

**Predaceous water beetles of the genus *Desmopachria*
Babington: the subgenera with descriptions
of new taxa (Coleoptera: Dytiscidae)***

by

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Abstract: A key to the subgenera and a classification of the species of *Desmopachria* (Coleoptera: Dytiscidae) into subgenera and groups is presented. The following new subgenera are described: *Pachiridis* (Type species *D. iridis* Young) Brazil; *Hintonia* (Type species *D. ubangoides* Young) Brazil; *Portmannia* (Type species *D. portmanni* Clark, 1862). New species are described as follows: *D. (Pachiridis) iridis* Brazil; *D. (Pachiridis) aldessa* Brazil, Trinidad; *D. (Pachiridis) novacula* Surinam; *D. (Pachiridis) aureus* Brazil, Surinam; *D. (Hintonia) ubangoides* Brazil, Ecuador; *D. (Hintonia) siolii* Brazil; *D. (Hintonia) minuta* Brazil. Members of the subgenus *Desmopachria* (*s.str.*) are divided into groups on the basis of male genitalia. *D. (Hintonia) minuta* is the smallest known Dytiscid water beetle measuring barely 1.1 mm in length.

The predaceous water beetles of the genus *Desmopachria* Babington are small insects ranging from about 1.1 to slightly over 3 mm in length. The species are widely distributed from Canada to Argentina, but are most numerous and diverse in tropical America. The described species have for the most part been defined on the basis of shape, dorsal punctation, and color, so that it is often difficult to determine them without examination and dissection of the types. In my studies, I have relied principally upon the external male genitalia to define the species. In several groups it is very difficult to determine females except by association with males, and in groups such as the Nearctic *convexa-grana* complex some species are truly pseudosiblings which cannot be distinguished except by dissection. Even scanning electron microscopy has not proven very useful in distinguishing these tiny seed-like creatures on external characters.

The genus *Desmopachria* Babington (1841) is distinguishable from all other genera of Dytiscidae by the following combination of characters: body form short, broadly oval, convex beneath; clypeus distinctly margined overhanging the exerted

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labrum; prosternum greatly reduced; prosternal process minute, rhomboidal, acuminate behind or forked in males and not reaching the mesosternum at middle; middle coxae distinctly separated; metasternum long in middle, its side wings very narrow, the sutures between them and the coxae often nearly imperceptible; hind coxae very large, the coxal process appressed to the basal abdominal sternite and the hind border fused with base of abdomen; coxal cavities (cavities of trochanters) exposed; hind legs moderately stout, not curved as in *Bidessini*; fore and middle legs pseudotetramerous, but 3rd segment little dilated or lobed and the tarsi not perceptibly different in males and females; inner face of elytron with a single prominent ligula (Sharp, 1882).

Pachydrus, the only close relative of *Desmopachria*, differs in the larger size of the species, more convex body form, concealed labrum, broad prosternal process, bilobed 3rd segment of fore and middle tarsus, and by the structure of the inner ligula of the elytron.

Although *Pachydrus* and *Desmopachria* are usually placed in the Hyphidriini they are not closely related to the Old World genera of that tribe. The fusion of the hind coxae to the abdomen links them to the *Bidessini*, but they differ from other genera of that tribe in the straight hind tibiae. They should probably be placed in a new tribe, the Pachydrini.

As defined above *Desmopachria* contains a number of species or species groups which may eventually be proven to represent distinct genera. Guignot (1950:152) has described three subgenera defined on the basis of tibial spines, presence or absence of an elytral sutural stria, and the presence or absence of basal plicae on the pronotum. Three other subgenera are defined below. This still leaves a large number of diverse species in the typical subgenus *Desmopachria*. The following key and descriptions are an attempt to simplify the classification and to aid in identification of the species.

KEY TO SUBGENERA OF DESMOPACHRIA

- 1. Long spine of hind tibia stout, distinctly serrate on edges; body form stout, convex; length over 2 mm; range Argentina to Mexico. (Type species, *Desmopachria mendozana* Steinheil, 1869) Subgenus *NECTOSERRULA* Guignot, 1949
- 1'. Long spine of hind tibia usually slender, not serrate on edges; body form variable, convex or flattened; length less than 1.2 to over 3 mm 2
- 2(1'). Pronotum with impressed plicae or fold-like furrows on either side of base; body form ovate, somewhat flattened; dorsum with distinct pattern of dark markings; length over 2 mm; species of the arid western part of the United States and Mexico with relict species in Florida (Type species, *Hydroporus latissima* LeConte, 1851) Subgenus *PACHRIODESMA* Guignot, 1949
- 2'. Pronotum without impressed basal plicae; body form and size variable; dorsum with or without contrasting dark markings 3
- 3(2'). Elytra with impressed striae on either side of suture, variable in length, but usually clearly detectible at middle 1/3 of elytra even if indistinct otherwise; body form stout, convex; length variable ranging from about 1.6 to 2.8 mm;

- range Brazil to Central America, West Indies, Florida (Type species, *Desmopachria grouvelli* Régimbart., 1895) Subgenus *PACHRIOSTRIX* Guignot, 1950
- 3'. Elytra without sutural striae, rarely with a few irregular punctures suggesting striae 4
- 4(3'). Elytra and usually head, pronotum, and venter with distinctive microsculpture giving an iridescent sheen to surfaces in cross-light (or if not length less than 1.2 mm) 5
- 4'. Microsculpture, if detectible, without an iridescent sheen or if iridescence is detectible in some dark species it appears to be due to substances within the cuticle not to surface microsculpture 6
- 5(4'). Dorsal punctation moderate to very coarse; body form ovate, somewhat flattened; male prosternal process forked, not reaching mesosternum at middle; body length usually over 2 mm; range Brazil, Trinidad, Surinam and probably other adjacent areas (Type species, *Desmopachria iridis* Young, sp. nov.) Subgenus *PACHIRIDIS*, subg. nov.
- 5'. Dorsal punctures very fine; body form ovate, convex; male prosternal process similar to that of female, but male clypeus extended, protuberant and expanded; body length 1.8 to 2.0 mm; range Brazil, Ecuador, and probably other adjacent areas (Type species, *Desmopachria ubangoides* Young, sp. nov.) Subgenus *HINTONIA*, subg. nov.
- 6(4'). Body form ovate, convex or somewhat flattened; often with distinct dorsal pattern of dark markings or elytra marmorate; dorsal punctation fine, inconspicuous; male prosternal process forked, not reaching mesosternum at middle; length usually over 2 mm; range western United States to South America (Type species, *Hydroporus portmanni* Clark, 1862) Subgenus *PORTMANNIA*, subg. nov.
- 6'. Body form variable, usually ovate, convex, or flattened; elytra usually dark, but sometimes with distinct pattern of spots, fascia, or marmorate markings; dorsal punctation usually fine but variable; prosternal process in male much as in female, the pointed apex reaching the mesosternum; length 1.3 to over 3 mm; range Canada to Argentina (Type species, *Desmopachria nitida* Babington, 1841). Subgenus *DESMOPACHRIA* Babington, 1841

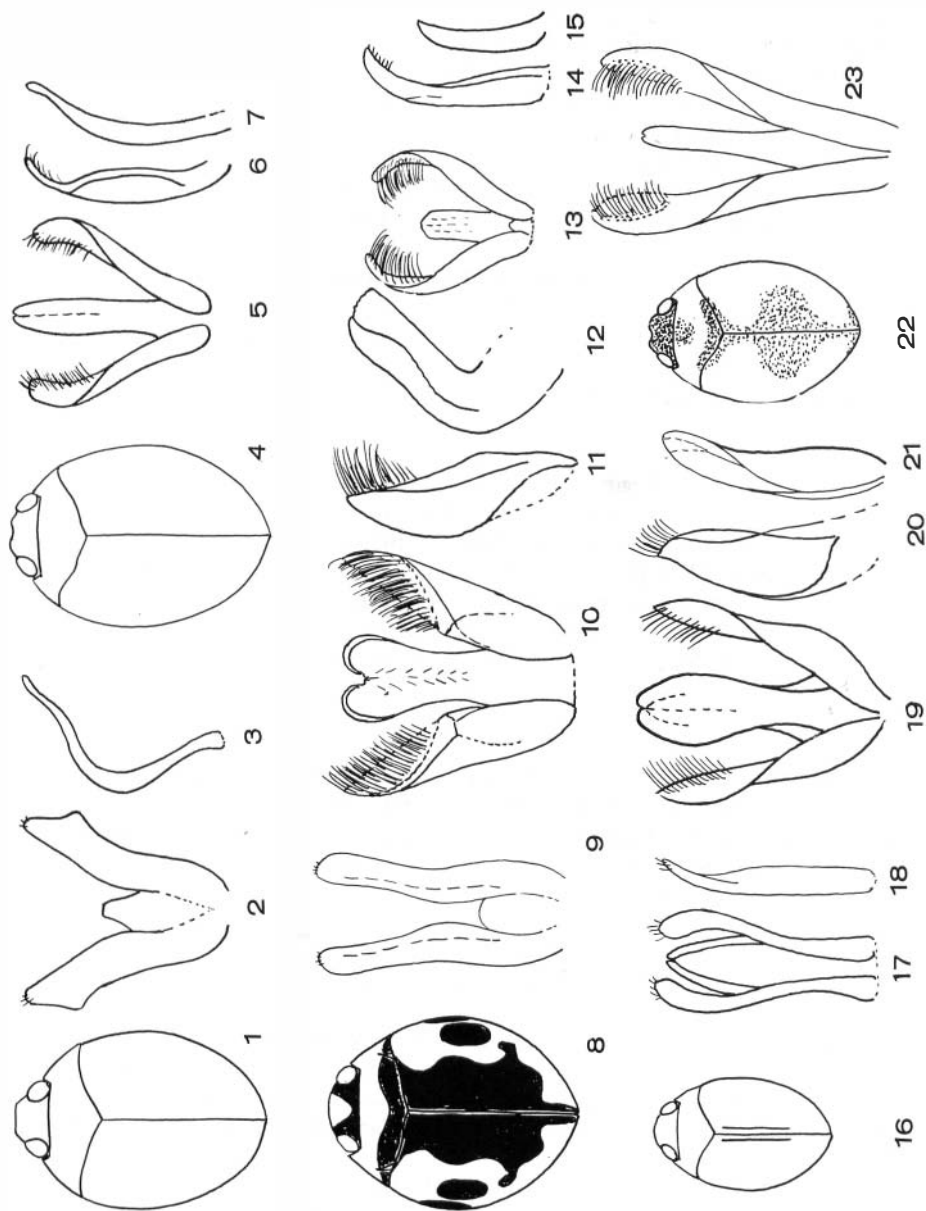
NECTOSERRULA GUIGNOT

This subgenus contains four described species ranging from Patagonia to Mexico. They are easily distinguished from other members of the genus by the enlarged and distinctly serrate long spines or spurs of the hind tibiae:

- concolor* Sharp, 1882: 340 Brasil
- punctatissima* Zimmermann, 1923: 32 Patagonia
- mendozaana* (Figs. 1, 2, 3) Steinheil, 1869: 249 Argentina
- vicina* Sharp, 1882: 16 Mexico.

FIGURES 1-23

1. *Desmopachria mendozana* Steinheil, dorsal aspect.
2. Same, dorsal aspect of aedeagus and parameres of male.
3. Same, lateral aspect of aedeagus.
4. *Desmopachria iridis* sp. n., dorsal aspect.
5. Same, dorsal aspect of aedeagus and parameres.
6. Same, lateral aspect of paramere.
7. Same, lateral aspect of aedeagus.
8. *Desmopachria latissima* LeConte, dorsal aspect.
9. Same, dorsal aspect of aedeagus and parameres.
10. *Desmopachria aldessa* sp. n., dorsal aspect of aedeagus and parameres.
11. Same, lateral aspect of paramere.
12. Same, lateral aspect of aedeagus.
13. *Desmopachria aureus* sp. n., dorsal aspect of aedeagus and parameres.
14. Same, lateral aspect of paramere.
15. