Aedeagus: Karaman 1940: 125, Abb. 11a, b, c; Jeannel 1950: 392, Abb. 162a.

Es handelt sich um eine Art *in litteris* von Saulcy, die bereits von Bertolini (1873: 74) für Korsika genannt wurde, bevor Reitter sie 1881 beschrieb. Bertolini (1889: 43) und Ragusa (1892: 78) erwähnen sie auch für Sizilien, doch nachfolgend korrigiert Ragusa (1905: 231) sich selbst und vertritt die Ansicht, daß seine vorhergehende Meldung nicht auf *P. kiesenwetteri*, sondern auf eine neue, damals noch nicht beschriebene Art zu beziehen sei, die von Holdhaus und Dodero in Fiumedinisi (Messina) gesammelt wurde und *P. fiorii*, *P. conosternum* und *P. calabrus* nahesteht. In dieser Art läßt sich leicht *Pselaphogenius peloritanus* (Holdhaus, 1910) wiedererkennen. Wiederum Raffray (1924: 48) und Karaman (1940: 126) melden *P. kiesenwetteri* irrtümlicherweise auch aus Sardinien.

P. kiesenwetteri ist also ein korsischer Endemit. Er unterscheidet sich von den anderen beiden korsischen Arten (in Klammern) durch den doppelt so langen wie breiten Kopf (höchstens anderthalb mal so lang bei *revelieri* und *medius*), durch die kürzere Keule des Palpenendgliedes (¼ der Gesamtlänge des Gliedes, ⅓ bei den anderen beiden Arten), durch den längeren Fühler mit einem Funiculus, dessen Glieder doppelt so lang wie breit sind (höchstens anderthalb mal so lang wie breit in *P. revelierei* und *P. medius*), durch den deutlich sichtbaren Humeralkiel der Elytren, der ungefähr die Hälfte der Länge der Elytren erreicht und schließlich in der Morphologie des Aedeagus (Abb. 5).

Pselaphostomus revelierei (Reitter, 1881)
Abb. 6

Abbildungen des Aedeagus: Karaman 1940: 125, Abb. 11d, e, f: Jeannel 1950: 392, Abb. 162b.

Es handelt sich um eine Art *in litteris* von Saulcy, die bereits von Bertolini (1873: 74) für Korsika genannt wurde, bevor Reitter sie 1881 beschrieb. Raffray (1924: 48), Porta (1926: 265) und Karaman (1940: 125) melden sie irrtümlicherweise auch für Sardinien. Früher als diese hatte bereits Sainte Claire Deville (1908: 151) diese Art für Sardinien erwähnt unter Bezugnahme auf Dodero, welcher sie jedoch (1919: 235) ausschließlich für Korsika meldet. Jeannel (1950: 393) hat darüberhinaus zwei Unterarten beschrieben, beide aus Korsika, *P. revelierei minor* und *P. r. frontalis*, die mit größter Wahrscheinlichkeit als Synonyme von *revelierei* zu betrachten sein dürften; da ich die Typen nicht überprüft habe, kann ich diese Synonymie jedoch nicht mit letzter Sicherheit bestätigen.

P. revelierei ist ein korsischer Endemit. Er unterscheidet sich von den anderen beiden korsischen Arten aus dieser Gruppe durch den praktisch vollkommen fehlenden Humeralkiel der Elytren, der auf eine kleine Erhebung reduziert ist, die an der Basis der Elytren sichtbar ist, durch die sehr kurzen Antennen mit Gliedern des Funiculus, die kaum länger als breit sind und in der Morphologie des Aedeagus (Abb. 6).

Pselaphostomus ganglbaueri (Reitter, 1881)
Abb. 9

Reitter beschrieb diese Art anhand eines Männchens, von dem er irrtümlicherweise annahm, daß es aus Korsika stamme; Baudi (1889: 169) und Bertolini (1889: 43) melden sie daraufhin für Korsika. Sowohl Sainte Claire Deville (1908: 152) als auch Holdhaus (1910: 49, Anm. 1) äußern Zweifel an der Herkunft des Typus von *P. ganglbaueri* und melden die Art mit Sicherheit nur für Sardinien. Eben Sainte Claire Deville schließt später (1914: 523) *P. ganglbaueri* und auch *Pselaphostomus argutus* (Reitter 1881) aus der korsischen Fauna aus indem er beweist, Etiketten der Exemplare, aufgrund deren Reitter die beiden Arten beschrieben hatte, sich auf den Wohnsitz des Sammlers, nicht jedoch auf die Herkunft des Materials bezogen. *P. ganglbaueri* ist demnach eine für Sardinien endemische Art. Sie unterscheidet sich von den anderen sardischen Arten der *kiesenwetteri*-Gruppe durch den dichter retikulierten Kopf, den nur eben an der Basis der Elytren sichtbaren Humeralkiel, die nur wenig längeren als breiten Glieder des Funiculus der Fühler, den sehr langen ersten Abdominaltergit (nur wenig breiter als lang) und in der Morphologie des Aedeagus (Abb. 9).

Pselaphostomus argutus (Reitter, 1881)
Abb. 10

Abbildungen des Aedeagus: Poggi 1992: 185, Abb. 49-50.

Wie die vorhergehende Art, wurde auch diese anhand von Material beschrieben, von dem Reitter annahm, es stamme aus Korsika, für das Sainte Claire Deville (1914: 523) jedoch die tatsächliche Herkunft aus Sardinien bewiesen hat. Die Meldung aus Kalabrien (Serra San Bruno, Baudi 1889: 168) beruht sicherlich auf einem Irrtum. Nach Ansicht von Besuchet (pers. comm.) ist *Pselaphostomus provincialis* (Dodero 1919), der nach einem einzigen weiblichen, in Var (Südfrankreich) gesammelten Exemplar beschrieben wurde, wahrscheinlich ein Synonym von *P. argutus*. Besuchet bezweifelt auch, daß der Typus von *P. provincialis* tatsächlich aus Südfrankreich stammt.

Es handelt sich um eine endemische Art Nordsardiniens, die in letzter Zeit von Poggi (1992: 184) auch für die Insel Figarolo gemeldet wurde. Die Art läßt sich recht leicht von den anderen sardischen Arten der Gruppe unterscheiden aufgrund der stark vorstehenden Schultern der Elytren, der gut sichtbaren und über ungefähr die halbe Länge der Elytren ausgedehnten Humeralkiele und schließlich in der Morphologie des Aedeagus (Abb. 10).

Pselaphostomus globiventris (Reitter, 1904)
Abb. 3, 4, 11

Pselaphostomus leonhardi Reitter, 1910 (syn. Dodero 1919).

Ein sizilianischer Endemit, der *P. adornoi* recht nahesteht, von welchem er sich hauptsächlich in der Morphologie des Aedeagus (Abb. 3, 4, 11) und in den oben besprochenen Merkmalen des Exoskeletts unterscheidet. Er ist mir aus den Bergzügen der Madonie, der Sicani und der Erei bekannt, in den westlichsten Teilen der Insel scheint er durch *P. adornoi* ersetzt zu sein.

Pselaphostomus sardous (Dodero, 1919)
Abb. 8

Ein sardischer Endemit, der von Bertolini (1889: 43) für Sardinien bereits wörtlich als "*Pselaphus sardous* Dodero" gemeldet wird, dreißig Jahre vor der Originalbeschreibung durch Dodero. Er steht *P. argutus* nahe, von dem er sich jedoch unterscheidet durch den kürzeren Kopf (etwa anderthalb mal so lang wie breit), die kürzeren Fühler, deren Funiculus-Glieder wenig länger als breit sind, die kürzeren Humeralkiele, die nicht vorstehenden Schultern der Elytren und schließlich in der Morphologie des Aedeagus (Abb. 8). Dodero unterscheidet noch eine Varietät *banariensis* aus Nordsardinien, die von der typischen Form abweicht in den eindeutig kleineren Okulargrübchen und auf dem ersten Abdominalsternit des Männchens in dem mehr ovalen, kürzeren Mediangrübchen, das zur Basis des Segments hin verkürzt, und zum Apex hin zugespitzt ist. Da ich nie Material von dieser Varietät zu Gesicht bekommen habe, kann ich mich zu ihrer taxonomischen Bedeutung nicht äußern.

Pselaphostomus insulcatulus (Dodero, 1919)

Ein sardischer Endemit, der bis jetzt nur in einem einzigen, bei Dorgali gesammelten weiblichen Exemplar bekannt ist, das ich bisher nicht habe überprüfen können. Die Einreihung in die *kiesenwetteri*-Gruppe basiert auf der Ähnlichkeit mit *P. ganglbaueri*, sollte jedoch verifiziert werden, wenn das Männchen von *P. insulcatulus* bekannt wird. Die Art unterscheidet sich von allen anderen dieser Gruppe darin, daß der vordere Abschnitt des Kopfes nicht von einer Längsfurche eingeschnitten ist.

Pselaphostomus medius (Sainte Claire Deville, 1926)
Abb. 7

Abbildungen des Aedeagus: Jeannel 1950: 392, Abb. 162c.

Ein Endemit von Zentralkorsika, *P. revelierei* nahestehend, von dem er sich unterscheidet durch die bedeutendere Körpergröße (2.0-2.2 gegen 1.55-1.8 mm), den längeren Humeralkiel der Elytren, der ca. ¼ der Länge der Elytre einnimmt, die längeren Antennen, deren Funiculus-Glieder anderthalbmal so lang wie breit sind, und schließlich durch die Morphologie des Aedeagus (Abb. 7).

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Internal classification of the genus *Dasytidius* Schilsky with descriptions of new species of the subfamily Chaetomalachiinae

(Insecta, Coleoptera, Dasytidae)

By **Karel Majer**

Majer, K. (1996): Internal classification of the genus *Dasytidius* Schilsky with descriptions of new species of the subfamily Chaetomalachiinae (Insecta, Coleoptera, Dasytidae). – Spixiana **19/2:** 155-182

The species of the genus *Dasytidius* Schilsky are reviewed, ideas to the internal classification and biogeography of the genus are provided. Fourteen new species are described: *Achaetomalachius rosti*, spec. nov. (N India), *Dasytidius brevicornis*, spec. nov. (Turkey), *D. clarkei*, spec. nov. (Ethiopia), *D. crassicornis*, spec. nov. (Syria), *D. endroedyi*, spec. nov. (Ghana), *D. impar*, spec. nov. (Turkey), *D. insularis*, spec. nov. (Greece: Lesvos), *D. malkini*, spec. nov. (Turkey), *D. marsaleki*, spec. nov. (Kyrgyzstan), *D. muehlei*, spec. nov. (Yemen), *D. recticollis*, spec. nov. (Syria), *D. turnai*, spec. nov. (China), *Dasytiscus strejcekorum*, spec. nov. (Armenia), *Mimothrix pamirensis*, spec. nov. (Tajikistan).

The male of *D. wittmeri* Majer and the female of *D. inchoatus* Majer are described. Five *Dasytiscus*-species are transferred to *Dasytidius*: *Dasytidius sudanicus* (Pic), comb. nov., *D. atrimembris* (Pic), comb. nov., *D. desaegeri* (Pic), comb. nov., *D. deportatus* (Peyerimhoff), comb. nov., and *D. licenti* (Pic), comb. nov. Two new synonyms are proposed: *Dasytiscus scotti* Wittmer, syn. nov. of *Dasytidius atrimembris* (Pic), *Dasytiscus ruficollis* var. *bicoloriceps* Pic, syn. nov. of *Dasytiscus minimus* J. Sahlberg. A classification of the genus *Dasytidius* into species group is provided.

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Introduction

The present contribution is a complementary study on the subfamily Chaetomalachiinae of Dasytidae, chiefly on the genus *Dasytidius* Schilsky, its classification, redescriptions of some of Pic's species and descriptions of new ones. Several new species from some other genera that have already been revised are also described. With the present paper, the subfamily Chaetomalachiinae is now completely revised and no obscure taxa remain.

Abbreviations used

BMNH	British Museum, Natural History, London, U.K.
HNHM	Természettudományi Muzeum, Budapest, Hungary
KMBC	Karel Majer, private collection, Brno, Czech Republic
MNHN	Muséum National d' Histoire Naturelle, Paris, France
MRAC	Musée Royal de l' Afrique Centrale, Tervuren, Belgium

NHMB Naturhistorisches Museum Basel, Switzerland
RCSL Private collection of Dr. R. Constantin, Saint-Lô, France
ZMUM Zoologicheski Muzei MGU, Moscow, Russia
ZSMC Zoologische Staatssammlung, München, Germany

Classification of the genus *Dasytidius*

The genus *Dasytidius* comprises 74 species and subspecies until now, hence, they require an internal classification. Differences among the species group are not striking. They are primarily based on different transformation series (autapomorphic in themselves) of the tegmen and/or phallus (internal sac) which are correlated with biogeography. Superficial characters are mostly of convergent or parallel nature as is the rule in Chaetomalachiinae, a revisional key to species based on external characters seems therefore useless. After having reached the respective species group, both, female and male terminalia must be compared with illustrations found in the present paper and in the four previous papers (Majer 1989, 1990, 1991 a, b).

Key to the species groups
Figs 90, 91

1. Phallus more or less slender, apex neither strongly truncate nor claw-like incurved ..... 2.
– Phallus robust, with strongly truncate apex and/or the latter is claw-like incurved. Mostly robust, shortly cylindrical species ..... 7.
2. Tegmen with prebasal dilation. Base of phallus extensive, mostly subtriangular, distal half mostly more or less sinuate ..... 3.
– Tegmen without prebasal dilation. Base of phallus less extensive, seldom subtriangular, distal half not sinuate ..... 4.
3. Apex of phallus strongly sinuate. Seminal canal of ♀♀ slender, membranous. Distribution: Turkey, Syria, Lebanon ..... 1. *fulvipes*-group
– Apex of phallus simply incurved. Seminal canal of ♀♀ always sclerotized. Distribution: Whole East Mediterranean ..... 2. *syriacus*-group
4. Base of phallus very small, body nearly straight. Internal sac with one kind of straight very slender spinules only, these mostly arranged into a row. Tegmen distally strongly narrowed and conical. Distribution: West Mediterranean ..... 4. *medius*-group
– Base of phallus more extensive, body more or less arched. Internal sac without spinules or with different ones. Tegmen distally less slender ..... 5.
5. Base of phallus narrowly lobed. Internal sac unarmed or with one kind of spinules only. Distribution: Syria, Turkey, Greece ..... 3. *optivus*-group
– Base of phallus less narrowly lobed but rather subtriangular. Not in East Mediterranean ..... 6.
6. Tegmen distally somewhat less conical. Phallus always robust. Distribution: West Mediterranean ..... 5. *vestitus*-group
– Tegmen distally mostly strongly conical. Distribution: Central Asia & East Palaearctic ..... 6. *rufimanus*-group
7. Phallus robust, apex broadly truncate and/or finely incurved at tip. Distribution: Palaearctic .. 8.
– Phallus rather slender, not simply truncate at apex, tip strongly claw-like incurved. Distribution: Afrotropical ..... 10.
8. Phallus strongly constricted in front of base, tip not incurved. Tegmen posteriorly with lateral dilation. Apex of spicular fork incurved. Distribution: Iran ..... 7. *transversus*-group
– Phallus not constricted in front of base, tip incurved. Tegmen and spicular fork simple ..... 9.

