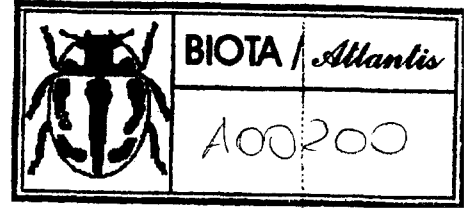


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A revision of the species of the subfamily Habrocerinae (Coleoptera: Staphylinidae) of the world.

Volker ASSING* & Paul WUNDERLE**

* Gabelsbergerstr. 2, D-30163 Hannover.

** Hehnerstr. 15, D-41069 Monchengladbach.

A revision of the species of the subfamily Habrocerinae (Coleoptera: Staphylinidae) of the world. - At present the subfamily Habrocerinae comprises two genera, *Habrocerus* Erichson and *Nomimocerus* Coiffait & Saiz. A worldwide revision of the genus *Habrocerus* Erichson yielded altogether 13 valid species. 7 new species are described: *H. ibericus* sp. n. from Southwest Europe, *H. simulans* sp. n. from the Eastern Mediterranean region, *H. cyprensis* sp. n. from Cyprus, *H. canariensis* sp. n. from the Canary Islands, *H. indicus* sp. n. from India, *H. costaricensis* sp. n. from Costa Rica and *H. schillhammeri* sp. n. from Sumatra. *H. capillaricornis* ssp. *pisidicus* Korge is raised to species rank. Lectotypes are designated for *Habrocerus capillaricornis* (Gravenhorst) and *H. schwarzi* Hom. *Nomimocerus tichomirovae* Filatova is transferred to *Habrocerus*. *H. magnus* Leconte from North America is excluded from the genus. 3 new species of *Nomimocerus* Coiffait & Saiz. formerly known to contain only the type species, *N. marginicollis* (Solier), are described: *N. longispinosus* sp. n., *N. peckorum* sp. n., both from Chile, and *N. parvispinosus* sp. n. from Argentina and Chile. The systematic position and the morphological characteristics, particularly the structure of the male abdomen, of *Habrocerus* and *Nomimocerus* are outlined. For each species details and illustrations of differential characters as well as data on distribution and, if available, bionomics are presented. Diagnostic keys allowing separation of *Habrocerus* and *Nomimocerus* adults are provided.

Key-words: Coleoptera - Staphylinidae - Habrocerinae - *Habrocerus* - *Nomimocerus* - World - Taxonomy - new species

THE SUBFAMILY HABROCERINAE: INTRODUCTION AND SYSTEMATICS

The genus *Habrocerus* was fixed by ERICHSON (1839) by monotypy. Its type species, *H. capillaricornis*, had been described as *Tachyporus capillaricornis* by GRAVENHORST in 1806. In the 19th century, *Habrocerus* was largely considered to belong to the subfamily Tachyporinae, apparently because of its general similarity in

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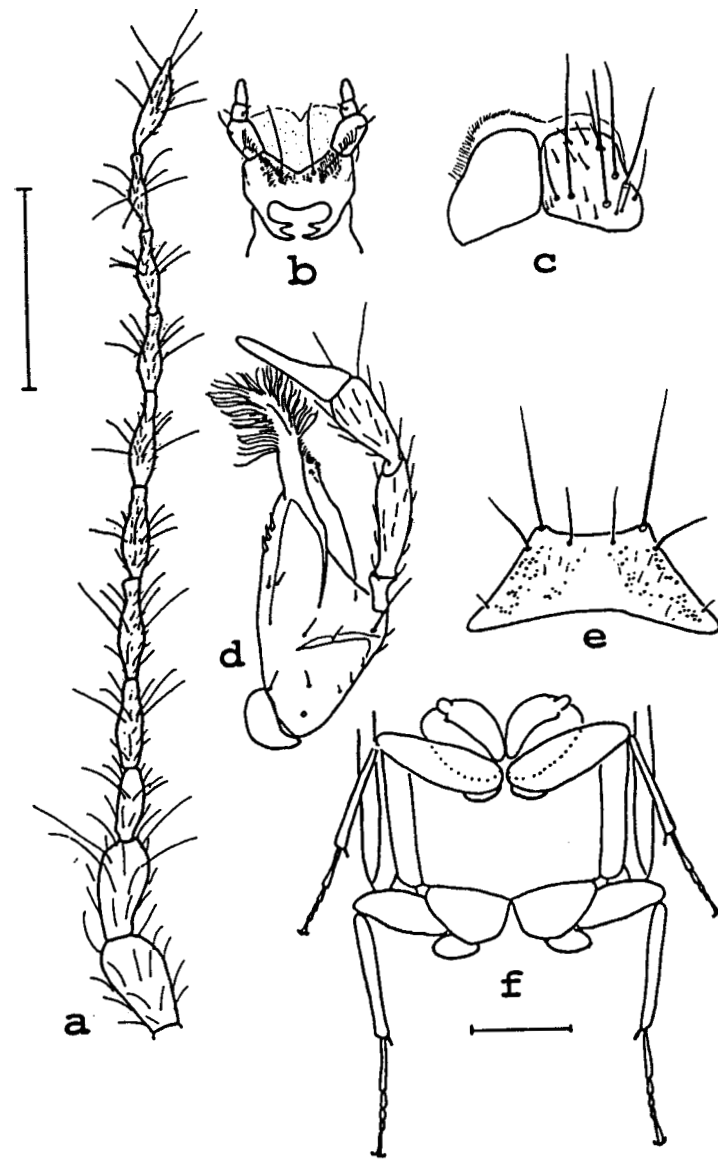


FIG 1a-f

Habrocerus pisidicus Korge: antenna (a); labium (b); labrum (c); maxillary palpus (d); mentum (e); metathorax in ventral view (f). Scale: 0.5 mm.

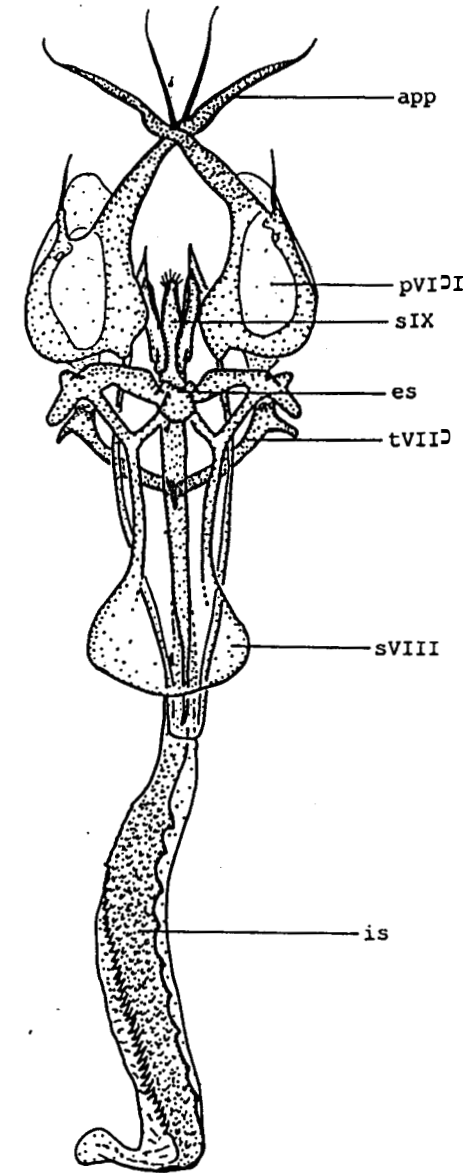


FIG. 2

Habrocerus pisidicus Korge: morphology of the ♂ urites VIII and IX in ventral view (app = appendices of pleurite VIII; es = emargination of central hind margin of sternite VIII; is = internal sac; pVIII = pleurite VIII; sVIII = sternite VIII; sIX = sclerites of urites IX; tVIII = tergite VIII). Scale: 0.5 mm.

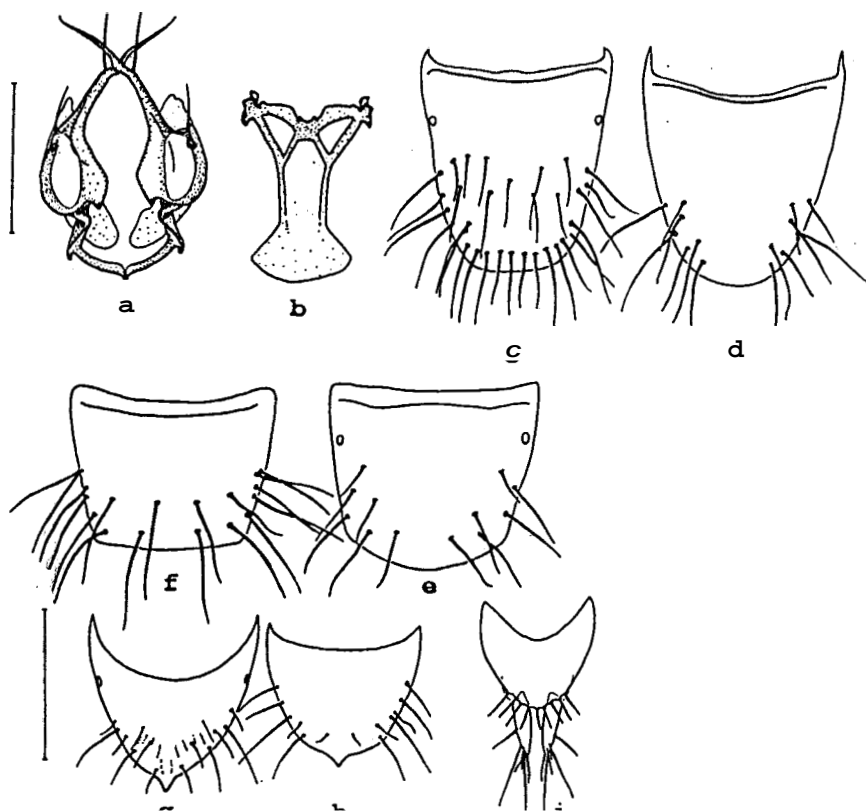


FIG. 4

Habrocerus pisidicus Korge: pleurites and tergite of ♂ urite VIII (a); ♂ sternite VIII (b); ♂ tergite VII (c); ♂ sternite VII (d); ♀ tergite VII (e); ♀ sternite VII (f); ♀ tergite VIII (g); ♀ sternite VIII (h); ♀ urite IX (i). Scale 0.5 mm.

THE SPECIES OF *Habrocerus*

The revision of several thousands of specimens of *Habrocerus* from our own material as well as from various private and museum collections yielded altogether 7 species new to science; 1 subspecies is raised to species rank. On the other hand it revealed that one of the four species known before our study must be excluded from the genus, so that *Habrocerus* currently comprises 13 valid species, seven of them Palearctic, 3 Oriental, 1 Nearctic and 2 Neotropical. It may be assumed that a more intensive search especially in the Neotropical region and in Southeast Asia, perhaps also in other areas of the southern hemisphere (Australia, Africa) will lead to an increase in species number, since each of the 5 Neotropical and Oriental species is

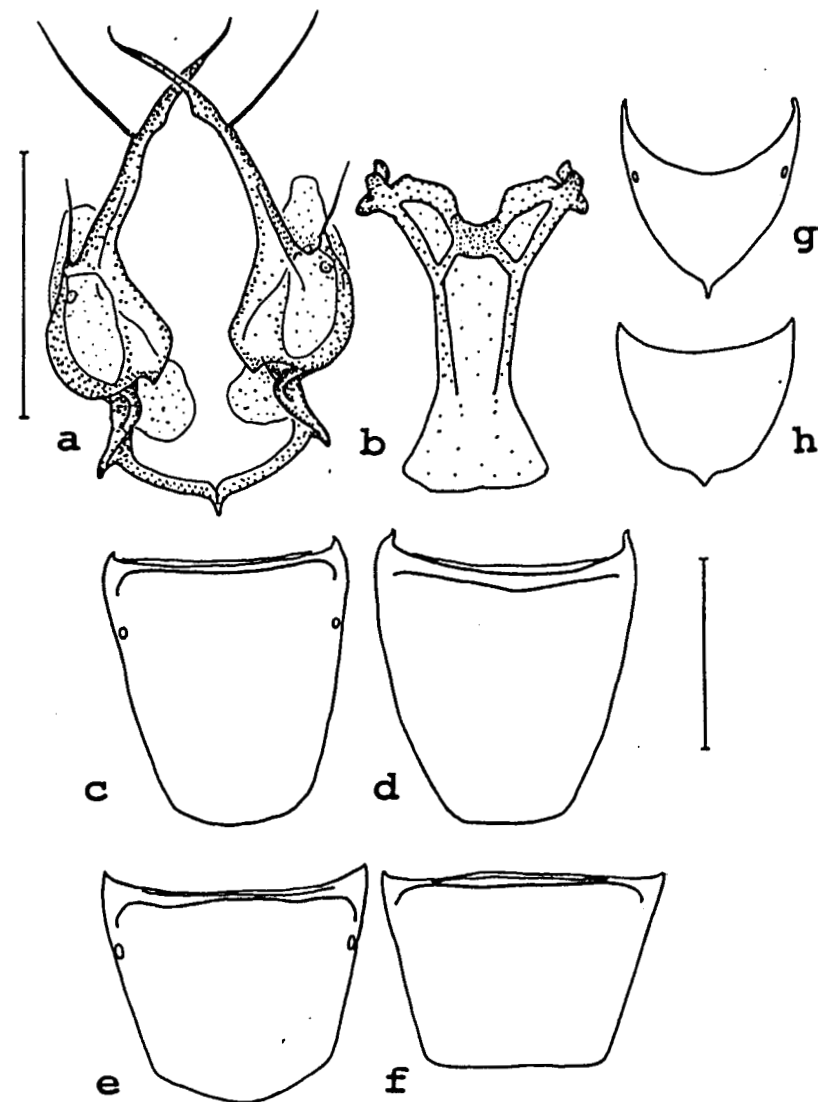


FIG. 5

Habrocerus simulans spec. nov.: ♂ pleurites and tergite of urite VIII (a); ♂ sternite VIII (b); ♂ tergite VII (c); ♂ sternite VII (d); ♀ tergite VII (e); ♀ sternite VII (f); ♀ tergite VIII (g); ♀ sternite VIII (h); setae and punctures omitted in c-h. Scale: 0.5 mm.

DESCRIPTION:

3.0–4.0 mm. Colour variable; head, pronotum and elytra light to pitchy brown, abdomen usually slightly darker except for the hind margins of the tergites; legs, antennae and mouthparts yellowish brown to light brown, maxillary palpi darkened.

Head with large eyes, in normal position reaching anterior margin of pronotum; **surface** shining, shallow transverse microsculpture only visible at higher magnifications (80x). **Antennal** segments 3–11 filiform, distinctly narrower than first two segments; segments 4–11 with short pubescence, a bottle-like dilatation and a circle of long setae in the middle (cf. Fig. 1a).

Pronotum ca. 1.5x wider than long, with arcuate sides converging more strongly anteriorly than posteriorly and with rounded angles; front and hind margin with 4, lateral margins with 2 long setae; epipleurae not visible in lateral view; disc of pronotum usually smooth and shining, superficial transverse microsculpture, if any, restricted to marginal areas of pronotal surface.

Elytra transverse, ca. 1.5x wider than long, at base about as wide as and at suture as long as pronotum; lateral margins slightly diverging posteriorly, hind angles truncate; elytra with 1 subhumeral seta, 2 setae near lateral margin and 1 seta at sutural angle; **surface** with often very weak micropunctuation and fine transverse microsculpture, its intervals clearly wider than those on the pronotum; epipleurae meeting with dorsal surface at acute angle.

Legs moderately long; apices of middle and hind femora with a long seta; tarsi 5-segmented; basai segment of middle and hind tarsi elongate, as long as the two following segments together, segments 2–4 decreasing in length, segment 5 as long as the two preceding ones together.

Abdomen with distinct lateral margins converging posteriorly, tergites with barely visible microsculpture and dense yellowish pubescence, their hind margins with long setae increasing in number caudally.

♂: appendices of pleurites VIII with 2 long setae (Fig. 3a), emargination of sternite VIII U-shaped and with relatively long posterior processes (Fig. 3b), hind margins of tergite and sternite VII straight with rounded angles (Figs 3c–d); internal sac with 6 large, wide-based spines and additional small sclerotized structures of roughly triangular shape (Fig. 11a).

♀: hind margin of tergite VII rounded, that of the corresponding sternite with shallow central emargination; tergite VIII acutely pointed (Fig. 3g), sternite VIII V-shaped (Fig. 3h) posteriorly.

DISTRIBUTION:

H. capillaricornis is widely distributed in the Western Palaearctic region. It is a common species in Central Europe and has also been recorded from the southern parts of the Scandmavian countries, from the British Isles (except Scotland), from southern Europe and the Mediterranean (including North Africa), eastern Europe and the Caucasus (Fig. 12). We have not seen any specimens from Cyprus, Rhodos and Crete.

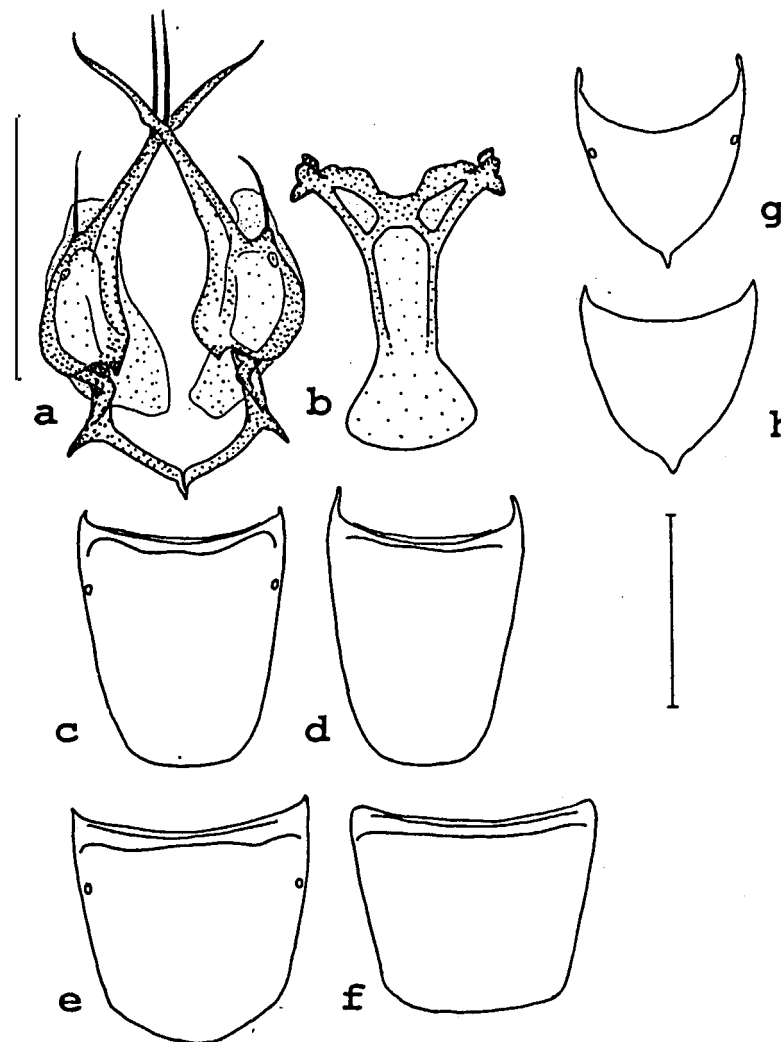


FIG. 7

Habrocerus ibericus spec. nov.: ♂ pleurites and tergite of ♂ sternite VIII (a); ♂ sternite VIII (b); ♂ tergite VII (c); ♂ sternite VII (d); ♀ tergite VII (e); ♀ sternite VII (f); ♀ tergite VIII (g); ♀ sternite VIII (h); setae and punctures omitted in c–h. Scale: 0.5 mm.

FURTHER MATERIAL STUDIED:

Bosnia: (11) (DEL Cass, Cwun).

Bulgaria: Rhodope (4) (DEL.NHMW).

Greece: Ipeiros (74) (MHNG), Crete (46) (MHNG, Cwun), Rhodos (72) (MHNG), Corfou (36) (MHNG, Ckat, Cwun), Cephalonia (13) (MHNG), Levkas (135) (MHNG, Cass), Peloponnes (1) (NHMW).

Cyprus: (58) (MHNG).

Turkey: Thrace (19) (Ckor), Central (3) (MHNG), Southwest (110) (Ckor, MHNG, NHMW, Cass, Cwun); Northwest (44) (MHNG, NHMW).

Transcaucasia? (identification uncertain): Georgia (3 P P) (Csch).

DESCRIPTION:

3.0-4.0 mm. Size and body proportions as in *H. capillaricornis*. Colour, especially of head, pronotum and elytra, usually slightly darker than in *H. capillaricornis*, dark brown to pitchy brown.

Pronotum with the whole surface generally covered with fine transverse microsculpture. Setae, punctation and shape of pronotum and elytra as in *H. capillaricornis*. Elytral microsculpture frequently more distinct.

Appendages and first abdominal segments similar to *H. capillaricornis*.

d: hind margin of tergite VII almost straight with rounded angles (Fig. 4c), that of sternite VII \pm rounded (Fig. 4d); appendices of pleurites VIII with 1 long seta (Fig. 4a), central emargination of sternite VIII broad with short posterior processes (Fig. 4b); internal sac with a row of ca. 11 large spines of elongate triangular shape (Fig. 11c).

$\text{\textit{f}}$: tergite VII with weakly rounded, sternite VII with almost straight hind margin (Figs 4e-f); tergite and sternite VIII shortly pointed posteriorly (Figs 4g-h).

DISTRIBUTION:

H. pisidicus has been recorded from Turkey (Thrace; northern, western and central parts of Anatolia), from Greece (including Crete and islands), Cyprus, Bulgaria and Bosnia. The records from Transcaucasia (only $\text{\textit{f}}$) remain doubtful. The species was observed to occur together with *H. capillaricornis* in Bosnia, Greece (Levkas, Corfou, Epire) and the European part of Turkey and together with *H. cyprensis* on Cyprus (Fig. 12).

BIONOMICS:

Little is known about the bionomics of *H. pisidicus*. It has been collected over a wide range of altitudes (50 - ca. 1800 m) in various kinds of litter, frequently together with *H. capillaricornis*, in December, January and from April through September. Teneral specimens were observed in April, May, July and August.

ADDENDUM:

After the manuscript had gone to press, *H. pisidicus* was also recorded from Southern Italy: 22 $\text{\textit{m}}$, 20 $\text{\textit{f}}$, Mte. Gargano (various localities), in stands of *Quercus* spp., 400-900m, 30.XII.1994, leg. & coll. Assing; 3 $\text{\textit{m}}$, 1 $\text{\textit{f}}$, Puglia, Martina (TA), 17.XI.89, leg. & coll. Montemurro.

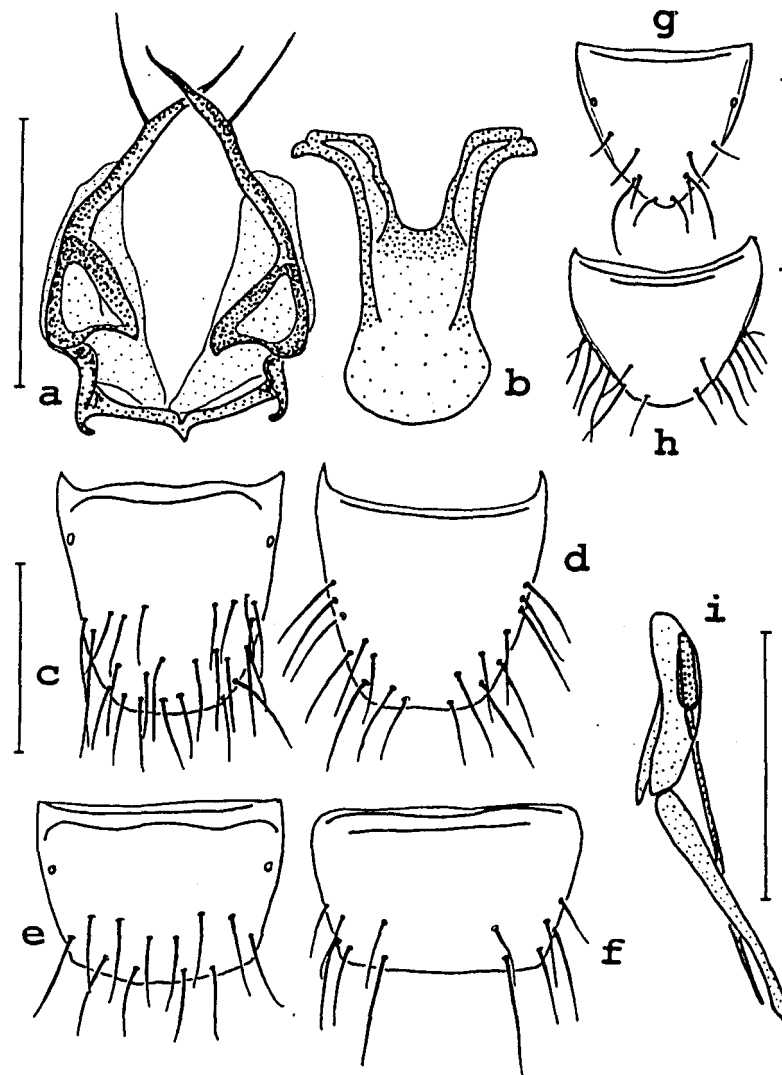


FIG. 9

Habrocerus rougemonti Pace: $\text{\textit{m}}$ pleurites and tergite VIII (a); $\text{\textit{m}}$ sternite VIII (b); $\text{\textit{m}}$ tergite VII (c); $\text{\textit{m}}$ sternite VII (d); $\text{\textit{f}}$ tergite VII (e); $\text{\textit{f}}$ sternite VII (f); $\text{\textit{f}}$ tergite VIII (g); $\text{\textit{f}}$ sternite VIII (h); $\text{\textit{m}}$ urite IX in lateral view (i). Scale: 0.5 mm.

Mamonia, 14.VII.77, C. Besuchet; 2 ♂♂, 1 ♀: Chypre, Stroumbi, 400 m, 22.VII.77, C. Besuchet; 1 d: Chypre, Caledonian Falls, 1400 m. 1.VII.77, C. Besuchet; 1 d: Chypre, Vi de Cédres, 1200 m. 12.VII.77, C. Besuchet (MHNG, Cass, Cwun).

DESCRIPTION:

Size, body proportions, setae, punctation, microsculpture and colour as in *H. capillaricornis*.

♂: tergite VII with nearly straight, stemite VII with shallowly concave hind margin (Figs 6c-d); appendices of pleurites VIII with 2 setae (Fig. 6a); central emargination of stemite VIII similar to *H. capillaricornis*, but broader and with longer, slightly converging posterior process (Fig. 6b); internal sac without dark spines (Fig. 11f).

♀: tergite VII rounded, the corresponding stemite shallowly concave posteriorly (Figs 6e-f); acutely pointed process of hind margin of tergite VIII longer than in *H. capillaricornis* (Fig. 6g); stemite VIII shortly pointed posteriorly (similar to *H. pisidicus*) (Fig. 6h).

DISTRIBUTION:

H. cyprensis appears to be endemic to Cyprus (Fig. 12).

BIONOMICS:

The species apparently inhabits a wide range of altitudes. At several localities it was collected together with *H. pisidicus*.

Habrocerus ibericus spec. nov.

Figs 7, 11, 12

HOLOTYPE: ♂, Portugal, Algarve, 8 km N S. Brás de Alportel, 400 m. 1.VI.92. Wunderle (Cwun).

PARATYPES: 22 ♂♂, 18 ♀♀: same locality as holotype. 29.V-4.VI.92 (Cass, Cwun); 2 ♂♂, 1 ♀: Gallia merid., Ste. Maxime Var., 26.III.13. W. Liebmann (DEL); 1 ♂: E., La Iruela, Jaen, Queva segreta del Sagrio, 30.III.87, Zoia leg. (Czan); 1 ♂: E., Castellon de la Plana, env. Cabanes. 320 m, 19.III.87, Zoia leg. (Czan); 1 d: E., Algeciras. Cadiz, Sierra del Nino, 180 m, 26.III.87, Zoia leg. (Czan); 7 ♂♂, 5 ♀♀: Espagne, Castellon, Querol près Morella, 5.V.66, Besuchet (MHNG, Cass, Cwun); 1 ♂: Sierra Guadarrama. Spain, H. Franz leg. (NHMW); 1 ♀: Espagne, Huelva, Agua Fria près Jabugo, 3.VI.66, Besuchet (MHNG); 1 ♂: Espagne, Castellon, Cáliz près Benicarlo, 6.V.66, Besuchet (MHNG); 1 ♂: Espagne. Cuenca Las Torcas, 19.V.60, Besuchet (MHNG); 1 ♂, 2 ♀♀: Espana, Provinz Cadiz. Algeciras. El Bujeo, 340 m. 13.IV.1983. leg. et coll. Elbert; 4 ♂♂, 2 ♀♀: E., Andalusien (GR), Sierra Nevada, Capileira, 1400 m, 23.III.1994, Assing & Wunderle leg. (Cass, Cwun); 1 ♂, 3 ♀♀: E., Andalusien (GR), Sierra Nevada, Lanjaron, 600 m, 23.III.1994, Assing leg. (Cass.); 2 ♂♂, 1 ♀: E., Andalusien (MA), Sierra de Palmitera, SO Ronda, 900 m, 24.III.1994, Assing leg. (Cass); 17 d♂, 7 ♀♀: E., Andalusien (CA), Umg. Algeciras. Sierra de Luna, 200 m. 28.III.1994, Assing & Wunderle leg. (Cass, Cwun); 4 ♂♂, 2 ♀♀: E., Andalusien (CA). Umg. Algeciras. Sierra de Luna. 350 m, 28.III.1994, Assing & Wunderle leg. (Cass, Cwun).

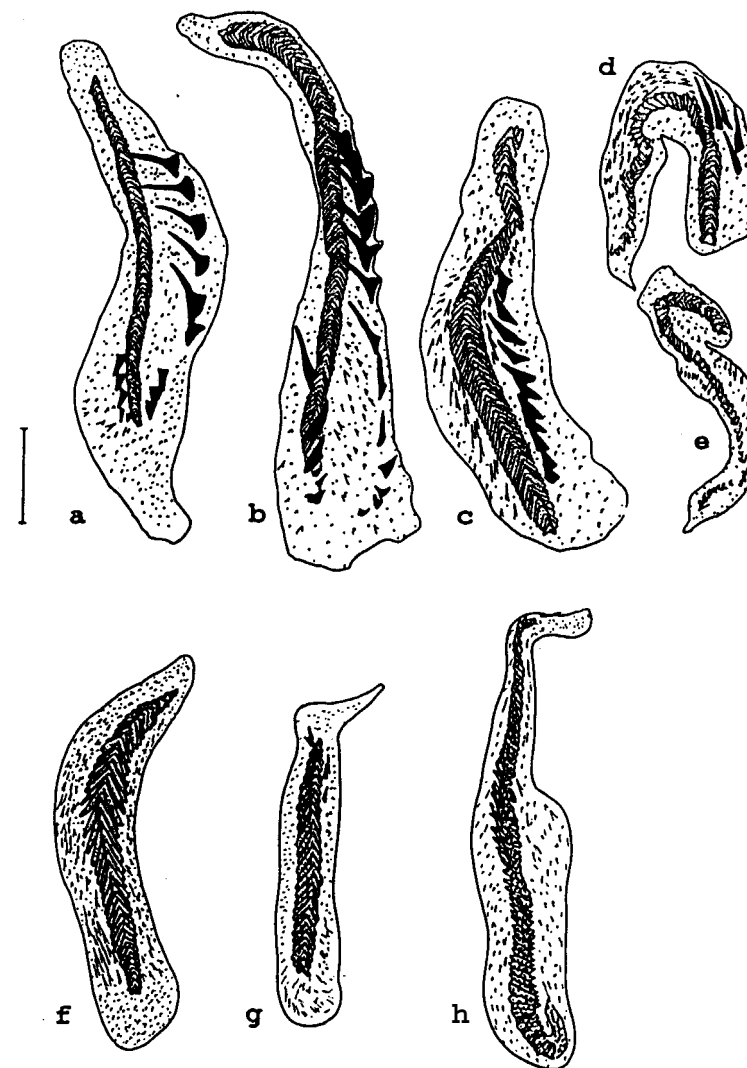


FIG. 11

The *Habrocerus capillaricornis*- and the *H. rougemonti*-group: Internal sacs of *H. capillaricornis* (a), *H. canariensis* (b), *H. pisidicus* (c), *H. simulans* (d), *H. ibericus* (e), *H. cyprensis* (f), *H. rougemonti* (g) and *H. indicus* (h). Scale: 0.25 mm.

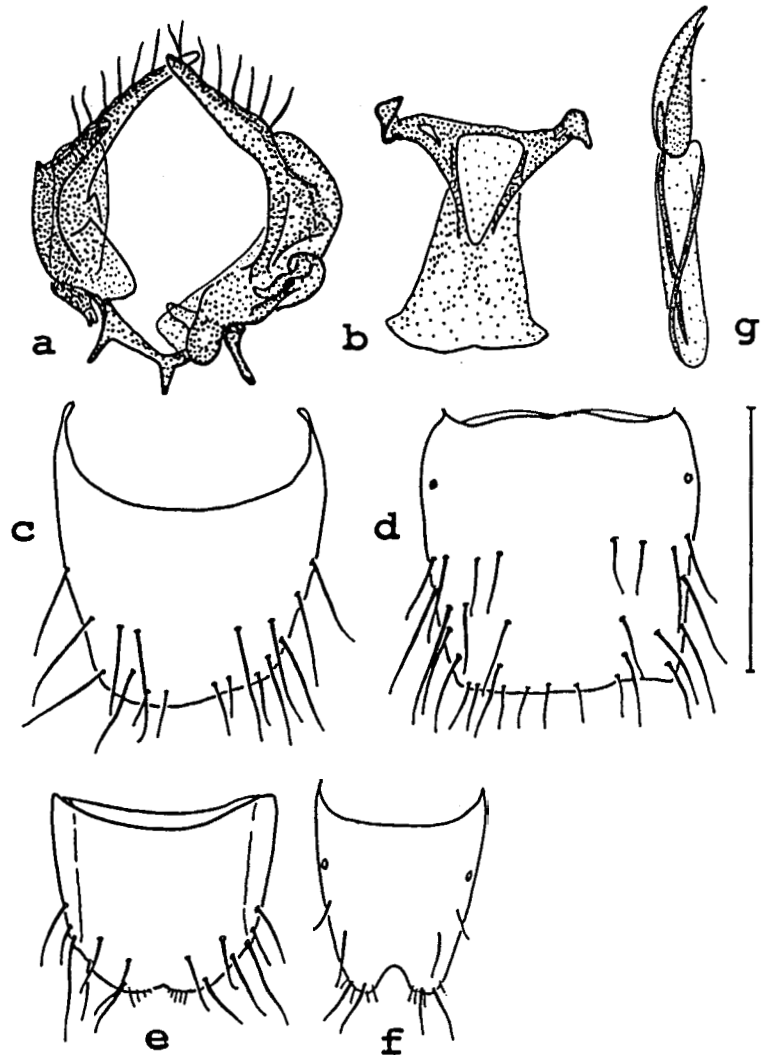


FIG. 13

Habrocerus schwarzi Horn: pleurites and tergite of ♂ urite VIII (a); ♂ sternite VIII (b); ♂ sternite VII (c); ♂ tergite VII (d); ♀ sternite VIII (e); ♀ tergite VIII (f); ♂ urite IX in lateral view (g). Scale: 0.5 mm.

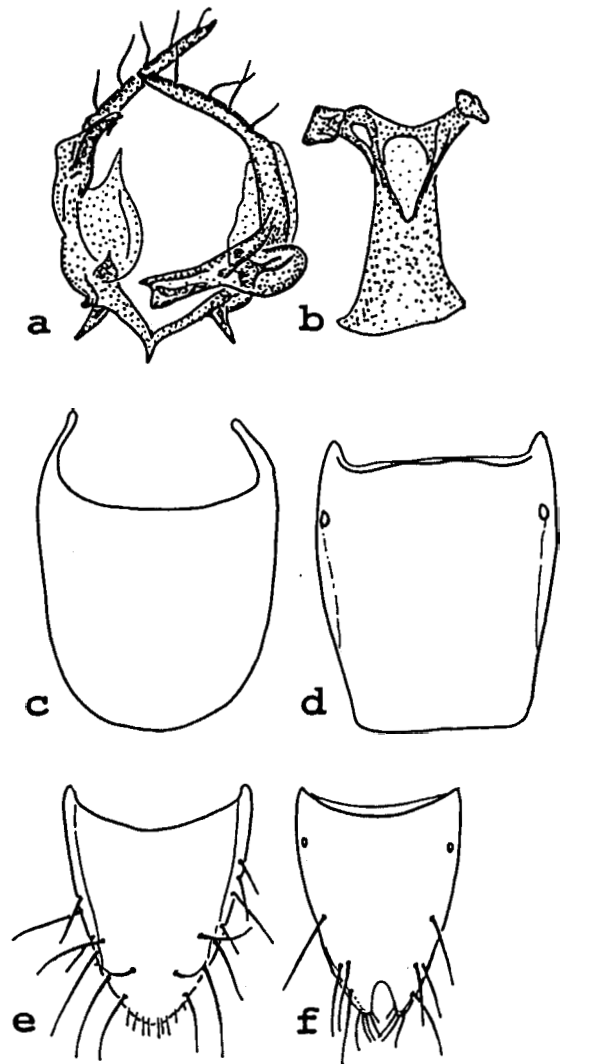


FIG. 14

Habrocerus tropicus Wendeler: pleurites and tergite of ♂ urite VIII (a); ♂ sternite VIII (b); ♂ sternite VII (c); ♂ tergite VII (d); ♀ sternite VIII (e); ♀ tergite VIII (f); setae and punctures omitted in c-d. Scale: 0.5 mm.

DESCRIPTION:

Size, body proportions, setae, punctation, microsculpture and colour as in *H. rougemonti*.

♂: tergite VII with weakly rounded, sternite VII with shallowly concave hind margins (as in *H. rougemonti*) (Figs 10c-d); appendices of pleurites VIII with 1 seta, shape of pleurites slightly different from that in *H. rougemonti*; without seta near the spiraculum of Urte VIII (Fig. 10a); sternite VIII with deep V-shaped emargination, central part of sternite narrower than in *H. rougemonti* (Fig. 10b); posterior apex of sclerites IX pointed in lateral view (Fig. 10i); intenal sac without large dark spines, intenal row with ca. 80 semitransparent triangles (Fig. 1h).

♀: tergite and sternite VII transverse, the former with weakly rounded and the latter with nearly straight hind margins (Figs 10e-f); tergite and sternite VIII bluntly pointed posteriorly (Figs 10g-h).

DISTRIBUTION:

H. indicus is only known from the Himalayan regions in the north of India.

BIONOMICS:

Unknown.

III. The *Habrocerus schwarzi* species group

Habrocerus schwarzi Hom

Figs 13, 18

Habrocerus schwarzi Hom, 1877. *Trans. Amer. Ent. Soc.* 6: 124.

LECTOTYPE: ♀, designated here; labels: Mic, Paratype, 3146, G.H. Horn collection. Lectotypus *Habrocerus schwarzi* Horn 1877, desig. Assing & Wunderle 1992 (MCZ).

PARALECTOTYPE: ♀, labels: Mic, Paratype, 3146, G.H. Horn Collection (MCZ).

5 old specimens from the MCZ (G.H. Horn collection and LeConte collection) were examined. Although one of them was labeled 'type' and two further specimens were labeled 'paratype' there remained considerable doubt as to the exact identity of the holotype. Therefore, we chose to designate a lectotype from the Horn collection.

FURTHER MATERIAL STUDIED:

165 specimens from the BRI (157) and FMNH (8).

DESCRIPTION:

2.5-3.0 mm. Colour variable, usually with head, pronotum, antennae and anterior parts of tergites light to dark brown, elytra and hind margins of tergites yellowish to yellowish brown and the legs yellow.

Head somewhat shining with fine transverse microsculpture; antennal segments shorter than in *H. capillaricornis*, segment 3 distinctly shorter than 4, segments 4-10 subequal in length. Pronotum 1.4-1.5x wider than long and with transverse microsculpture on whole surface. Anterior and lateral setae closer to margin, antero-lateral seta distinctly closer to anterior angle than in *H. capillaricornis*.

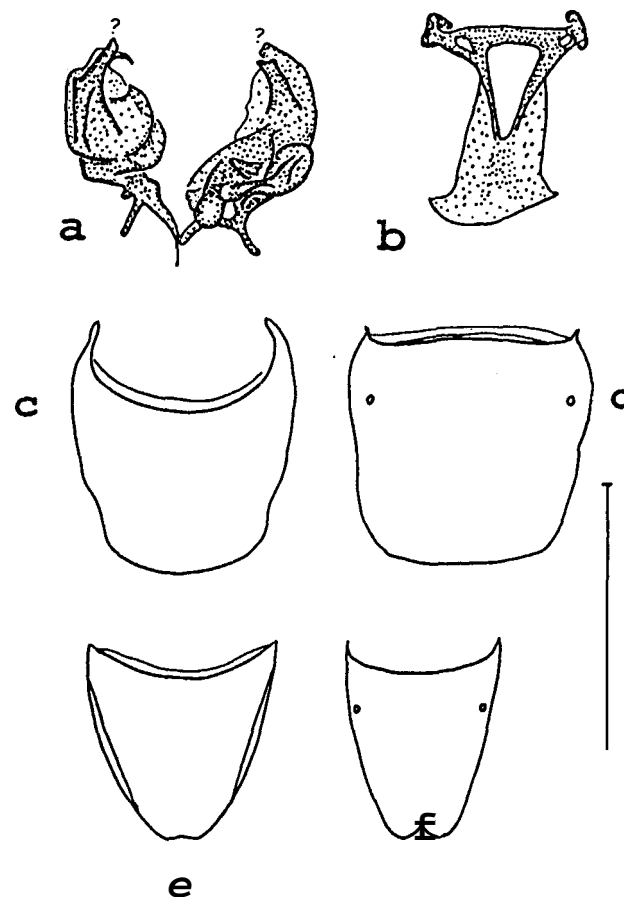


FIG. 16

Habrocerus tichomirovae (Filatova): pleurites and tergite of ♂ urite VIII, partly damaged (a); ♂ sternite VIII (b); ♂ sternite VII (c); ♂ tergite VII (d); ♀ sternite VIII (e); ♀ tergite VIII (f); setae and punctures omitted in c-f. Scale: 0.5 mm.

Elytra 1.7-1.8x wider than long (at suture), about as long as pronotum, with transverse microsculpture and sparse micropunctuation.

Tarsi of middle and hind legs shorter than in *H. cupillaricornis*.

Abdomen with subdued shine due to short yellowish pubescence and fine dense microsculpture; number of setae on hind margins of tergites increasing caudally.

BIONOMICS:

The specimens examined were collected at elevations of 300-600 m from March through May and from July through December.

Habrocerus costaricensis spec. nov.

Fig. 15

TYPES: Holotype ♂, Costa Rica, Sa. Isidro ek Cor. (?), 3.VIII.39. A. Bierig Collection (FMNH). **PARATYPES:** 3 ♀♀ : Costa Rica, Carpintera, 5.XI.39; 2 ♀♀ : Costa Rica, Carpintera, 6.VIII.39; 1 ♀ : Costa Rica, Carpintera, 6.VIII.41; 1 ♀ : Carpintera, VIII.43; 1 ♀ : Costa Rica, Sa. Isidro ek Cor. (?), 3.VIII.39; 1 ♂ : Costa Rica, Tres Rios, 1.IX.40 (FMNH, Cass, Cwn).

DESCRIPTION:

Size, body proportions, setae and microsculpture as in *H. schwarzi*; colour darker, body brown to pitchy brown (often similar to *H. tropicus*) with the elytra, the posterior margins of the tergites and especially the tip of the abdomen usually somewhat lighter; legs and antennae light brown to brown.

♂: tergite VII with straight, sternite VII with rounded hind margin (Figs 15c-d); sclerites of Untes VIII and IX arranged asymmetrically (Figs 15a-b); appendices of pleurites VIII with 4 setae, the subapical seta strongly bent (Fig. 15a); posterior lateral processes of sternite VIII long and asymmetrical (Fig. 15b).

♀: tergite VIII strongly converging posteriorly with very small emargination (Fig. 15f); hind margin of sternite VIII rounded (Fig. 15e).

DISTRIBUTION:

So far only known from Costa Rica.

BIONOMICS:

Apart from the data indicated above, the bionomics of *H. costaricensis* remain unknown.

Habrocerus tichomirovae (Filatova, 1981), comb. nov.

Fig. 16

Nonimocerus tichomirovae Filatova, 1981. *Rev. Ent. URSS* 60: 120f. figs.

HOLOTYPE ♂, Primorskij kraj, pos. Barabasch-Levada, pojma r. Komissarovki pod, 24.VII.1978. Filatova (ZLAWP).

PARATYPES examined: 2 ♀♀, Primorskij kraj, Sichote-Alinskij Zapovednik, pod solomoj, 24.VIII.1978, Filatova (ZLAWP).

FURTHER MATERIAL STUDIED: 1 ♀, Russia, Khabarovsk Terr., Bikib Distr., 9 km SSE Boitsovo (FMNH).

DESCRIPTION:

Size, body proportions, microsculpture, punctation, arrangement of setae as in *H. schwarzi*. Head, pronotum, antennae, maxillary palpi and abdomen, except for the

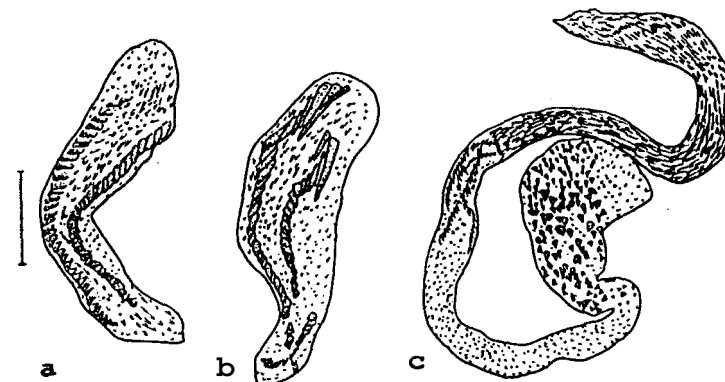


FIG. 18

The Habrocerus schwarzi-group: Internal sacs of *H. schwarzi* (a), *H. tichomirovae* (b) and *H. tropicus* (c). Scale: 0.25 mm.

hind margins of the tergites, brown to blackish brown; elytra light brown; legs yellowish brown.

♂: tergite VII almost straight posteriorly, sternite VII with sinuate sides and slightly rounded hind margin (Figs 16c-d); sclerites of urite VIII as in Figs 16a-b (appendices missing in holotype); internal sac with two rows of weakly sclerotized structures, most of which are of roughly triangular shape, whereas the apical ones are distinctly elongate (Fig. 18b).

♀: tergite VIII with angular, sternite VIII with variable, very weak to angular emargination posteriorly (Figs 16e-f).

Remarks: Since part of the genital armature of the only available ♂ (holotype) was missing, a description of the appendices and the number and shape of the setae, an important diagnostic character in the *H. schwarzi* species group, is not possible at present. However, as differences in the contents of internal sac as well as in the shapes of the ♀ tergite and sternite VIII can be observed, we think it best to treat *H. tichomirovae* as a valid species distinct from *H. schwarzi*, until further material of the former is available.

DISTRIBUTION:

H. tichomirovae is only known from Primorskij kraj, and Khabarovskij kraj, Russian Far East.

BIONOMICS:

The holotype and the paratypes were found under hay and straw, respectively. The ♀ from Khabarovsk Terr. was collected from "dead wood and litter in basal tree hole of small tree on hilltop".

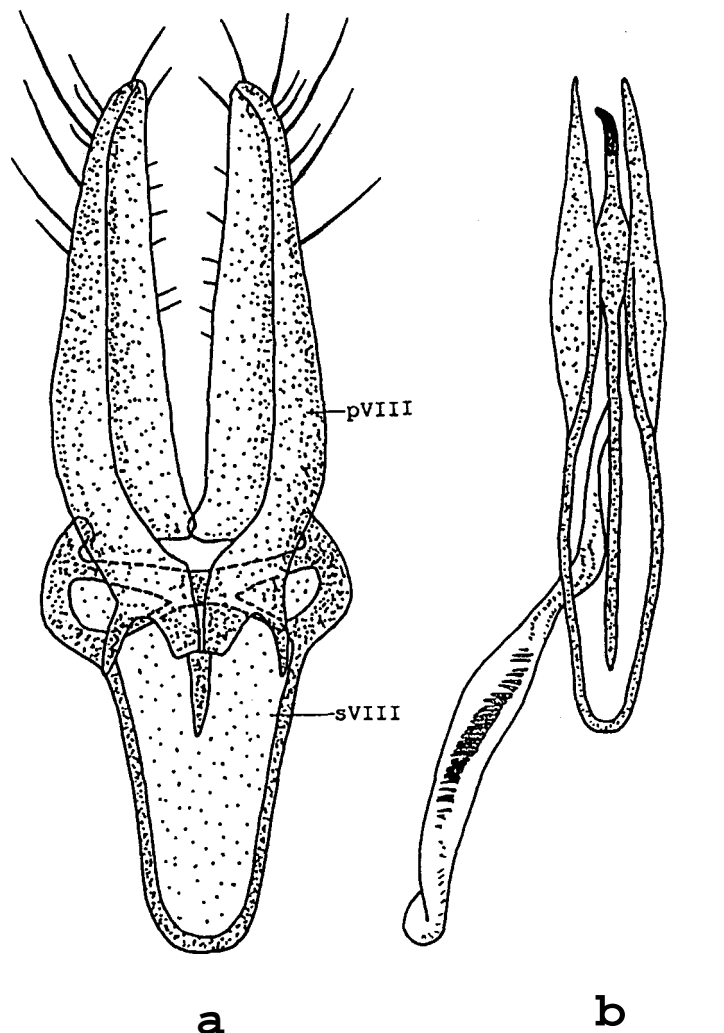


FIG. 20

- *Nomimocerus longispinosus* spec. nov.: ♂ **urite VIII** in dorsal view (a); ♂ **urite IX** and internal sac (b); pVIII = pleurite VIII, sVIII = sternite VIII. Scale: 0.5 mm.

THE GENUS *Nomimocerus* COLFFAIT & SAIZ, 1965

COLFFAIT & SAIZ (1965) based their description of *Nomimocerus* on the type species *N. marginicollis* (Solier) from Chile, originally described as *Tachyporus marginicollis*. Since then only one further *Nomimocerus* has been described, *N. tichomirovae* Filatova, which, however, is here transferred to *Habrocerus* (see above).

MORPHOLOGY

Nonimocerus is identified as a habrocerine genus on the basis of the following characters: the absence of an aedeagus, the modifications of the last abdominal segments in the males (see below) and the flat triangular shape of the hind coxae. In addition, it very much resembles *Habrocerus* in general appearance, body size, sculpture and colour. Unlike *Habrocerus*, however, *Nonimocerus* possesses non-filiform antennae (Fig. 19a) and 4-segmented labial palps (Fig. 19b). Furthermore, the shape of the modified male urites, particularly the appendices of pleurites VIII, a character also visible in dried specimens, is clearly different (Fig. 20).

In *Nomimocerus* males tergite VII carries a membranous appendage posteriorly. The hind margin of sternite VII is concave or emarginate. The species differ with regard to this character, which is, however, subject to some intraspecific variability and thus not very reliable. The male genital armature is characterized by two somewhat massive pleurites VIII, which together are of scoop-like appearance, dorsally connected and ventrally linked to sternite VIII. The latter is U-shaped anteriorly and forms a wide X posteriorly (Fig. 20a). Segment IX, too, is highly modified and principally of similar construction as in *Habrocerus*. It consists of two anteriorly connected lateral lobes and a rode-like structure in the centre, the latter apically bent like a hook (Fig. 20b). The internal sac, which contains rows of spines of specific shapes and sizes, represents the most important and reliable differential character for the identification of the species of *Nomimocerus*.

In the females the hind margins of tergite and sternite VIII are rounded (Fig. 21b, c). As in *Habrocerus*, urite IX carries two stylus-shaped processes, the tips of which are visible in normal position (Fig. 21a).

Further morphological details are presented by COLFFAIT & SAIZ (1965). It should be noted, however, that their illustrations contain several errors: Figs 2a-c depict the male urite VIII (not the aedeagus, as indicated in the legend), Fig. 2e shows the tergite VIII of a female *Habrocerus* [!] (not the fifth sternite of a male *Notimocerus*) and Fig. 2f represents the female urite IX of *Habrocerus* [!] (not the male genital segment of *Nomimocerus*).

THE SPECIES OF *Nomimocerus*

An examination of the *Nomimocerus* material of several museum collections including the lectotype of *N. marginicollis* showed that at present 4 species can be

Regarding their external morphology the species of *Nomimocerus* are highly similar. Apart from the somewhat variable shape of the hind margin of the male sternite VIII, no consistent differences were found, although a variety of characters and measurements were considered. Surprisingly, the same even applies to the complex structure of the male genital annature. The arrangement, size and shape of spines and further sclerotized structures in the internal sac were found to be the only safe and reliable differential characters, a situation similar to that in other staphylinid taxa (e.g. Xantholininae, Aleocharinae, etc.). In order to evaluate the internal sac properly it is necessary to squeeze it lightly and to examine it under the microscope at magnifications of 200–400x.

Since the four species treated below are highly similar regarding their external morphology we consider it sufficient to describe only *N. marginicollis* in full detail. The descriptions of the following species will then focus on differential characters.

Nomimocerus marginicollis (Solier, 1849)

Fig. 22

Tachyporus marginicollis Solier, 1849, in: Gay, *Hist. Chile* 4: 343.

Tachyporus marginicollis var. *rufescens* Solier, 1849, in: Gay, *Hist. Chile* 4: 343.

Habrocerus marginicollis; KRAATZ, 1859, *Berl. Ent. Zeit.* 3: 10, 13.

Habrocerus marginicollis; FAIRMAIRE & GERMAIN, 1861, *Annal. Soc. entomol. Fr.* 1: 425.

Habrocerus marginicollis; FAUVEL, 1864, *Annal. Soc. entomol. Fr.* 4: 124.

Habrocerus marginicollis; FAUVEL, 1866, *Bull. Soc. Scin. Norm.* 10: 331f.

Nomimocerus marginicollis; COIFFAIT & SAIZ, 1965, *Bull. Soc. Hist. Nat. Toulouse* 100: 218 ff. figs.

LECTOTYPE: ♀; iabels: Puerto Montt. Chili, marginicollis Sol., *Habrocerus*, coll. et det. A. Fauvel (IRSNB; Nr. 17479).

FURTHER MATERIAL STUDIED: 1 ♂, same data as lectotype and labelled 'Ex-Typis' (IRSNB).

DESCRIPTION:

3.5–4.0 mm. Measurements of pronotum and elytra of lectotype: length (PL) and width (PW) of pronotum 0.71 mm and 1.07 mm. respectively; length of elytral suture (EL) **0.83 mm.** Head, pronotum, elytra and legs light to dark brown; abdomen dark brown to blackish brown with the hind margins of the tergites somewhat lighter; antennae yellow to yellowish brown, basal segments a little lighter in colour than apical half of antenna.

Head with large eyes reaching hind margin, surface somewhat shining despite clear transverse microsculpture. Antenna with first segment longer and wider than segment 2; segments 3–10 gradually decreasing in length and increasing in width, the distinctly elongate segments 3–6 ca. **3x** and the suboval segments 9–10 ca. **1.5 x** longer than wide; segments 5–11 with inconspicuous but very dense pubescence (cf. Fig. 19a).

Pronotum ca. **1.5x** wider than long (see measurements) with arcuate sides and rounded anterior and posterior angles; its surface somewhat shining, but with distinct transverse microsculpture; altogether with 12 long setae: 4 equally spaced setae near

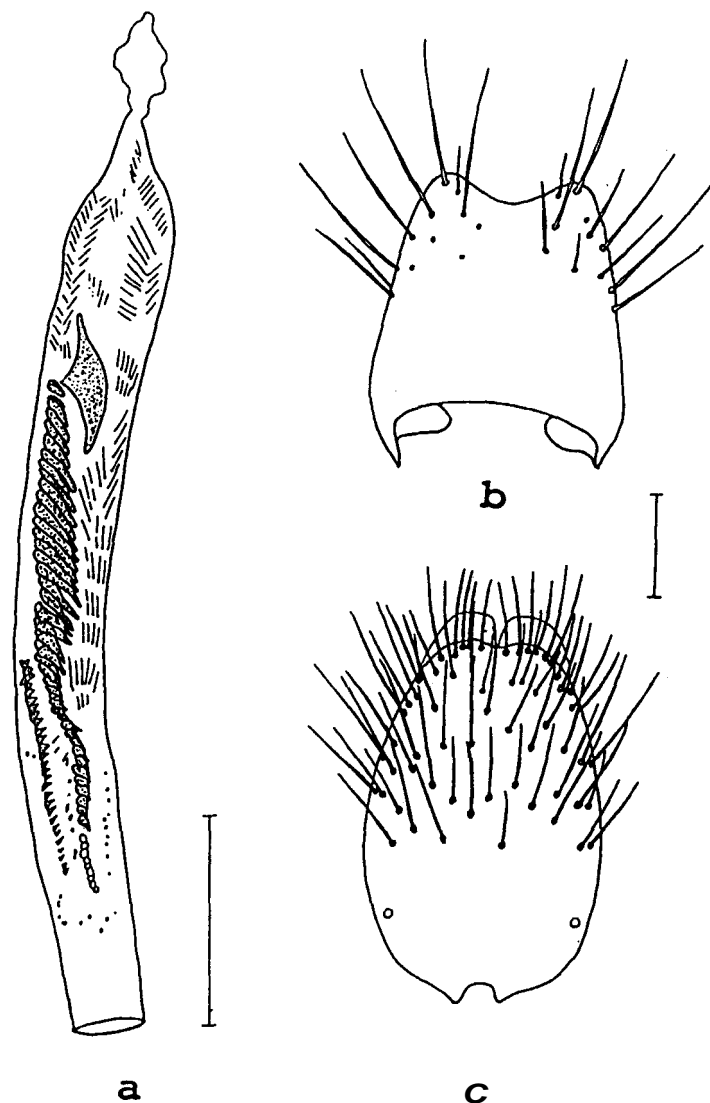


FIG. 23

Nomimocerus longispinosus spec. nov. ♂: internal sac (a); sternite VII (b); tergite VII (c).
Scale: 0.25 mm.

Hind wings reduced, only slightly longer than elytra, in all the specimens examined.

♂: tergite VII smaller than in *N. marginicollis*, its hind margin with weak concave emargination in the middle (Fig. 23c); emargination of posterior margin of sternite VII wide and usually deeper than in *N. marginicollis*, but not as deep as in the following species (Fig. 23b); internal sac with a rather small sclerotized piece visible in transparent light, a characteristic row of partly long spines (name!) and a short row of minute spines (Fig. 23a).

♀: last abdominal segments as in Figs 21a-c.

DISTRIBUTION:

All the specimens studied were collected near Puerto Aysen (Aisen) in the south of Chile (ca. 45° southern latitude).

BIONOMICS:

The type material was extracted or sifted from leaf and stick litter and bamboo litter in mixed forests at lower elevations (70-150 m). A considerable proportion of the beetles collected in January was immature. All 66 specimens were brachypterous and thus incapable of flight.

Nomimocerus parvispinosus spec. nov.

Fig. 24

HOLOTYPE: ♂; labels: S. Arg. Rio Negro. El Bolson, Topal, Nr. 543. 8.IX.61, *marginicollis* Solier, ex coll. Scherpeltz (NHMW).

PARATYPES: 5 ♂♂, 5 ♀♀: same locality as holotype, dates of collection 14.VI.61 (4 ♂♂, 1 ♀), 6.XI.61 (1 ♂), 13.V.61 (1 ♀), 8.IX.61 (1 ♀), 22.IX.61 (2 ♀♀), 15.IX.61 (1 ♀); 1 ♂: Chile. Umg. Santiago, Sterc. Bovin., Kuschel (NHMW, Cass, Cwun).

DESCRIPTION:

3.5-4.0 mm. Measurements of pronotum and elytra: PL: 0.63-0.72 mm; PW: 0.9-1.1 mm; EL: 0.65-0.85 mm.

Colour of head, pronotum and elytra brown to dark brown with the head often darker and the sides of the pronotum usually yellowish brown; abdomen blackish brown with the hind margins of the tergites lighter in colour; colour of appendages as in *N. marginicollis*.

External morphology (proportions, microsculpture, punctures) highly similar to *N. marginicollis*; abdomen slightly less shining due to superficial microsculpture between punctures. Hind wing development dimorphic, elytra somewhat longer in macropterous specimens (distinctly longer than pronotum) than in those with reduced alae (about equal in length to pronotum).

♂: shape of tergite VII as in *N. marginicollis*, but smaller (Fig. 24c); emargination of hind margin of sternite VII usually relatively deep and roughly triangular (Fig. 24b), rarely shallow and almost concave; internal sac smaller than in *N.*

marginicollis, with one row of 30-40 small spines (name!) and without distinct sclerotized piece (Fig. 24a).

♀: last segments of abdomen as in *N. longispinosus*.

DISTRIBUTION:

N. parvispinosus is only known from the type locality in Argentina and the surroundings of Santiago de Chile.

BIONOMICS: Unknown.

Noniinocerus peckorum spec. nov.

Fig. 25

HOLOTYPE: ♂; labels: Chile. Osorno Prov., Puyehue N.P. Anticura. Repucura Tr., 500 m, 6.II.1985, forest litter. S. & J. Peck. berlese (FMNH).

PARATYPES: 2 ♀♀: same data as holotype; 1 ♀: Chile: Osorno Prov., Puyehue Nat. Pd., Antillanca Rd., 500-1000 m, 18.-20.XII.1984, S. & J. Peck. carnetting; 1 ♂: Chile: Osorno Prov., Puyehue Nat. Pk., Antillanca Rd., 470 m, 20.-24.XII.1982. Valdivian rainforest, leaf & log litter. A. Newton & M. Thayer; 1 ♀: Chile: Osorno Prov., Puyehue Nat. Pk., Antillanca Rd., 690 m, 20.-24.XII.1982, Valdivian rainforest. leaf & log litter, A. Newton & M. Thayer; 1 ♂: Chile, Osorno Prov., Puyehue Nat. Pk., Antillanca Rd., 845 m, leaf & log litter, 18.-24.XII.1982, A. Newton & M. Thayer; 1 ♂, 1 ♀: Chile, Llanquihue Prov., Salto Petrohue, V. Perez Nat. Pk., 150 m, 23.XII.1984, mixed forest litter, S. & J. Peck (FMNH, Cass, Cwun).

DESCRIPTION:

3.5-4.0 mm. Measurements of pronotum and elytra: PL: 0.63-0.70 mm; PW: 0.9-1.1 mm; EL: 0.61-0.73 mm.

Colour variable; head, pronotum and elytra reddish brown to dark brown with the head often darker and the sides of the pronotum lighter; abdomen blackish brown with the hind margins of the tergites lighter in colour; colour of appendages as in *N. marginicollis*.

In external morphology (proportions, microsculpture, punctures) highly similar to the other species; shine and microsculpture of abdomen as in *N. longispinosus* and *N. parvispinosus*.

Hind wings reduced, only slightly longer than elytra, in all the specimens included in the type series.

♂: tergite VII smaller than in *N. marginicollis*, its shape as in *N. longispinosus* (Fig. 25c); emargination of posterior margin of sternite VII triangular, deeper than in the other species (Fig. 25b); internal sac with a large sclerotized piece and a series of spines, part of which are characteristically shaped with a bulbous base and a slender apical process (Fig. 25a).

♀: last abdominal segments as in *N. longispinosus*.

DISTRIBUTION:

Presently the species is only known from the type locality and its surroundings south of Valdivia, Chile.

- ♂: genital sclerites asymmetrical; anterior margin of sternite VIII almost straight and laterally with tooth-like processes. its posterior margin without central emargination (cf. Fig. 13b); appendices of pleurites VIII with 3 or more long setae.
- ♀: posterior margin of tergite VIII more or less emarginate. New World¹, East Palaearctic, Indo-Malayan region.
- The *Habrocerus schwarzi* species group 9
2. Pubescence of abdomen dense, fine microsculpture on tergites sometimes weak, but always visible.
- ♂: Ute VIII with seta near spiraculum (as in Fig. 4a); posterior part of sternite VIII with apices of lateral processes of more complex construction, small tooth-like processes at the sides of central emargination of hind margin almost always present (Fig. 4b); internal sac often with large dark spines (Figs 12a-d).
- ♀: Posterior margins of tergite and sternite VIII acutely pointed (as in Figs 4g-h).
- West Palaearctic.
- The *Habrocerus capillaricornis* species group 3
- Abdomen very shining, without microsculpture and with less dense pubescence.
- ♂: Ute VIII without seta near spiraculum (Figs 9a, 10a); apices of latero-posterior processes of sternite VIII simple, central emargination of hind margin without tooth-like processes (Figs 9b, 10b); internal sac without large dark spines (Figs 11g-h).
- ♀: Posterior margins of tergite and sternite VIII rounded or bluntly pointed (Figs 9g-h, 10g-h).
- Oriental region.
- The *Habrocerus rougemonti* species group 8
3. Disc of pronotum usually without transverse microsculpture, which may, however, be present on the sides and near the hind margin.
- ♂: appendices of pleurites VIII with two long setae (as in Fig. 3a).
- ♀: posterior margin of sternite VII weakly concave (cf. Fig. 3f) 4
- Transversely striate microsculpture on disc of pronotum usually clearly visible.
- ♂: appendices of pleurites VIII with 1 long seta (cf. Fig. 4a).
- ♀: sternite VII straight or rounded posteriorly.
- Species that can be identified with certainty only in the male sex 6
4. Colour of pronotum and elytra usually uniformly light to dark brown; shape of body more elongate, smaller (3.0-4.0 mm).

¹ Note that *H. capillaricornis* has become indigenous in North America only in this century and that it is here considered a West Palaearctic species.

- ♂: appendices of pleurite VIII weakly bent (Figs 3a, 6a); central emargination of posterior margin of sternite VIII with distinct tooth-like processes (Figs 3b, 6b).
- ♀: tergite VIII extremely pointed posteriorly (Figs 3g, 6g) 5
- Body usually bicoloured with the pronotum darker than the elytra; body of broader shape and larger size (3.5-4.5 mm).
- ♀: appendices of pleurite VIII distinctly curved (Fig. 8a); central emargination of posterior margin of sternite VIII without processes (Fig. 8b); internal sac with a row of large dark, extremely wide-based spines and a number of additional dark spines of various shapes (Fig. 11b).
- ♀: tergite VIII simply pointed posteriorly (Fig. 8g).
- Endemic to Canary Islands. *H. canariensis* sp. n.
5. ♂: central emargination of posterior margin of sternite VIII narrower with tooth-like processes subparallel (Fig. 3b); internal sac with a row of 6 large and dark, wide-based spines and ca. 8 additional small sclerotized structures of roughly triangular shape (Fig. 11a).
- ♀: tergite and sternite VIII less transverse, the latter with hind margin simply angled (Figs 3g-h).
- West Palaearctic, introduced in North and South America.
- *H. capillaricornis* (Grav.)
- ♂: central emargination of hind margin of sternite VIII broader with tooth-like processes slightly converging posteriorly (Fig. 6b); internal sac without large dark spines (Fig. 11f).
- ♀: tergite and sternite VIII more transverse, the latter with hind margin pointed in the middle (Fig. 6g-h). Endemic to Cyprus. *H. cyprensis* sp. n.
6. ♂: internal sac larger, containing a number of dark spines (Figs 11c, d). 7
- ♂: internal sac small, without dark spines (Fig. 11e).
- Southwest Europe. *H. ibericus* sp. n.
7. ♂: central emargination of posterior margin of sternite VIII with short and blunt, but distinct tooth-like processes (Fig. 4b); internal sac larger, with a row of ca. 11 large dark spines of elongate, roughly triangular shape (Fig. 11c).
- Balkan, Northeast Mediterranean, Southern Italy. *H. pisidicus* Korge
- ♂: central emargination of posterior margin of sternite VIII with very indistinct processes (Fig. 5b); internal sac smaller, containing 5-6 large dark elongate spines (Fig. 11d). East Mediterranean from East Anatolia to Israel. *H. simulans* sp. n.
8. ♀: hind margin of sternite VIII deeply and broadly emarginate, U-shaped (Fig. 9b). Sclerites of urite IX apically rounded in lateral view (Fig. 9i); internal sac containing a central row of ca. 30 weakly sclerotized, triangular structures (Fig. 11g).
- Thailand. *H. rougemonti* Pace
- ♂: hind margin of sternite VIII narrower and V-shaped (Fig. 10b); pleurites VIII of different shape (10a); sclerites of urite IX apically

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