9. Internal sac with two kind of spinules only. Distribution: Whole East Mediterranean ..... 8. *persicus*-group
- Internal sac with three kinds of spinules and one arched sclerite composed of more or less fused spinules. Distribution: The Balkans, Turkey & Cyprus ..... 9. *indutus*-group

10. Bottom of tegmen simply convex. Internal sac with several big spines. Distribution: Somalian, Sudanic & West-African ..... 10. *sudanicus*-group
- Bottom of tegmen strongly broadened and flat to emarginate. Internal sac without spinules or with fine numerous ones. Distribution: Somalian & East-African ..... 11. *atrimembris*-group

Systematic survey of species

1. *fulvipes*-group

This is a well defined, small group, with appearance rather of *D. indutus* Kiesw., with sparse pilosity and light extremities. It could be also included in the *syriacus*-group.

1. *fulvipes* (Reitter, 1885); Syria, Turkey.
   Dasytiscus fulvipes Reitter, 1885: 242, 244.
2. *prosperus* Majer, 1989; Turkey.
   Majer, 1989: 141, 154; figs 2, 9, 10, 44, 59, 78.
3. *insularis*, spec. nov.; Greece (Lesvos).

2. *syriacus*-group

This large group is homogeneous due to the autapomorphic prebasal dilation of the tegmen.

4. *sparsepubens* Majer, 1990; Libya.
   Majer, 1990: 41, 53; figs 16, 34, 42, 43, 58, 76, 87.
   Dasytidius indutus var. *sparsepubens* Pic, 1925a: 2.
5. *ethologus* Majer, 1989; Greece (Crete).
   Majer, 1989: 145, 154; figs 17, 18, 33, 35, 42, 49, 64, 80.
6. *subsyriacus* Majer, 1991; Jordan, Syria.
   Majer, 1991a: 7; figs 9, 25, 38, 55, 65, 89.
7. *syriacus* (Reitter, 1885); Cyprus, Israel, Jordan, Lebanon, Syria, Turkey.
   Dasytiscus syriacus Reitter, 1885: 245.
   Dasytiscus syriacus var. *obscuripes* J. Sahlberg, 1913: 151.
8. *kalalovae* Majer, 1991; E Iran, Iraq, Turkey.
   Majer, 1991a: 3; figs 3-5, 24, 35, 49-52, 67, 68, 83, 84, 86.
9. *alfierii* (Wittmer, 1935); Iraq, Israel, Jordan, Syria, Sinai.
   Dasytiscus (Haplothrix) Alfierii Wittmer, 1935: 188.
   Dasytidius atratus Majer, 1991a: 2; figs 2, 23, 48, 69, 85.
10. *nigripes* (Pic, 1894); Azerbaidjan, Iran, Syria, Turkey.
    Dasytiscus nigripes Pic, 1894: 112.
    Dasytiscus indutus var. *obscuripes* Pic, 1896: 48.
    Dasytidius obscuripes Liberti, 1986: 188; figs 9-12.
    Dasytidius attenuatus Majer, 1991a: 7; figs 22, 39, 66, 90.
    Dasytidius svihlai Majer, 1991b: 6, 17; figs 8, 25, 36, 54, 87.
11. *inchoatus* Majer, 1991; Cyprus.
    Majer, 1991a: 5; figs 10, 36, 53, 87.

12. *aurescens* Majer, 1991; Syria.
Majer, 1991a: 4; figs 7, 35, 52, 86.

13. *latissimus* Majer, 1989; Syria, Turkey.
Majer, 1989: 16.
Dasytidius avius Majer, 1989: 149, 154; figs 23-25, 67-69, 83.

14. *maceki* Majer, 1991; Iraq.
Majer, 1991a: 9; figs 13, 27, 41, 57, 71, 91.

15. *laticollis* (Bourgeois, 1885); Iraq.
Dasytiscus laticollis Bourgeois, 1885: 256, 257.

3. *optivus*-group

The tegmen in this group lacks a prebasal dilation, but the phallus in several species (e.g. Nos. 19 & 20) strongly resembles that in the *syriacus*-group. The inclusion of *D. emgei* (Reitt.) is rather tentative, the latter might form a special species-group.

16. *optivus* Majer, 1989; Syria.
Majer, 1989: 143, 154; figs 15, 16, 37, 48, 63, 79.

17. *crassicornis*, spec. nov.; Syria.

18. *recticollis*, spec. nov.; Syria.

19. *congruens* Majer, 1989; Turkey, Sporades, Rhodos.
Majer, 1989: 143, 145; figs 13, 14, 47, 62, 77.

20. *brevicornis*, spec. nov.; Turkey.

21. *emgei* (Reitter, 1884); Greece.
Dasytiscus Emgei Reitter, 1884: 79.

4. *medius*-group

The uniform phallus, internal sac and female copulatory organs make this group the best definable one of all *Dasytidius*.

22. *petrowi* (Pic, 1923); Egypt, Libya.
Dasytiscus (Dasytidius) Petrowi Pic, 1923: 9.

23. *melitensis* (Bourgeois, 1885); Malta, Sicilia.
Dasytiscus melitensis Bourgeois, 1885: 256, 270.

24. *medius* (Rottenberger, 1871); Algeria, Tunisia, Morocco.
Dasytiscus medius Rottenberger, 1871: 244.
Dasytiscus obesus Kiesenwetter, 1871: 85 (note 1).
Dasytiscus pexus Kiesenwetter, 1871: 85.
Dasytiscus squamatus Kiesenwetter, 1871: 86.
Dasytiscus Beckeri Kiesenwetter, 1871: 86.
Dasytiscus Sedilloti Bourgeois, 1885: 256, 268; fig. 4.
Dasytiscus Theresae Pic, 1896: 48.

25. *normandi* Majer, 1990; Tunisia.
Majer, 1990: 40, 43; figs 3, 35, 49, 62.

26. *crenulatus* (Pic, 1925); Libya.
Danacaea crenulata Pic, 1925a: 3.
Dasytiscus convexus Pic, 1928: 103.

27. *diversimembris* (Pic, 1937); Algeria, Morocco.
Dasytiscus diversimembris Pic, 1937: 52.
Dasytiscus (Dasytidius) diversipes Pic, 1922: 30 (nec *Dasytiscus atrotibialis* var. *diversipes* Pic, 1917).

28. *constantini* Majer, 1990; Morocco.
Majer, 1990: 40, 46; figs 7, 32, 52, 66.

29. *otini* Majer, 1990; Morocco.
Majer, 1990: 40, 47; figs 8, 24, 37, 53, 67.

30. *deportatus* (Peyerimhoff, 1929); Algeria (Central Sahara).
Dasytiscus deportatus Peyerimhoff, 1929c: 194.

5. *vestitus*-group

This group is closely related to the *rufimanus*-group, particularly to the species 45-47, which are those the *rufimanus*-group is possibly derived from.

31. *vestitus* (Kiesenwetter, 1863); Algeria, Morocco, Tunisia.
Dasytiscus vestitus Kiesenwetter, 1863: 625 (Note 2).
Dasytiscus (*Dasytidius*) *vestitus* var. *Henoni* Pic, 1900: 88.

32. *bourgeoisi* (Schilsky, 1896); Spain (?), Morocco.
Dasytiscus (Dasytidius) Bourgeoisi Schilsky, 1896: No.72.

33. *pardoi* Majer, 1990; Morocco.
Majer, 1990: 40, 49; figs 11, 27, 38, 71, 83.

34. *gracilis* (Escalera, 1914); S Algeria, Morocco.
Dasytiscus gracilis Escalera, 1914: 246.

35. *syrticus* (Bourgeois, 1885); Sicilia, Tunisia.
Dasytiscus syrticus Bourgeois, 1885: 256, 266.
Dasytiscus (Dasytidius) neglectus Schilsky, 1897: No.84.

36. *wartmanni* (Reitter, 1897); Algeria.
Dasytiscus Wartmanni Reitter, 1897: 219.
Dasytiscus (Dasytidius) nigrofemoratus Schilsky, 1897: No.76.

37. *ragusai* (Procházka, 1895); Algeria, Libya, Sicilia, Tunisia.
Dasytiscus Ragusae Procházka, 1895: 139.
Dasytiscus (Dasytidius) Gestroi Schilsky, 1897: No.75.
Dasytiscus Ragusae Schilsky, 1900: No.2. [New species].

6. *rufimanus*-group

A very heterogeneous group at the first glance, but according to the sequence of the species below, some transformation series of both the tegmen and phallus are evident. Most genera of the Chaetomalachiinae occur in the Central Asian region. It is why the *rufimanus*-group may be the most ancestral one, possibly including predecessors of the other groups.

38. *ugamicus* Majer, 1991; Uzbekistan.
Majer, 1991b: 3, 19; figs 3, 34, 49, 50, 71, 85.

39. *sequensi* (Reitter, 1902); Armenia, Kazakhstan.
Dasytiscus (Haplothrix) Sequensi Reitter, 1902: 210.

40. *kubani* Majer, 1991; Armenia.
Majer, 1991b: 10, 17; figs 12, 92.

41. *rufimanus* (Bourgeois, 1885); Uzbekistan, Tajikistan.
Dasytiscus rufimanus Bourgeois, 1885: 256, 269.
Dasytiscus (Dasytidius) rufimanus var. *atripes* Schilsky, 1896: No.79.

42. *margelanus* Majer, 1991; Tajikistan.
Majer, 1991b: 5, 18; figs 7, 23, 38, 53, 70.

43. *hauseri* (Reitter, 1890); Uzbekistan.
Dasytidius Hauseri Reitter, 1890: 360.

44. *candidus* Majer, 1991; Afghanistan.
Majer, 1991b: 7, 18; figs 9, 37, 55, 73.

45. *marsaleki*, spec. nov.; Kirghizia.

46. *tajikistanus* Majer, 1991; Tajikistan.
Majer, 1991b: 9, 19; figs 11, 40, 57, 72, 91.

47. *turnai*, spec. nov.; China (Yunnan).

7. *transversus*-group

The two species classified here are closely allied and distinctly derived from the *persicus*-group.

48. *transversus* Majer, 1991; Iran.
Majer, 1991b: 14, 19; figs 15, 18, 44, 63, 80, 95.

49. *quaesitus* Majer, 1991; Iran.
Majer, 1991b: 15, 16; figs 19, 45, 64, 81.

8. *persicus*-group

It is placed near the *rufimanus*-group as some species interfere to the latter but they should be still recognizable by the more truncate apex of the phallus and two different kinds of spines in the internal sac.

50. *subnudus* Majer, 1991; Iraq, Israel, Jordan, Syria.
Majer, 1991a: 9; figs 14, 42, 58, 72, 93.

51. *infinitus* Majer, 1991; Syria, Turkey.
Majer, 1991a: 11; figs 16, 28, 44, 61, 81, 95.

52. *longiventris* Majer, 1991; Iran.
Majer, 1991b: 10, 19; figs 13, 41, 58, 74, 75, 93.

53. *persicus* (Pic, 1926); Iran.
Dasytiscus (Dasytidius) persicus Pic, 1926: 1.

54. *robustus* Majer, 1991; Iran.
Majer, 1991b: 12, 17; figs 16, 26, 43, 60, 79.

55. *opertus* Majer, 1991; Iran.
Majer, 1991b: 15, 17; figs 20, 96.

56. *princeps* Majer, 1991; Iran, Iraq.
Majer, 1991a: 14; figs 19-21, 30, 46, 60, 73, 74, 96.

57. *virescens* (Baudi, 1873); Cyprus.
Dasytiscus virescens Baudi, 1873: 319.

58. *quadricollis* (Schilsky, 1896); Iran.
Dasytiscus (Dasytidius) quadricollis Schilsky, 1896: Nos. 75, 34 L.

59. *funebris* Majer, 1989; Turkey.
Dasytidius funebris Majer, 1989: 153, 154; figs 29, 30, 73, 86, 87.

9. *indutus*-group

This Balkanic group with autapomorphic structure of the internal sac is well defined and distinctly derived from the *persicus*-group.

60. *indutus indutus* (Kiesenwetter, 1859); Greece (continental).
Dasytiscus indutus Kiesenwetter, 1859: 173.

61. *indutus dalmatinus* Majer, 1989; Croatia.
Majer, 1989: 152; fig 71.

62. *indutus aegaeicus* (Liberti, 1986); Greece (Crete, Aegeian Islands).
Dasytiscus indutus aegaeicus Liberti, 1986: 188, figs 6-8.

63. *indutus similis* (Schilsky, 1896); Cyprus, Turkey.
Dasytiscus (Dasytidius) similis Schilsky, 1896: No.77.

64. *malkini*, spec. nov.; Turkey.

65. *impar*, spec. nov.; Turkey.

10. *sudanicus*-group

It is a more ancestral group than the *atrimembris*-group as the phallus is more slender and tegmen is not dilated at base.

66. *muehlei*, spec. nov.; Yemen.

67. *sudanicus* (Pic, 1929); Sudan.
Dasytiscus sudanicus Pic, 1929: 138.

68. *endroedyi*, spec. nov.; Ghana.

11. *atrimembris*-group

This group with mostly bulky species is derived from the *persicus*-group. *D. wittmeri* is the most primitive member from the transformation series of the tegmen where the base is not yet so dilated. It may be a connecting link to the *sudanicus*-group. Some species (e.g. Nos. 71, 73) have the most modified terminalia of the whole genus.

69. *wittmeri* Majer, 1991; Saudi Arabia.
Majer, 1991a: 13; figs 18, 75.

70. *addilaensis* (Wittmer, 1979); Saudi Arabia, Yemen.
Dasytiscus (Haplothrix) addilaensis Wittmer, 1979: 191.

71. *clarkei*, spec. nov.; Ethiopia.

72. *desaegeri* (Pic, 1954); Zaire.
Dasytiscus De Saegeri Pic, 1954: 211.

73. *atrimembris* (Pic, 1925); Ethiopia.
Dasytiscus atrimembris Pic, 1925b: 17.
Dasytiscus Scotti Wittmer, 1954: 136.

12. incertae sedis

74. *licenti* (Pic, 1938); China.
Dasytiscus Licenti Pic, 1938: 162.

Descriptions of new species

Dasytidius insularis, spec. nov.
Figs 1-4

Types. Holotype: ♂, "Lesvos-Greece Mytilini; 1959.VIII.2. Dr. Gozmány" (HNHM). - Paratypes: 26, same data (18 HNHM, 8 KMBC).

Differs from *D. fulvipes* in pubescence and male terminalia.

Upper surface without distinct metallic lustre (which is light-greenish in *D. fulvipes*), legs rufotestaceous, tarsi more or less infuscate, mouth parts and antennal scape black, segments 2-5 (often 2-8) rufotestaceous, then gradually darkened. Integument with very dense texture, semi-mat, pubescence greyish, long, almost dense, semi-villose (denser and longer than in *D. fulvipes*), with subseriately intermixed setae on elytra; pronotum with distinct marginal fringe.

Head with fine coriaceous texture, eyes moderately prominent; antenna short, segments 5-10 always strongly transverse, subserrate. Pronotum subarcuate at base, broadest across basal third, sides nearly straight and narrowing forwards, apex straight; upper surface with coriaceous texture, semi-mat, side margins with reduced irregular denticles; pubescence arranged towards a point near base; marginal fringe irregular, long. Elytra with dense and shallow, rather indistinct puncturation and transverse wrinkles; sutural angles scarcely rounded; marginal fringe more or less distinct.

♂. Length 2.3-2.5 mm, width 0.8-0.9 mm. Antennal joints less transverse; elytra parallelsided, subtruncate at apex, sutural angles slightly rounded respectively. Pygidium nearly 3 × wider than long, suboblong in outline; sternum VII nearly straight at apex, only weakly emarginate and impressed; VIII with median process forked at base (Fig. 1). Spicular fork with fine walls, spiculae subangulate, nearly as long as fork proper; tegmen very slender (Fig. 2); phallus in side view (Fig. 3) subsinuate at apex, tip briefly incurved; internal sac without distinct spinules.

♀. Length 3.0-3.2 mm, width 1.1-1.3 mm. Antennal joints more transverse; elytra broadening, more rounded at apex, sutural angles more rounded. Pygidium nearly semicircular, apex briefly incised. Sternum VII scarcely produced at apex; seminal canal long, membranous (Fig. 4).

Distribution. Greece: Aegean Islands (Lesvos).

Dasytidius inchoatus Majer, 1991
Fig. 5

This species was described from males only. I am giving here a picture of unusually shaped internal organs in a female specimen from Crete (Fig.5).

Dasytidius crassicornis, spec. nov.
Figs 6-9

Holotype: ♂, "Dr Lenthnur, Djebel Aevi, N. Syrien" (NHMB).

Small, slender species resembling *D. syriacus* Reitt. but antenna extremely robust.

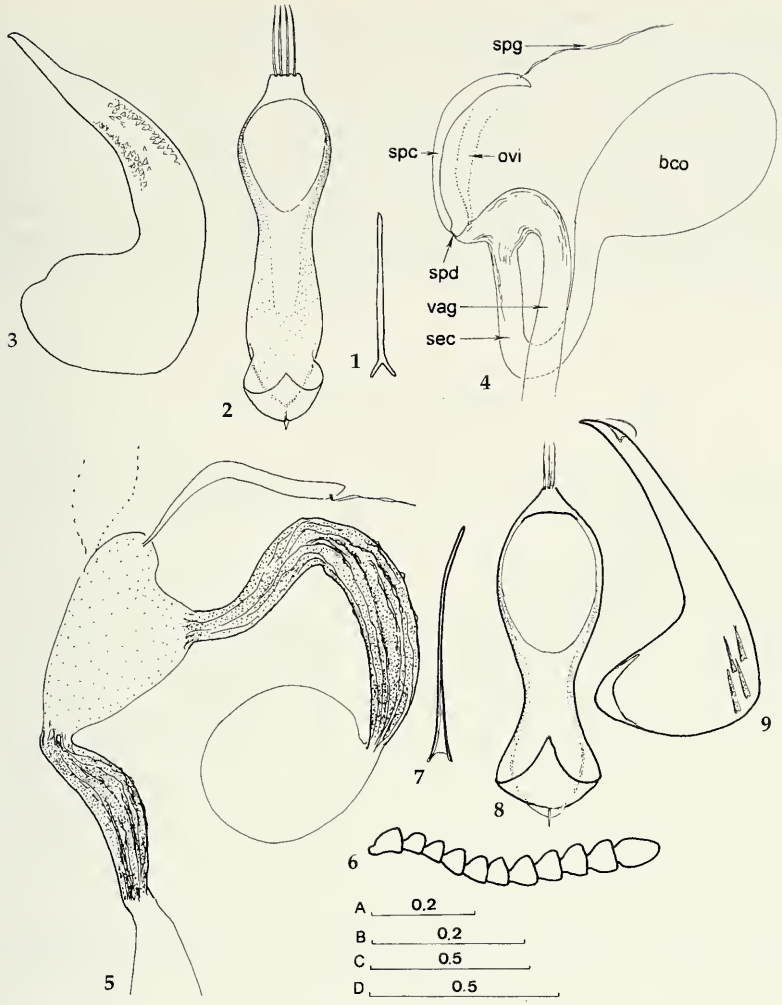
Coloration black, with metallic reflexes, extremities rufotestaceous, femora, scape, distal antennal half and mouthparts infuscate. Pubescence apparently dual, more and less decumbent hairs present, integument with very fine texture.

♂. Length 2.2 mm, width 0.7 mm. Head big with bulging eyes, head surface finely coriaceous; antenna long with robust segments, these mostly transverse (Fig. 6). Pronotum transverse, as wide as head and slightly narrower than elytra, base arcuate, sides nearly straight, disc polished, nearly impunctate, sides finely coriaceous, marginal denticles small and reduced, marginal bristles distinct. Elytra indistinctly bordered along side margins, puncturation indistinct, with fine, rather coriaceous, texture.

Pygidium nearly semicircular; sternum VII weakly tapered; VIII with process swollen at base (Fig. 7); spicular fork with fine walls, spiculae curved; tegmen slender (Fig. 8); phallus in side view (Fig. 9) with large base and very slender, incurved body, internal sac with 4 slender spinules.

♀. Unknown.

Distribution: Syria.



Figs 1-9. 1-4. *Dasytidius insularis*, spec. nov. (1-3. ♂ Holotype). 5. *D. inchoatus* Majer, ♀. 6-9. *D. crassicornis*, spec. nov., ♂ Holotype. 1, 7. Median process of sternum VIII. 2, 8. Tegmen ventral. 3, 9. Phallus ventral. 5. ♀ copulatory organs. 6. Antenna. bco: bursa copulatrix, ovi: oviduct, sec: seminal canal, spc: spermathecal capsule, spd: spermathecal duct, vag: vagina. Scales: A = Figs 1-3,5; B = 7-9; C = 4; D = 6.

Dasytidius recticollis, spec. nov.

Figs 10-14

Holotype: ♂, "Dr. F. Leuthner, Djebel Akrab, 85, N. SYRIEN" (KMBC).

Similar to *D. optivus* Majer but differs from all *Dasytidius* species by distinctively oblong pronotum and strongly transverse antennal segments.

Coloration black, upper surface lustrous, with greenish tinge, legs rufotestaceous (but the Holotype has preserved middle femora only), scape piceous, segments 2-3 rufotestaceous, 4-11 gradually dark-

ened, but bases of all segments pale. Upper surface indistinctly punctate, with fine and dense microsculpture, pubescence unicolorous, greyish, and dual.

♂ (Fig. 10). Length 2.6 mm, width 0.9 mm. Head with moderately prominent big eyes, surface with indicated puncturation, with dense rugosity and microsculpture, semi-mat; antennal segments 5-10 distinctively transverse. Pronotum transversely oblong, sides nearly straight, side margins regularly crenate; disc indistinctly punctate, texture somewhat rasp-like, intervals polished, pubescence as in other *Dasytidius* species; marginal fringe distinct. Elytra indistinctly bordered, apex subtruncate, sutural angles scarcely rounded, surface indistinctly punctate, finely and transversely wrinkled, with microsculpture; pubescence moderately dense, scarcely dual, more erect hairs not well defined.

Pygidium nearly trapeziform, sternum VII slightly tapered, apex lightened; VIII with median process forked at base (Fig. 11). Spicular fork with arched spiculae (Fig. 12), fork proper rather short; tegmen shown (Fig. 13); phallus in side view (Fig. 14) resembles that in *D. optivus* Majer.

Distribution: Syria.

Dasytidius brevicornis, spec. nov.
Figs 11-15

Types. Holotype: ♂, "Bergama (ancient Pergamon), 18-21.V.1981, B. Malkin" (RCSL, will be deposited in MNHN). - Paratypes: 8, same data (RCSL); 1, ditto, 16-17.VI.1979, B & H. Malkin (KMBC); 3, "Turkey, ancient Priene, 13.V.1979, B. Malkin" (1 KMBC, 2 RCSL).

Very closely allied to *D. congruens* Majer, differing in large size, completely black extremities, but chiefly in the structure of terminalia.

Upper surface with indistinct plumbeous lustre being well covered with greyish pubescence; extremities black, only tibia and tarsi sometimes more or less infuscate, antennal segments 2-3(-6) more or less infuscate to rufopiceous. Integument with fine, not very dense texture, partly lustrous, elytra more or less distinctly punctate; pubescence at first sight single but more erect hairs mostly intermixed (in *D. congruens* such hairs lack and thus it seems to belong in *Haplothrix*).

Head with large, well prominent eyes (in both sexes), surface with fine coriaceous texture but almost lustrous; antenna very short, with transverse terminal segments. Pronotum strongly transverse, base and sides arcuate, apex straight, side margins very finely bordered, marginal denticles strongly reduced, disc with texture often sparser than on head, pubescence arranged towards an arched prebasal line and a point close to base; marginal fringe distinct. Elytra distinctly, very densely and shallowly punctate, punctures forming transverse wrinkles; pubescence dense, fine, semi-villose; suberect subseriate hairs distinct to imperceptible; marginal fringe scarcely distinct as overlapped by suberect hairs and strong convexity of elytra; sutural angles more or less rounded.

♂ (Fig. 11). Length 2.8-3.3 mm, width 0.9-1.1 mm. Antennal segments more robust and less transverse, elytra evenly convex. Pygidium roundly trapeziform, apex arcuate; sternum VII briefly produced at apex, VIII with moderately long median process swollen at base (Fig. 12); tegmen and phallus (Figs 13, 14) similar to those in *D. syriacus* Reitt; internal sac with 6-7 larger spinules.

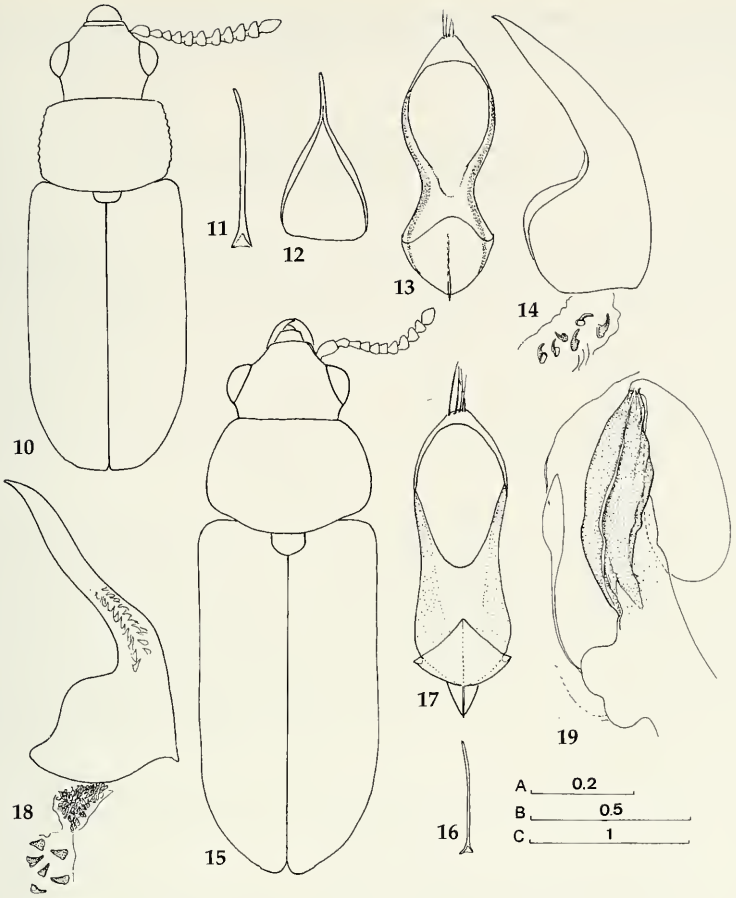
♀. Length 2.8-3.4, width 1.0-1.2 mm. Antennal segments finer and more transverse, elytra widening and more convex posteriorly. Pygidium with strongly converging sides, apex arcuate and briefly emarginate; apex of sternum VII weakly tapered, seminal canal well sclerotized (Fig. 15).

Distribution: Turkey.

Dasytidius marsaleki, spec. nov.
Figs 20-24

Types. Holotype: ♂, "USSR, Kirghizia, 16.7.88, Sary-Chelek reserv. (SW of Kara-kul), V.Kubáň leg." (ZSMC). - Paratypes: 1♀ (ZSMC), 84 (KMBC).

Related to *D. tajikistanus* Majer from which it is easily distinguished in the combination of deep violaceous to bronze lustre, conical pronotum, rufotestaceous tibiae and tarsi and short, suberect, fuscous pubescence.



Figs 10-19. 10-14. *Dasytidius recticollis*, spec. nov., ♂ Holotype. 15-19. *D. brevicornis*, spec. nov. (15-18. ♂ Holotype). 10, 15. Body outline. 11, 16. Median process of sternum VIII. 12. Spicular fork. 13, 17. Tegmen ventral. 14, 18. Phallus lateral. 19. ♀ copulatory organs. Scales: A: Figs 11, 13, 14, 17, 18; B: 12, 16, 19; C: 10, 15.

Black, with deep violaceous-bronze lustre; knees, tibiae, tarsi, antennal segments 2-3(-4) rufotestaceous, basal portion of femora more or less infuscate. Integument very finely and densely punctate, pubescence very short, suberect, fuscous.

Head with fine, moderately dense punctures; antennal segments fine, 4-10 subtriangular, 11 nearly as long as 9 and 10 together. Pronotum transverse, conical, base arcuate, sides straight, disc as punctate as head, sides coriaceous, perimeter very finely bordered; side margins with regular small denticles, each bearing short black seta, forming together marginal fringe. Elytra very finely, inconspicuously punctured, rather transversely wrinkled, pubescence longer and thicker than that on pronotum, marginal fringe not well defined, side margins very finely bordered, apex slightly explanate, sutural angles slightly rounded respectively.

♂. Length 2.6-3.2 mm, width 1.0-1.1 mm. Pronotum narrower, extremities longer and thicker. Pygidium subtrapeziform; sternum VII with subarcuate apex; VIII with long median process (Fig. 20); spicular fork slender (Fig 21); tegmen shown, (Fig. 22); phallus in side view robust (Fig. 23), internal sac with two rows of spinules diminishing distad.

♀. Length 3.1-3.7 mm, width 1.3-1.5 mm. Pronotum wider, extremities shorter and more slender. Pygidium trapeziform, apex shallowly incised; hind margin of sternum VII straight; spermathecal canal sclerotized (Fig. 24).

Distribution: Kyrgyzstan.

Dasytidius deportatus (Peyerimhoff) comb. nov.
Figs 25-29

Dasytiscus deportatus Peyerimhoff, 1929: 194.

Types. Lectotype: ♀, "Haut Oued In Dalay Hoggar, v. 2250 m, 21 mars 1928, fl. d' *Euphorbia*... [illegible]" (Peyerimhoff's MS); "MISSION DU HOGGAR FÉVRIER-MAI 1928" (printed, white label with black margin); "*Dasytiscus deportatus* Peyerimhoff types ♂, ♀" (olivaceous label, Peyerimhoff's MS) (MNHN). - Paralectotype: 1♀, same data (MNHN).

Isolated species, whose relation to the *medius*-group is not quite clear but its shape makes it near to *D. convexus* Pic etc.

Weakly sclerotized. Black, upper surface with olivaceous-bronze lustre, extremities mostly dark-brown but never black; integument not punctured, with very dense texture only, weakly lustrous; pubescence dense, dual and bicolorous.

♂. Unknown.

♀ (Fig. 25). Length 2.9-3.3 mm, width 1.0-1.3 mm. Eyes not prominent, head surface with dense, scabrose and granular texture, antennal segments 6-10 (Fig. 26) submoniliform. Pronotum weakly transverse, base subarcuate, sides arcuate, apex straight; texture as dense as on head; side margins scarcely crenate, lateral fringe fine; pubescence of surface pointing from sides towards middle; converging point not clear. Elytra broadly rounded respectively at apex, humerus not very prominent, side margins finely bordered; surface with fine dense texture having no distinct punctures but rather transverse wrinkles, intervals among them with coarse microsculpture, pubescence dual and bicolorous: (a) whitish suberect hairs shorter than (b) dark, hirsute longer and thicker bristles, the latter not subseriately admixed but are as dense as the whitish ones; lateral fringe distinct at hind elytral portion. Membranous wings abbreviate, neither functional nor foldable, nervature reduced, bearing no essential *Dasytidius* characters (Fig. 27).

Pygidium (Fig. 28) rather semicircular; hind margin of sternum VII nearly semicircular, apex weakly emarginate; seminal duct (Fig. 29) not sclerotized but its structure comports with that in many *Dasytidius* species.

Distribution: S Algeria (Hoggar).

Remarks. Peyerimhoff supposed the two specimens to be a male and female (there is some difference in the body outline). They were originally mounted onto a common card but are separated now. The abbreviate membranous wings have no analogy in the Dasytidae known to me.

Dasytidius sudanicus (Pic), comb. nov.
Figs 30-33

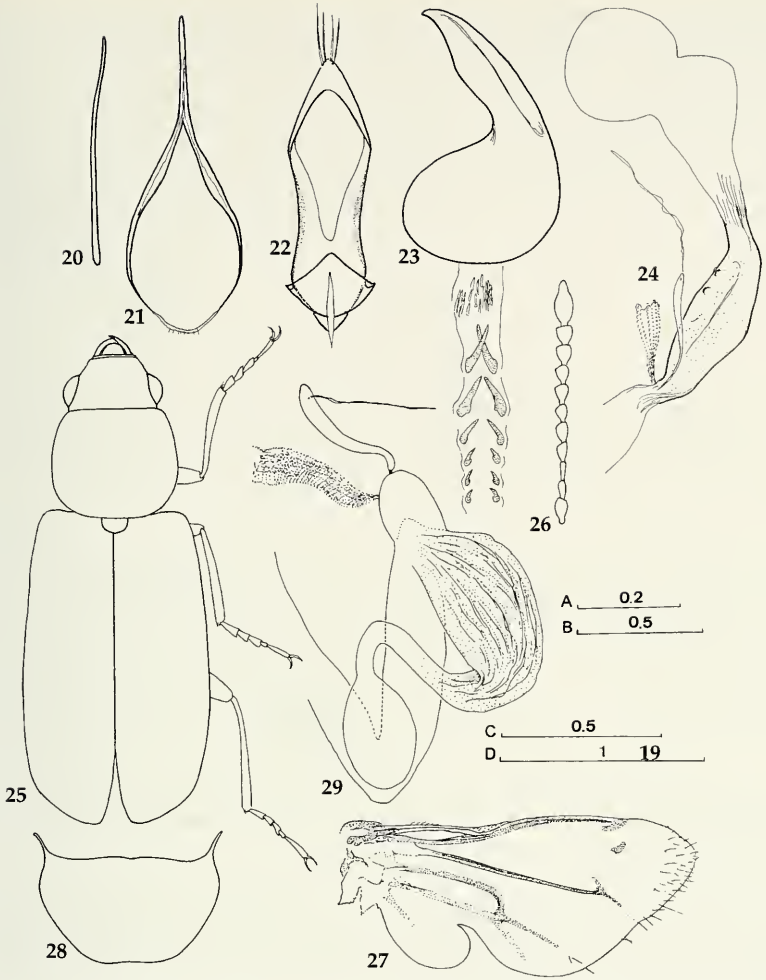
Dasytiscus sudanicus Pic, 1929: 138.

Types. Lectotype: ♂, "Sudan Govt." (printed); "GRF Medani H. W. Bedford, 15.10. 26, on cotton" (handwritten); "WTRL Ent. Col. C. 364" (white label, black margin); "*Dasytiscus sudanicus* n. sp." (Pic's MS); "gardé 1" (Pic's MS); "type" (circular with red margin) (BMNH). - Paralectotype: 1♀, labelled as Lectotype but "6.10.26 on Ads", and, "un ou Br. Museum de forme plus allongée" (Pic's MS) (MNHN).

Species of rather isolated position nevertheless belonging close to *D. endroedyi*, spec. nov.

Sexes unlike. Coloration brown to piceous, legs completely and antenna partly (segments 2 and 3) testaceous. Integument with very fine texture, semi-mat; vestiture whitish, fine, short and even, nearly decumbent, somewhat more erect hairs may be found along elytral sides; lateral fringe distinct on pronotum only.

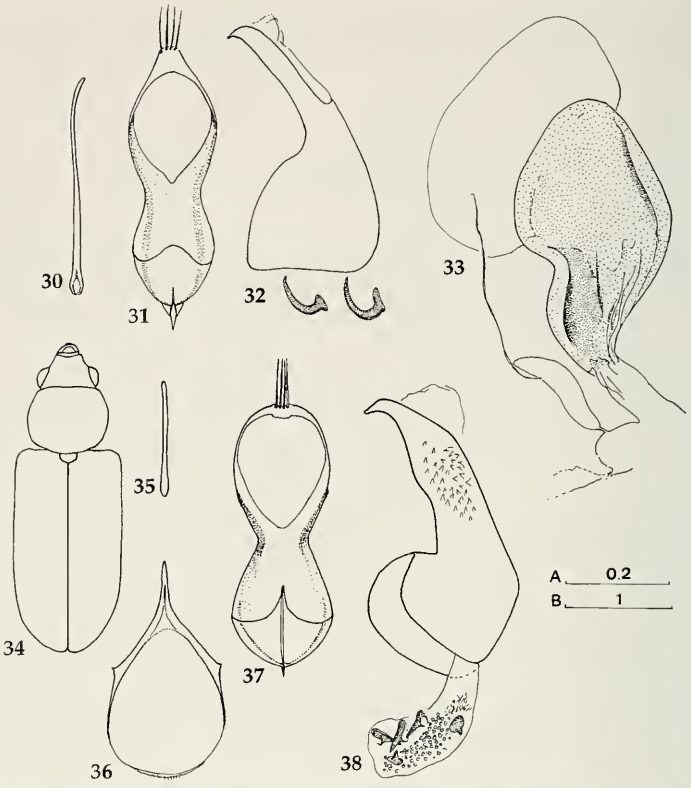
Head with moderately prominent eyes, head surface with fine puncturation, nearly polished. Pronotum transverse, broadest at basal third, base and apex nearly straight, sides slightly converging



Figs 20-27. 20-24. *Dasytidius marsaleki*, spec. nov. (20-23. ♂ Holotype). 25-27. *D. deportatus* Peyerimhoff, ♀ Lectotype. 20. Median process of sternum VIII. 21. Spicular fork. 22. Tegmen ventral. 23. Phallus lateral. 24, 29. Internal copulatory organs. 25. Body outline. 26. Antenna. 27. Wing. 28. Pygidium (all setae omitted). Scales: A: Figs 20-23; B: 26, 27; C: 28, 29; D: 24, 25.

anteriorly; disc with very fine and moderately dense punctures, intervals with indistinct texture, rather lustrous; pubescence arranged towards a point near base; lateral fringe distinct. Elytral suture bordered along distal half, apex subtruncate, apices rounded respectively; upper surface with indistinct fine punctures and transverse wrinkles, intervals with distinct microsculpture.

♂. Length 2.3 mm, width 0.8 mm. Eyes more prominent. Antenna longer, segments thicker, 5-10 submoniliform. Pronotum less transverse, distinctly narrower than elytra, sides more arcuate. Elytral apex more rounded. Pygidium nearly semicircular to weakly trapeziform; sternum VII subarcuate; VIII with long and slender median process (Fig. 30); spicular fork with thick walls and incurved apex of fork proper; tegmen (Fig. 31) constricted across middle, its both base and apex subovate; phallus in side view (Fig. 32) with two large, slender, spines.



Figs 30-38. 30-33. *Dasytidius sudanicus* (Pic) (30-32. ♂ Lectotype). 33-38. *D. muehlei*, spec. nov., ♂ Holotype. 30, 35. Median process of sternum VIII. 31, 37. Tegmen ventral. 32, 38. Phallus lateral. 33. ♀ copulatory organs. 34. Body outline. 36. Spicular fork. Scales: A: Figs 30-33, 35-38; B: 34.

♀. Length 2.6 mm, width 1.0 mm. Eyes less prominent. Antenna shorter, segments 8-10 more or less transverse, almost narrower than elytra, sides less arcuate. Elytral apex more attenuate. Pygidium nearly semicircular, apex weakly emarginate; sternum VII scarcely produced in middle; seminal canal (Fig. 33) sclerotized, with two peculiar formations.

Distribution: Sudan.

Dasytidius muehlei, spec. nov.
Figs 34-38

Types. Holotype: ♂, "YEMEN/ Sana'a, Wadi Dor, 31.5.1978, leg. H. Mühle" (RCSL, will be deposited in MNHN).

Very closely allied to *D. wittmeri* Majer differing in dark legs and greyish pubescence.

Black, upper surface with dark metallic lustre, tibiae and tarsi rufopiceous. Integument with very dense texture, semi-mat, pubescence nearly single, very fine and short, moderately dense, greyish hairs subdecumbent, indistinctly intermixed with suberect ones on elytra.

♂ (Fig. 34). Length 2.9 mm, width 1.0 mm. Head with big, prominent eyes, head surface with irregular coriaceous sculpture, antennal segments 4-10 distinctly serrate and more or less transverse, 6 and 8 not distinctly smaller than adjoining. Pronotum distinctly narrower than elytra at base, base and sides

arcuate, apex straight, disc with texture as on head, side margins finely denticulate, marginal fringe weakly defined; surface with pubescence arranged towards a point close to base. Elytra strongly convex, with shallow and dense but indistinct punctures forming transverse wrinkles, intervals with microsculpture; side margins finely bordered, bordering visible along apical elytral third only as two anterior thirds are very strongly convex ; apex subtruncate, sutural angles weakly obtuse.

Pygidium trapeziform, apex emarginate; sternum VII with arcuate hind margin, VIII with very short simple median process (Fig. 35); spicular fork with angled spiculae (Fig. 36), fork proper very short; tegmen (Fig. 37) with round both base and apex, the latter briefly emarginate; phallus (Fig. 38) with beak- shaped apex; internal sac with several large spinules.

♀. Unknown.

Distribution: Yemen.

Dasytidius endroedyi, spec. nov.
Figs 39-44

Types. Holotype: ♂, "Ghana: Northern region, Savelugu, 30 km N of Tamale, Dr. S. Endrödy-Younga; Nr 438, netted, 26.X.1970" (HNHM). - Paratypes: 1, with data as holotype (KMBC); 1, "Ghana: Upper region, Tumu, N 10° 108', W 2°100', Dr. S. Endrödy-Younga; Nr 487, netted, 27.X.1971" (HNHM); 1, "Musée du Congo, Kiambi, 4.V.1931, G.F. de Witte"; "R.DÉT. S 3115" (MRAC).

Species with bulging eyes, constricted head and small transverse pronotum, closely allied to *D. sudanicus* Pic.

Piceous to black, upper surface semi-mat, with indistinct metallic reflexes, extremities testaceous to fuscous; mouthparts (excepting lightened apex of terminal maxillary segment), antennal scape and apical half darkened, tarsi and femora sometimes more or less infuscate. Integument with nearly single light pubescence, which is composed of fine, not dense and more or less decumbent hairs.

Head nearly impunctate, with coriaceous texture only; eyes bulging, head constricted beyond them, antennal segments 5-10 transverse. Pronotum small, strongly transverse, base arcuate, sides more or less converging anteriorly, upper surface with coriaceous texture as head or disc more glabrous and surface coriaceous at sides only; pubescence as in *D. sudanicus*, marginal denticles small but distinct, each bearing longer seta. Elytra finely bordered along side margins, tips rounded respectively, upper surface with more or less defined shallow punctures.

♂ (Fig. 39). Length 2.3-2.4 mm, width 0.8 mm. Slender, antennal segments 4-6 strongly transverse, situated obliquely to antennal axis. Pronotum smaller and more transverse. Extremities long and stout. Pygidium nearly semicircular; sternum VII scarcely emarginate and somewhat impressed at apex; VIII divided into two, median process slender and short (Fig. 40); spicular fork (Fig. 41) with fine walls; tegmen (Fig. 42) slender, resembling that in *D. sudanicus*; phallus in side view (Fig. 43) arched, with incurved tip; internal sac with one large spine.

♀. Length 2.9 mm, width 1.0 mm. Wider, antennal segments 4-6 not very different from neighbouring, pronotum bigger, less transverse, sides arcuate. Extremities more slender, shorter. Pygidium triangular, apex rounded; sternum VII briefly produced; seminal canal (Fig. 44) weakly sclerotized, fluently passing into bursa copulatrix, the latter well defined.

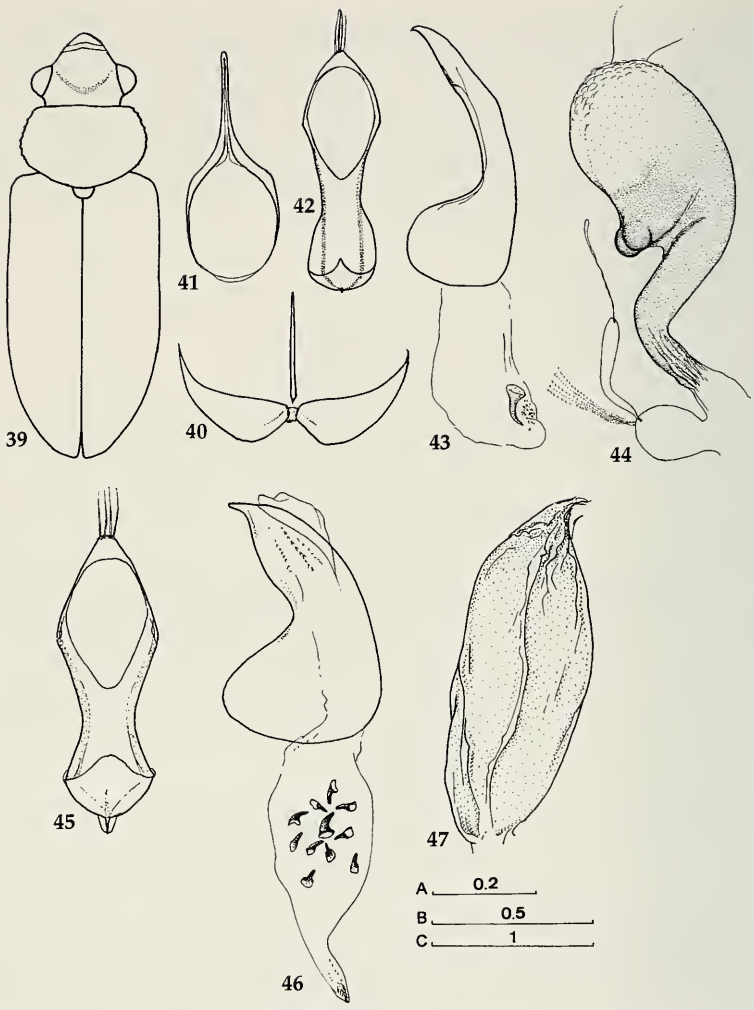
Distribution: Ghana.

Dasytidius turnai, spec. nov.
Figs 45-47

Types. Holotype, ♂, "China, Shaanxi 1992 120 km E Xi an Hua Shan, 3.-4. VI. Jaroslav Turna leg." (KMBC). - Paratypes: 4♂♂, 3♀♀, same data (KMBC).

Species of rather isolated position, most closely related to *D. tajikistanus* Majer but the strongly transverse pronotum is much narrower than elytra, antennal segments are not transverse.

Black, shiny, with weak aeneous lustre, head and pronotum rather finely coriaceous. Pubescence white, subdecumbent, rather sparse, pronotum and elytra with irregular sparse lateral fringe. Extremities rufotestaceous, antennal scape and segments 3(5) onwards darkened. Antenna approximately twice longer than pronotum, segments 2-3 and 11 elongate, 4-10 never distinctly transverse, 8 indistinctly



Figs 39-47. 39-44. *Dasytidius endroedyi*, spec. nov. (39-43. ♂ Holotype). 45-47. *D. turnai*, spec. nov. (45, 46. ♂ Holotype). 39. Body outline. 40. Sternum VIII. 41. Spicular fork. 42, 45. Tegmen ventral. 43, 46. Phallus lateral. 44, 47. ♀ copulatory organs. Scales: A: Figs 40-43, 45-47; B: 44; C: 39.

smaller than neighbouring. Head with moderately prominent eyes. Pronotum distinctly narrower than elytra across humeri, about one sixth broader than long, base arcuate, sides subconical, apex straight, hairs converging in middle near base. Elytra jointly rounded at apex, sutural angles more or less rounded respectively.

♂. Length 3.0-3.3 mm, width 1.0-1.2 mm. Parallel-sided. Antenna longer, segments weakly elongate, sutural angles weakly prominent. Pygidium about one third broader than long, weakly emarginate. Sternum VII almost straight, VIII with filiform median projection which is one third shorter than width of sternum proper. Spicular fork fine; tegmen (Fig. 45) resembles that in *D. indutus*; phallus in side view (Fig. 46) robust, with claw-like apex; internal sac with 10-12 spinules.

♀. Broadening posteriorly. Antenna shorter, segments not elongate, sutural angles more rounded.

Pygidium almost semicircular. Sternum VII straight, VIII narrowly crescent, seminal canal sclerotized, ovate in outline (Fig. 47).

Distribution: China (Yunnan).

Dasytidius malkini, spec. nov.
Figs 48-54

Types. Holotype: ♂, "TURKEY; ancient MYRA, (Antalya prov.), 8.V.1981, B. Malkin" (RCSL, will be deposited in MNHN). - Paratypes: 3♀♀, same data (2 RCSL, 1 KMBC).

Very near to *D. indutus* Kiesw. but pronotum extraordinarily transverse.

Upper surface scarcely with greenish lustre, legs and antennal segments 2-3(-5) rufescent. Integument with very fine texture, impunctate, dull; pubescence yellowish, semi-villose, long, dense, clearly dual on elytra; marginal fringe poorly marked on pronotum, not distinctive (but very long) on elytra.

Head with coriaceous texture but weakly lustrous, eyes moderately prominent; antenna with subserrate segments, penultimate ones always transverse. Pronotum strongly convex, extraordinarily transverse, base arcuate, hind corners completely rounded, apex straight; upper surface as on head; marginal denticles very dense and regular; lateral fringe long and striking; pubescence semi-erect at sides, arranged towards a point very close to base. Elytra impunctate, with shallow dense, transverse wrinkles and microsculpture, semi-villose pubescence consists of more and less decumbent hairs, the latter subseriately intermixed, marginal fringe not well different from surface pubescence but visible, very long; tips jointly rounded, sutural angles slightly rounded.

♂ (Fig. 48). Length 3.6 mm, width 1.3 mm. Antennal segments transverse from 4. Pronotum very broadly subtrapeziform, sides straight. Pygidium trapeziform, apex subarcuate; sternum VII subarcuate at hind margin, VIII with very long and simple median process (Fig. 49); spicular fork guttiform in outline (Fig. 50); tegmen as in *D. indutus*, tip briefly emarginate (Fig. 51); phallus in side view very robust (Fig. 52); internal sac with very complex structure.

♀. Length 3.7 mm, width 1.3 mm. Antennal joints transverse from 5. Pronotum strongly rounded at sides. Pygidium nearly semicircular; sternum VII briefly produced; seminal canal (Figs 53- 54) with distinctive structure.

Distribution: Turkey.

Dasytidius impar, spec. nov.
Figs 55-59

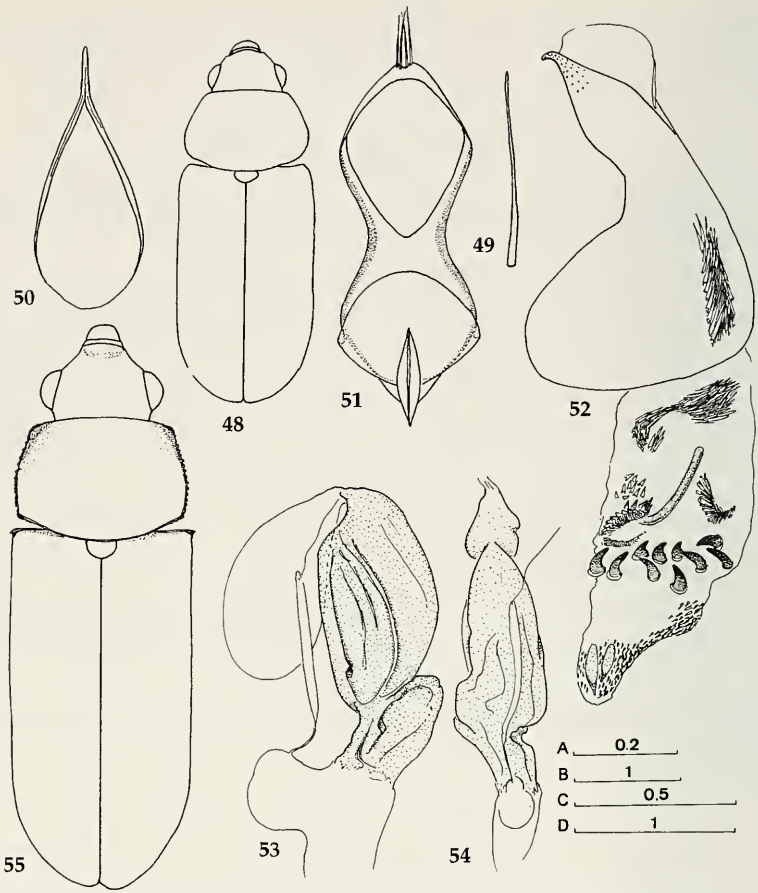
Types. Holotype:♂, "TURKEY: Alanya, 24.V.1979, B. Malkin" (RCSL, will be deposited in MNHN). - Paratypes: 15, same data (3 KMBC, 12 RCSL).

Species belonging in the *D. indutus*-group, especially to *D. funebris* Majer but habitually most resembling *D. virescens* Baudi in suboblong shape of pronotum and toothed humeri.

Black, upper surface with feeble plumbeous lustre but coloration is partly formed by dense greyish pubescence; extremities completely black, tibiae and tarsi seldom rufescent. Integument with dense and fine coriaceous texture, semi-mat; pubescence greyish to yellowish, semi-villose, clearly dual overall body upper surface.

Head with coriaceous texture, mat, eyes more or less prominent, antennal segments 4(5)-10 subserrate, transverse, 6 and 8 not distinctly smaller than adjoining. Pronotum transverse, slightly constricted preapically, suboblong, base subarcuate, sides more or less subangulate, both anterior and posterior corners pronounced; base and sides bordered, side margins with small irregular denticles, marginal fringe prominent; pronotal surface with coriaceous texture, being mostly finer on head, pronotum therefore somewhat more lustrous, surface with pubescence arranged towards a longitudinal median line and point at base. Elytral base edged at anterior corners, humeri with sharp denticle each; sutural angles more or less rounded; upper surface with flat transverse texture, scarcely punctate; pubescence clearly dual, semi- erect hairs admixed, marginal fringe almost overlapped by semi-erect hairs.

♂ (Fig. 55). Length 3.2-3.5 mm, width 1.1 mm. Antennal segments thicker. Elytra evenly convex and parallel-sided. Pygidium semicircular, very briefly incised; sternum VII briefly tapered, VIII with slender



Figs 48-55. 48-54. *Dasytidius malkini*, spec. nov. (48-52. ♂ Holotype). 55. *D. impar*, spec. nov., ♂ Holotype. 48, 55. Body outline. 49. Median process of sternum VIII. 50. Spicular fork. 51. Tegmen ventral. 52. Phallus lateral. 53. ♀ copulatory organs. 54. Same, different aspect. Scales: A: Figs 51, 52. B: 48; C: 49, 50, 53, 54; D: 55.

and simple median process (Fig. 56); spicular fork shown (Fig. 57); tegmen, as in other members of the *indutus*-group; phallus in side view (Fig. 58) with beak- shaped apex; internal sac with complex structure.

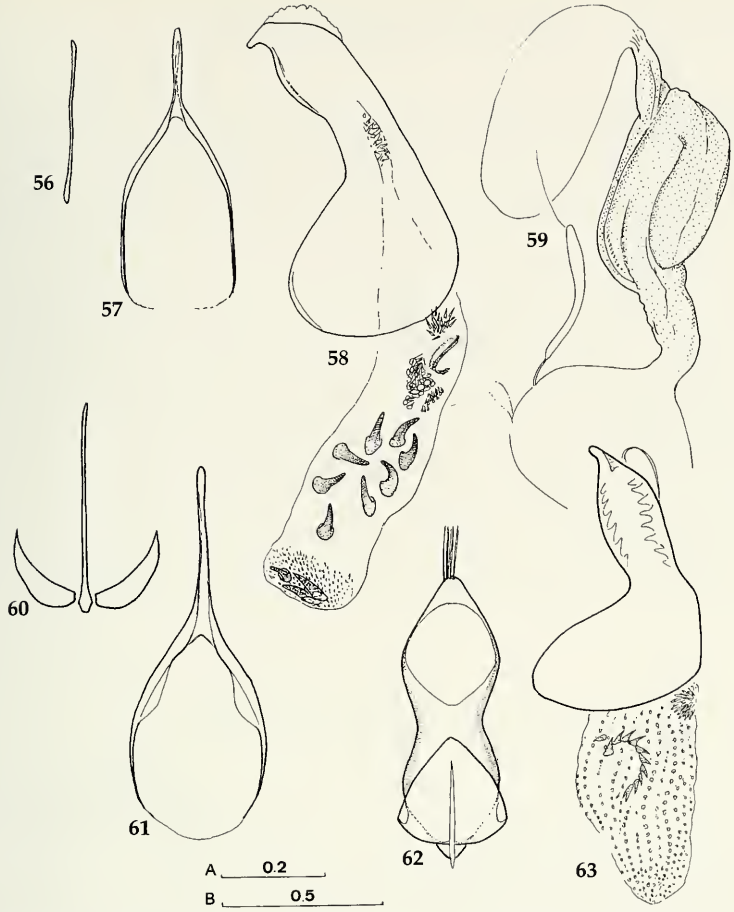
♀. Length 3.0-3.5 mm, width 1.1-1.3 mm. Antennal segments smaller, elytra somewhat broadening and more convex posteriorly. Pygidium subtrapeziform, apex weakly emarginate; sternum VII briefly produced; seminal duct heavily sclerotized (Fig. 59).

Distribution. Turkey.

Dasytidius wittmeri Majer, 1991
Figs 60-63

This species was described according to females only. I am giving here illustrations of the male terminalia (Figs 60-63).

Additional material: 2, Saudi Arabia, Thanomah, 1950 m, 11.4.1980, W. Büttiker" (1 KMBC, 1 NHMB).



Figs 56-63. 56-59. *Dasytidius impar*, spec. nov. (56-58. ♂ Holotype). 60-63. *Dasytidius wittmeri* Majer, ♂. 56. Median process of sternum VIII. 57, 61. Spicular fork. 58, 63. Phallus lateral. 59. ♀ copulatory organs. 60. Sternum VIII (all setae omitted). 62. Tegmen ventral. Scales: A: Figs 56-58, 61-63; B: 59, 60.

Dasytidius addilaensis Wittmer

New for Yemen: 1♂, 1♀, Yemen, Horaz, Monacha-Mawsana, 3.6.1987, H. Mühle leg. (KMBC, RCSL).

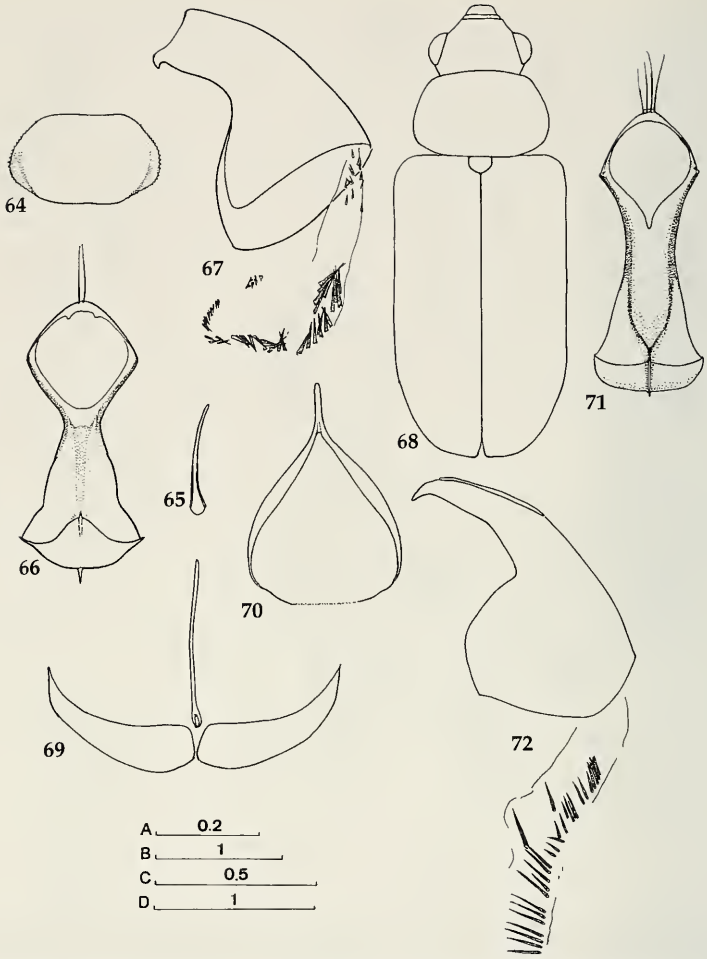
Dasytidius clarkei, spec. nov.

Figs 64-67

Types. Holotype: ♂, "Sidamo Prov.: 105 km E of Neghelli, 1300/1500 m,7/8-V-74" (printed); "Coll. Mus. Tervuren Ethiopie, R.O.S. Clarke" (printed); "*Dasytiscus* sp. J. Decelle det. 1979" (MRAC).

Very closely resembling *D. addilaensis* in the body shape and terminalia, but pronotum is more transverse, with more rounded sides with distinctly denticulate side margins.

♂. Length 3.5 mm, width 1.4 mm. Robust, subcylindrical, strongly convex. Black, with plumbeous



Figs 64-72. 64-67. *Dasytidius clarkei*, spec. nov., ♂ Holotype. 68-72. *D. desaegeri* (Pic), ♂ Lectotype. 64. Outline of pronotum. 65. Median process of sternum VIII. 66, 71. Tegmen ventral. 67, 72. Phallus lateral. 68. Body outline. 69. Sternum VIII (all setae omitted). 70. Spicular fork. Scales: A: Figs 69-72; B: 64-66; C: 67; D: 68.

lustre, extremities rufotestaceous; antennal scape black, segments 5-11 gradually darkening, mouthpars black; apex of metatarsi and claws darkened. Integument indistinctly punctate, with somewhat coriaceous texture; pubescence flavescent, seemingly single, but a part of elytral hairs more reclinate.

Antennal segments 5 and 6 subtriangular, 7-10 distinctly transverse, 11 shortly subelliptical; head capsule as in *D. addilaensis*. Pronotum (Fig. 64) nearly twice as broad as long, sides strongly rounded and slightly explanate; side margins finely, but distinctly denticulate, fringe distinct; pubescence arranged towards a point at base. Elytra subtruncate at apex.

Pygidium, sternum VII, VIII (Fig. 65), and spicular fork nearly as in *D. addilaensis* Wittm; tegmen (Fig. 66) with more strongly broadening base, strongly constricted across middle; phallus (Fig. 67) slightly emarginate at apex, spinules somewhat less numerous than in *C. addilaensis*.

♀. Unknown.

Distribution: Ethiopia.

Dasytidius desaegeri (Pic), comb. nov.
Figs 68-72

Dasytiscus Desaegeri Pic, 1954: 211.

Types. Lectotype: ♂, "Musée du Congo, Bussin Lukunga,-1935, H. De Saeger" (printed); "*Dasytiscus desaegeri* n. sp." (Pic's MS) (MNHN). - Paralectotype: 1♂, "Musée du Congo "(printed); "Kiambi, 4.V.-1931 " (handwritten); "G.F. de Witte" (printed); "von de wittei mihi" (Pic's MS) (MHNP).

Species related to *D. addilaensis* and allied forms. Black, lustrous, antennal segments 2-4 rufescent. Integument finely and regularly punctate; pubescence whitish, suberect, fine moderately long, seemingly single.

♂ (Fig. 68). Length 2.8 mm; width 1.0 mm. Head wide, eyes prominent, round; surface lustrous, puncturation rather shallow, indistinct, sparse, irregular; intervals with indistinct microsculpture. Terminal segment of maxillary palps subcylindrical; antennal joints 4-10 distinctly serrate, 5-10 more or less transverse. Pronotum strongly transverse, broadest beyond middle, base subarcuate, sides strongly arcuate, apex straight, disc and sides not very finely, rather indistinctly, punctate, intervals polished, broader, than punctures; perimeter bordered, side margins very finely crenate; pubescence arranged from sides towards median longitudinal line, lateral fringe distinct. Elytra parallelsided, apex somewhat attenuate and truncate, surface with shallow, relatively coarse and regular puncturation, intervals with microsculpture, as broad as punctures; sides bordered (visible along distal portion); pubescence rather hirsute but fine, two kinds of hairs cannot be distinguished, lateral fringe not defined due to suberect pubescence. Legs relatively robust.

Pygidium trapeziform; sternum VII nearly straight, VIII (Fig. 69) with slender median process; spicular fork (Fig. 70) with broad and arched spiculae; tegmen (Fig. 71) strongly resembling that in *D. addilaensis*; phallus in side view (Fig. 72) with large base; internal sac with numerous, dark, elongate, spinules.

♀. Unknown.

Distribution: Zaire.

Dasytidius atrimembris (Pic), comb. nov.
Figs 73-78

Dasytiscus atrimembris Pic, 1925: 17.
Dasytiscus Scotti Wittmer, 1954: 136, syn.nov.

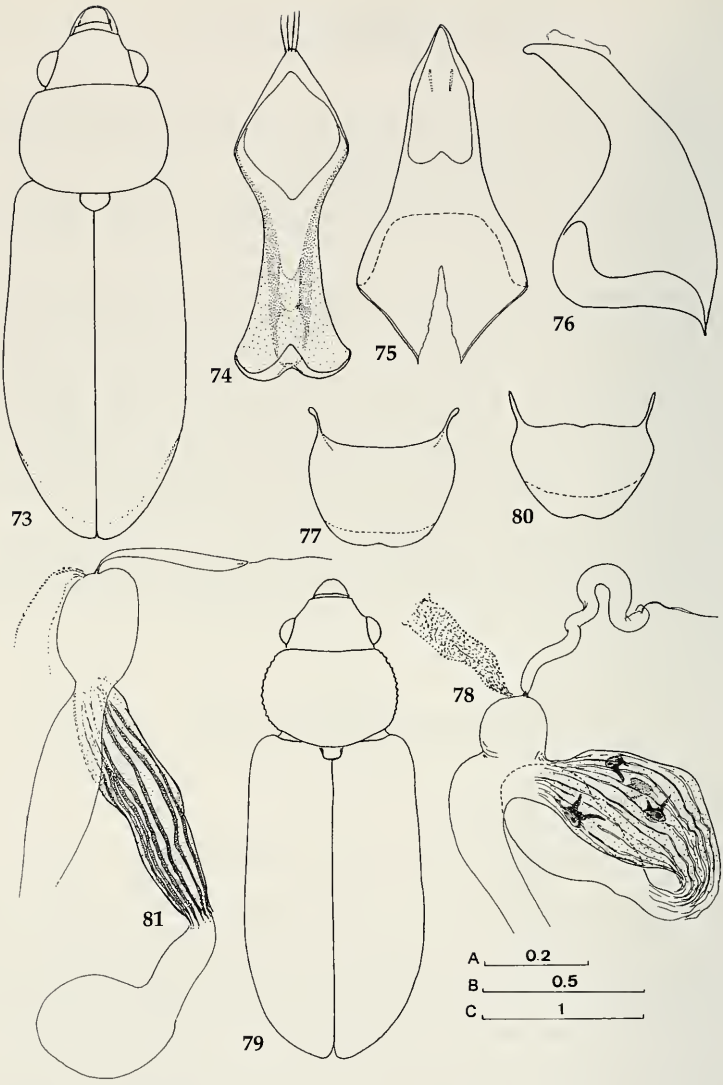
Types. Holotype: ♂, "Maraco abyssinie" (Pic's MS); "type" (yellow label); "*Dasytiscus atrimembris* n. sp." (Pic's MS) (MNHN).

Species mostly resembling *D. desaegeri* (Pic) in completely black coloration, sclerites in seminal canal resemble those in *D. gracilis* (Esc.) but *atrimembris* is most closely allied to *D. addilaensis* (Wittm.).

Coloration completely black, no spur of metallic tinge, upper surface slightly polished; integument with dense texture; pubescence short, almost hirsute, unicolorous (whitish) and single (subdecumbent), only pronotal fringe, several thicker hairs at elytral apex and those on head frons dark.

Head with moderately prominent eyes, surface sparsely and shallowly punctate, intervals nearly glabrous. Pronotum strongly transverse, base subarcuate, apex nearly straight, sides subarcuate; disc regularly and finely punctate, intervals with network texture, scarcely polished, broader than punctures, puncturation denser sidewards; perimeter very finely bordered; pubescence pointing from sides towards a median longitudinal line (as in *D. desaegeri* Pic), side margins scarcely crenate; fringe composed of thicker bristles which are more or less infuscate, distinctly darker than basal pubescence. Elytra very long, with slightly attenuate apex, tips rounded respectively; puncturation somewhat coarser than on pronotum; intervals convex, with microsculpture, as broad as punctures; sides of elytra bordered; pale pubescence rather hirsute, longer, thicker and darker bristles present on elytral apex; lateral fringe not well marked.

♂. Length 3.2-3.4 mm, width 1.1-1.2 mm. Much more slender than ♀. Antenna longer, joints less transverse. Sides of pronotum less arcuate. Pygidium subquadrate; sternum VII weakly produced; VIII with swollen median process; spicular fork ovate, with thin walls, fork proper short; tegmen (Fig. 74) resembles that in *D. addilaensis*; phallus (Figs 75, 76) short, base extremely enlarged; in side view with deep incision; internal sac without distinct spinules.



Figs 73-81. 73-78. *Dasytidius atrimembris* (Pic) (73-76. ♂ Holotype). 79-81. *D. licenti* (Pic), ♀ Lectotype. 73, 79. Body outline. 74. Tegmen ventral. 75. Phallus dorsal. 76. Phallus lateral. 77, 80. ♀ pygidium (all setae omitted). 78, 81. Copulatory organs. Scales: A: Figs 74-76; B: 77, 78, 80, 81; C: 73, 79.

♀ (Fig. 73). Length 3.2-3.4 mm, width 1.2-1.3 mm. Broadening at hind third. Antenna shorter than in ♂, segments more transverse. Pronotal sides more arcuate. Pygidium (Fig. 77) strongly rounded; sternum VII subarcuate, only very briefly tapered; seminal canal (Fig. 78) with longitudinal patterns and peculiar inner spinules.

Distribution. Ethiopia.

Syntypes, 2♂, 2♀, of *D. scotti* (BMNH): "Ethiopia: Doukhamb. 6500-7500 ft., 18.x.[or 20.x.] 1926".

Dasytidius licenti (Pic), comb. nov.
Figs 79-81

Dasytiscus Licenti Pic, 1936: 162.

Types. Lectotype: ♀, "1. VI. 16, Licent /[reverse side] "Vigne vierge [wild vine], Ailanthe"; "*Dasytiscus Licenti* n. sp." (Pic's MS) (MNHN). - Paralectotype: 1♀, "9.VI.16"/ [reverse side] "Licent"; "No 206" (MHNP).

The species seems similar to *D. longiventris* Majer by the structure of seminal canal but its relation to *Dasytidius* is not settled.

Coloration black, upper surface with olivaceous lustre, legs testaceous, mouthparts infuscate, antenna testaceous, scape scarcely infuscate, segments 5-11 gradually darkened towards apex, distal antennal half at the most infuscate. Integument with dense and fine texture, pubescence cinereous, fine and moderately dense, indistinctly dual.

♂. Unknown.

♀ (Fig. 79). Length 2.8-3.0 mm, width 1.1-1.2 mm. Head with small eyes, surface with very dense and fine, rather scabrose sculpture, therefore nearly dull. Antenna slender and long, with subserrate segments. Pronotum transverse, disc weakly polished, with fine and dense, rather regular texture, puncturation only indicated, sides more rugose, side margins with small regular denticles, pubescence pointing towards a point near base. Elytra rounded respectively at apex, surface shallowly and densely punctured, punctures partly confluent into transverse wrinkles, intervals with microsculpture, side margins very finely, indistinctly bordered, apical margin slightly explanate. Pygidium (Fig. 80) emarginate at apex; sternum VII briefly produced medioapically; seminal duct weakly sclerotized, with linear sculpture (Fig. 81).

Distribution: China.

Mimothrix pamirensis, spec. nov.
Figs 82, 83

Types. Holotype: ♂, "Kurovat' Pamir 10/VIII 93 N. Bogoyavlensk" (Printed in Cyrillic) (ZMUM).

Species very closely related to *M. roshtkalensis* Majer, from which it differs strikingly by antennal segments not transverse and elytra less lightened, phallus much more slender, with big prominent spinules.

♂. Length 4.0 mm, width 1.5 mm. Black, slightly shiny, with aeneous lustre, puncturation dense, fine, rather coriaceous, extremities rufotestaceous, antennal segments 1 and 9-11 more or less darkened. Elytra rufopiceous, humeral portion darkened. Pubescence white, dual, decumbent, rather villose, with sparse, erect longer hairs which are subseriate on elytra. Antenna about two fifths longer than pronotum, segments subserrate, no one is transverse. Eyes rather flat and weakly prominent, head subrostrate. Pronotum indistinctly transverse, finely and densely punctured, sides rounded, side margins indistinctly crenate, with sparse fringe. Elytra sharply bordered along side margins, borders nearly canaliculate, elytral apices weakly obliquely truncate respectively, sutural angles slightly rounded.

Pygidium about twice broader than long, indistinctly emarginate; sternum VII nearly straight; VIII as in other species, spicular fork slender; tegmen (Fig. 82) with truncate apex; phallus (Fig. 83) rather slender, subsinuate, with prominent big spinules.

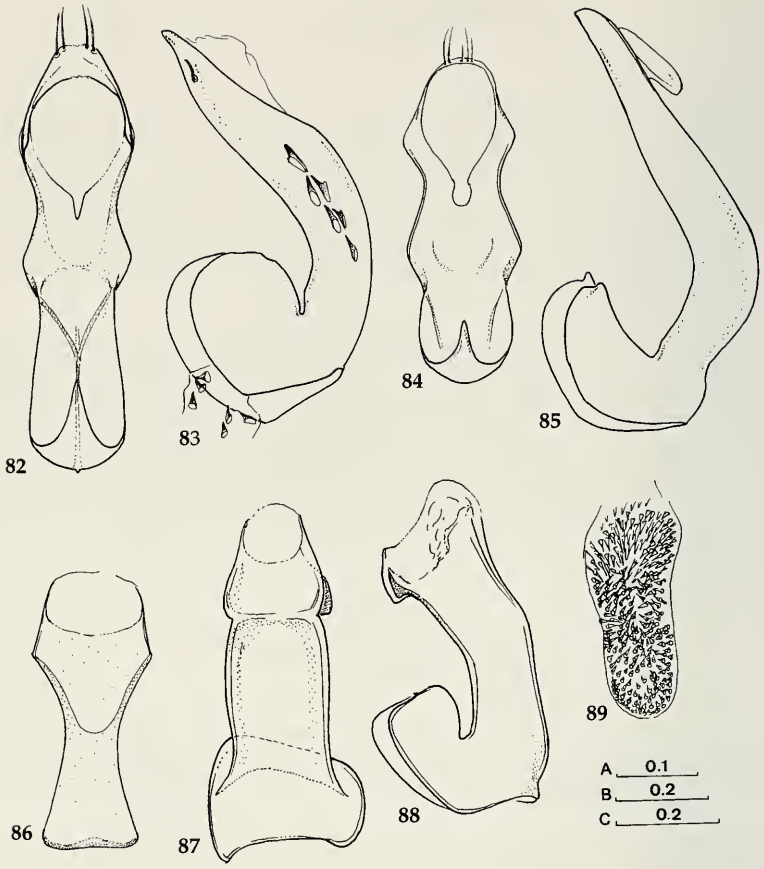
Distribution. Tajikistan (Pamir).

Achaetomalachius rosti, spec. nov.
Figs 84, 85

Types. Holotype: ♂, "Kulu, 7000 F" (Rost's MS); "Kulu Himalaya" (printed) (MNHN).

Easily recognizable by combination of testaceous extremities and very dense greyish fundamental pubescence, with only light bristles on pronotum.

Coloration black, with slight greenish reflexes but upper surface completely covered with very dense subvillose pubescence (which has no analogy in the genus *Achaetomalachius*), extremities rufotestaceous,



Figs 82-89. 82, 83. *Mimothrix pamirensis*, spec. nov., ♂ Holotype. 84, 85. *Achaetomalachius rosti*, spec. nov., ♂ Holotype. 86-89. *Dasytiscus strejcekorum*, spec. nov., ♂ Holotype. Scales: A: Figs 86-89; B: 82, 83; C: 84, 85.

antennal scape, distal pat of antenna, maxillary palps and claws strongly infuscate, distal antennal segments nearly piceous.

♂. Length 3.3 mm, width 1.2 mm. Head with coriaceous sculpture, along inner eye margins with 3-5 longer light setae, antennal segments 4-10 subtriangular, no one is transverse, 10 scarcely longer than wide. Pronotum weakly transverse, base and sides jointly rounded, sculpture as on head, basal pubescence points towards centre, side margins with 8-10 very small but prominent denticles, each bearing one to two long light setae. Elytra very finely bordered along side margins, apex subtruncate and inconspicuously inflated, sutural angles distinctive, upper surface with dense and coriaceous, fine puncturation, marginal fringe short but distinct, longer hairs are present on humeri and along apical margin.

Pygidium broadly trapeziform. Sternum VII conspicuously produced medioapically. Tegmen (Fig. 84) and phallus (Fig. 85) shown.

Distribution: N India.

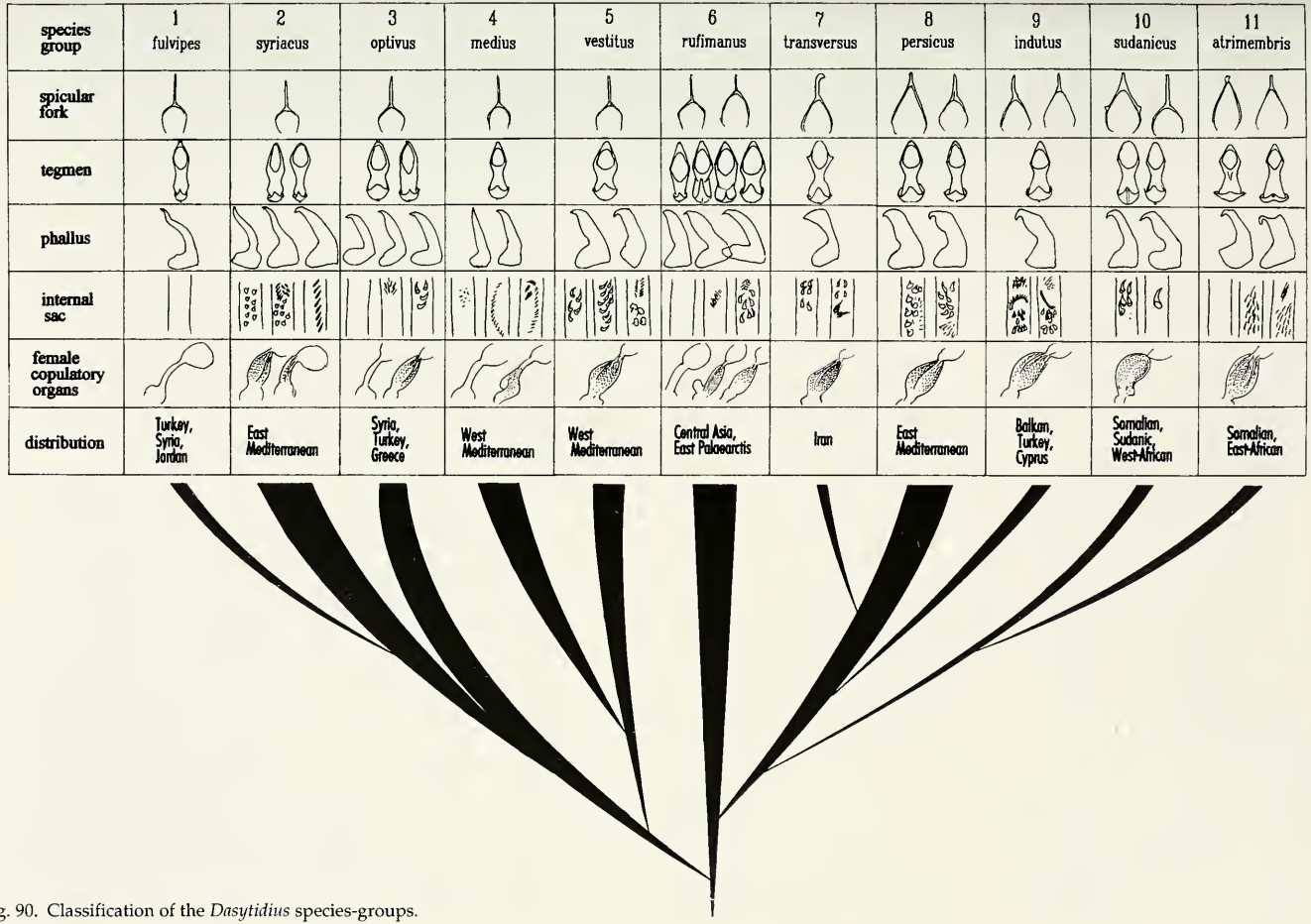


Fig. 90. Classification of the *Dasytidius* species-groups.

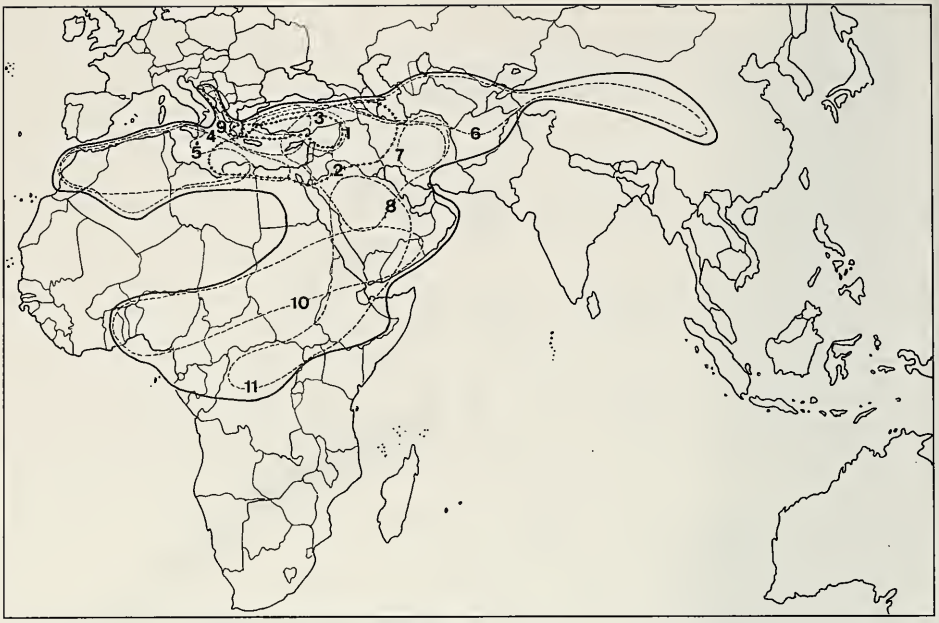


Fig. 91. Distribution of the *Dasytidius* species-groups. The numbers indicate the respective species-groups as in text.

Dasytiscus strejcekorum, spec. nov.
Figs 86-89

Types. Holotype: ♂, "USSR, Armenia Erivan (Razdan) 7.6.1988 J.Strejček leg." (KMBC). - Paratypes: 6♂♂, 4♀♀, same data (KMBC); 2♂♂, 4♀♀, "ARMENIA, 27.5.1989 Erivan, Upper Razdan, steppe ruderal, E. Strejčková leg." (KMBC).

The species is strongly resembling and very closely related to *D. hladili* (Majer, 1988) from which it differs in antennal segments 2 (-4) rufotestaceous, pronotum and elytra less lustrous and more densely punctured and chiefly in the absence of big rounded spinules in the internal sac.

Shiny, dark-brown, antennal segments 2 (-4), ends of femora, tibiae and tarsi rufotestaceous. Punctures moderately dense, fine. Pubescence almost decumbent, fine and short, whitish. Antenna one fifth longer than pronotum, segments 6-10 weakly transverse, 6 and 8 strongly smaller than neighbouring, 4 elongate, subtriangular, 5 strikingly triangular, 11 conical and as long as 9 and 10 together. Eyes large, moderately prominent. Pronotum one fifth broader than long, base and apex subarcuate, side margins with 4-7 weakly prominent marginal denticles; hairs converging at a point at basal fifth. Elytra subtruncate at apex, sutural angles weakly rounded respectively.

♂. Length 2.1-2.5 mm, width 0.7-0.9 mm. Parallel sided. Antennal segments more robust; elytral apex more truncate, sutural angles more prominent. Pygidium three- times broader than long, shallowly and broadly emarginate; spicular fork, sternum VII and VIII without distinctive characters; tegmen (Fig. 86) strongly angled at sides preapically, phallus dorsally and laterally (Figs 87,88) most resembling that in *D. schereri* Majer but internal sac (Fig. 89) without stout round spinules.

♀. Length 2.3-2.7 mm, width 0.8-1.0 mm. Slightly broadening. Antennal segments finer, elytral apices rounded, terminalia as in *D. hladili* but pygidium more transverse.

Distribution. Armenia.

Dasytiscus minimus (J. Sahlberg, 1903)

Dasytiscus ruficollis var. *bicoloriceps* Pic, 1926: 1, syn. nov.

Holotype: ♀, "Transkaspia Saramsakli" (printed); "*D. ruficollis* v. *bicoloriceps* Pic" (MHNP).

It does not differ from *Dasytiscus minimus* (J. Sahlb.).

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Further notes on the biology and food plants of the Australian belid weevil, *Rhinotia haemoptera* Kirby

(Insecta, Coleoptera, Belidae)

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New observations are provided on the adult food plants of the Australian belid weevil, *Rhinotia haemoptera* Kirby. Adults were observed during late September 1994 in the lower Blue Mountains, New South Wales, Australia, on the following plants, i.e. *Acacia linifolia* (Vent.) Willd., *A. obtusifolia* A. Cunn., *A. suaveolens* (Sm.) Willd. and *A. ulicifolia* (Salisb.) Court (Mimosaceae) and *Hakea dactyloides* (Gaertn.) Cav. (Proteaceae), either feeding on the leaves, seed pods or flowers. The new data are discussed with previously recorded data for the beetle.

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Introduction

The Australian belid weevil, *Rhinotia haemoptera* Kirby (Fig. 1), was first described by Kirby (1818: 426-427, plate XXII, fig. 7) from "Australasia". Since then, modern reviews on the biology and host plants (both adult and larval) of the species have been provided by Hawkeswood (1990) and by Hawkeswood, Turner & LeBreton (1994). Since these papers have been published, the present authors have made further observations and collections of the species from its natural habitat and these data are provided below for the first time.

Observations

a. Study area.

During 24 September 1994, the authors surveyed vegetation growing on both sides of a fire trail in the lower Blue Mountains, about 6 km SW of Glenbrook, New South Wales (33°48'S, 150°36'E). The fire trail was surveyed for about 4 km during the morning and a return journey was undertaken during the afternoon. The vegetation of the area is dry sclerophyll forest and woodland, dominated by various species of *Eucalyptus* (Myrtaceae), with a relatively thick understorey of species of *Hakea*, *Persoonia*, *Lambertia* and *Lomatia* (Proteaceae), *Acacia* (Mimosaceae), *Daviesia*, *Pultenaea*, *Dillwynia* and *Phyllota* (Fabaceae) and with many other small shrubs, sedges and grasses. The soil is skeletal to deeper and the parent material is quartz sandstone. The elevation along the fire trail changed from approx. 250 to 500 m above sea level. The temperature varied from 22-25 °C and at times a strong southerly breeze blew. The area had received very little rain during the previous six months and there was a thick

covering of dry leaves, sticks, branches and twigs on the ground and amongst the shrubs. Fire danger warnings had been issued during the week.

b. Food plants.

1. *Acacia linifolia* (Vent.) Willd. (Mimosaceae). This plant species is a graceful shrub growing to about 2 m tall with very slender branches; the phyllodes are linear-lanceolate in shape, 2-4 cm long and 1-3 mm wide and are glabrous; the species is widespread in heathlands and dry sclerophyll forests; the flowers are pale yellow and flowering occurs during January to August (Beadle 1975). At least 15 specimens of *R. haemoptera* were observed on the foliage of non-flowering plants and others were observed to alight on the foliage from the nearby bushland. At least one *R. haemoptera* was observed feeding on young leaves in a cluster at the end of a branchlet (Tab. 1).

2. *Acacia obtusifolia* A. Cunn. (Mimosaceae). This plant is a shrub to small tree growing to 5 m tall, with dark green foliage measuring 9-20 cm in length and 7-25 mm in diameter and flowers from December to February (Beadle 1975, Costermans 1981). At least two beetles were collected from this species, one of which was feeding on a young phyllode. Plants were non-flowering at this time. In captivity, beetles fed extensively on both young and old mature phyllodes of this wattle.

3. *Acacia suaveolens* (Sm.) Willd. (Mimosaceae). This plant species is a slender shrub growing to about 1-2 m high with angular branches; the phyllodes are narrow-oblong to linear-lanceolate in shape measuring up to 12 cm long and 4-10 mm wide, and are glabrous and glaucous; the species is widespread in heathlands and dry sclerophyll forests and flowering occurs during March to August (Beadle 1975, Costermans 1981, Simmons 1987). Most of the young plants along the fire trail carried seed pods (legumes); in this species, the legumes are oblong in shape, flat, glaucous, and measure 2-4 cm long and 12-20 mm wide (Beadle 1975). A number of *R. haemoptera* adults were observed feeding on the legumes at the tops of plants (Fig. 1); feeding resulted in about 20-30 % of the legume nearest the pedicel being chewed; the proboscis of the adults are probed into the cuticle and epidermis and into the seed cavity of the pod. Another beetle was observed to chew on a pedicel and young phyllode of a small *A. suaveolens* plant. Upon the legumes, *R. haemoptera* chewed holes 0.8-2.0 mm in diameter, many of them coalescing (Fig. 1).

4. *Acacia ulicifolia* (Salisb.) Court. (Mimosaceae). This plant is scattered but widespread throughout dry sclerophyll forests and heathlands in the Blue Mountains where it is a variable, rigid, much-branched, prickly shrub, often with drooping branches; the phyllodes are prickly, green, scattered or crowded, measure 7-14 mm long and 0.6-1.5 mm wide, with a prominent nerve on each side, tapering into a very long, sharp point; the species flowers from July to September (Beadle 1975, Costermans 1981, Simmons 1987). Five specimens of *R. haemoptera* were collected from the flowers where they appeared to be feeding on pollen; although beetles often crawled over foliage, no feeding on the phyllodes were observed (Tab. 1).

5. *Hakea dactyloides* (Gaertn.) Cav. (Proteaceae). This plant is a straggly shrub growing to 1-3 m high, with flat leaves, measuring 5-10 cm long and 5-25 mm wide; the species is widespread in gullies on sandstone in open forests and heathlands (Beadle 1975, Costermans 1981). Two specimens of *R. haemoptera* were collected from foliage of two flowering plants but it was not clear whether they were feeding before capture (Tab. 1). Beetles placed in plastic bags with this plant did not appear to feed on the leaves over a two-week period.

Table 1. Feeding data for *Rhinotia haemoptera* Kirby adults observed/collected in the lower Blue Mountains, New South Wales on 24 Sept. 1994 by the authors

Plant species	Family	Food		
		Flowers	Seeds	Leaves
Acacia linifolia (Vent.) Willd.	Mimosaceae	–	–	+
Acacia obtusifolia A. Cunn	Mimosaceae	–	–	+
Acacia suaveolens (Sm.) Willd.	Mimosaceae	–	+	+
Acacia ulicifolia (Salisb.) Court	Mimosaceae	+	–	–
Hakea dactyloides (Gaertn.) Cav.	Proteaceae	–	–	?

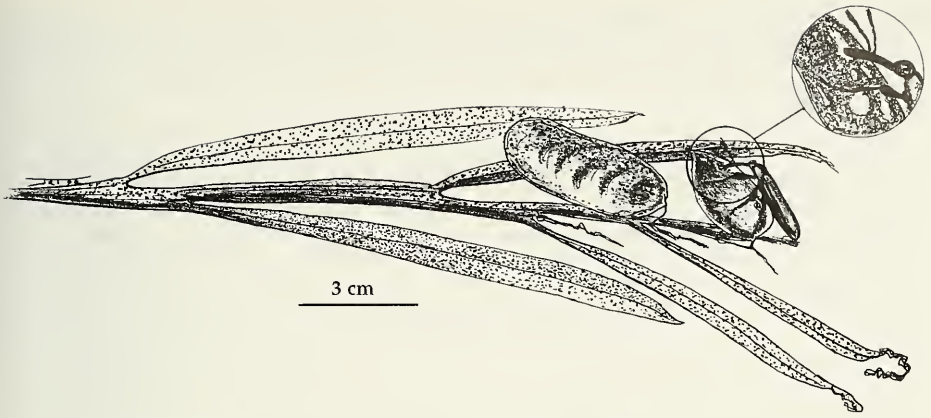

Fig. 1. Adult of *Rhinotia haemoptera* Kirby feeding on the developing legume at the top of a branch of *Acacia suaveolens* (Sm.) Willd. (Mimosaceae) from south of Glenbrook, New South Wales. (Drawing: J. R. Turner).

Discussion

Rhinotia haemoptera Kirby was common along the fire trail and this abundance was probably due to two factors, i.e. 1. sudden warm weather following a long cold winter which had induced a mass emergence of adults, and 2. abundance of vigorous flowering and non-flowering *Acacia* host plants growing in exposed situations enabling easy access and food for the beetles.

Acacia linifolia has been recorded by Hawkeswood, Turner & LeBreton (1994) as a plant associate of *R. haemoptera*, but feeding on this species had not been previously observed. Near Glenbrook, the beetles were commonly attracted to *A. linifolia*, where adults mostly rested on the foliage or occasionally nibbled the young terminal leaflets. This new data therefore verifies *A. linifolia* as an adult food plant.

Hawkeswood, Turner & LeBreton (1994) first recorded *Acacia obtusifolia* as a larval host plant for the belid but adult feeding on foliage or flowers had not been observed. Near Glenbrook, although *A. obtusifolia* is common in patches, it does not appear to be a preferred adult host, although a limited number of adults may feed on the young foliage only.

Froggatt (1893) recorded *Acacia suaveolens* as a larval host plant for *R. haemoptera*, but the utilization of this plant by adults had not been previously recorded (Hawkeswood, Turner & LeBreton 1994). Our recent observations show that adults prefer chewing on the tissues of developing legumes of *A. suaveolens* and less commonly on leaves. We did not observe any evidence of larval feeding, probably because the plants along the fire trail were mostly very thin-stemmed young plants, not suitable for larval development.

The prickly *Acacia ulicifolia* has not been recorded previously as an adult food plant of *R. haemoptera* (Hawkeswood, Turner & LeBreton 1994). Our observations indicated that leaves of *A. ulicifolia* were not attacked by *R. haemoptera*, probably because of the small, prickly and tough fibrous nature of the leaves which make them unpalateable. The beetles appeared to be mostly attracted to the flowers where pollen from the anthers was consumed (Tab. 1).

Hakea dactyloides is probably not an adult host plant for *R. haemoptera* and adults were not observed on the flowers; adults apparently failed to feed on leaves in captivity and avoided the flowers and fruits when offered. Tepper (1887) briefly noted that adults of *R. haemoptera* visited flowers of *Hakea* sp. in South Australia, but Hawkeswood, Turner & LeBreton (1994) questioned this old record. Our recent observations near Glenbrook did not support Tepper's statements and suggest strongly that *Acacia* flowers, leaves and/or seed pods (legumes) are the preferred food of *R. haemoptera* adults.

The known adult food plants of *R. haemoptera* with reliable feeding observations are as follows: *Acacia decurrens* (Wendl.) Willd. (leaves), *A. floribunda* (Vent.) Willd. (branches), *A. linifolia* (Vent.) Willd.

(leaves), *A. longifolia* (Andr.) Willd. (leaves), *A. obtusifolia* A. Cunn. (leaves), *A. paradoxa* DC. (leaves), *A. penninervis* Sieb. ex DC. var. *longiracemosa* (leaves), *A. suaveolens* (Sm.) Willd. (leaves, seeds-legumes), *A. terminalis* (Salisb.) MacBride (leaves) and *A. ulicifolia* (Salisb.) Court (flowers). All other purported adult host records in the literature are erroneous or require verification (Hawkeswood, Turner & LeBreton 1994).

Arnol'di et al. (1991) have studied the Mesozoic Coleoptera of Russia and neighbouring areas and have described a number of fossil weevils belonging to the families Eobelidae, Attelabidae and Curculionidae and noted that during the late Jurassic, the Rhynchophora (weevils) turned out to be the most diverse and most abundant group in terms of species of all the Polyphaga. Arnol'di et al. (1991) further noted that the recent finds of Triassic beetles show clearly that these Coleoptera differ very little from the earlier Jurassic Eobelidae, such that this fact compelled them to regard the Rhynchophora as the most ancient of the Polyphaga. These authors move on to state that the present day Belidae, which inhabit Australia, South America and southern North America (and hence display a Gondwanian distribution) possess many indisputably archaic morphological features (in the adults) in addition to a few specialized characteristics. These authors regard the Australian genus *Rhinotia* as the most primitive representative of the recent species of the family Belidae, since its general appearance is very similar to that of the late Jurassic "belidoid" Rhynchophora. However, these authors also state that the Jurassic weevils that they described differed from modern-day Belidae in the form of the pronotum and antennae and in other important morphological characters of the adults, such that they could not possibly be included within the family Belidae. Thus it would appear that *Rhinotia* is a somewhat more advanced genus which probably first appeared in Australia during the Tertiary Period when flowering plants rapidly evolved and speciated to dominate the ecosystems of the continent and when interrelationships between these flowering plants and insects were beginning to co-evolve (White 1990). *Acacia* does not appear in the fossil pollen record until the Miocene Epoch of the Tertiary Period (23.7-5.3 million years BP), when the arid areas of Australia were well developed with their sclerophyllous vegetation (White 1990). So, assuming that *Rhinotia* did not shift food plant preferences during the early stages of its evolution, *R. haemoptera* has probably co-evolved with *Acacia* for at least 5.5 million years, although fossil evidence is badly needed to shed more light on the probabilities of this suggestion.

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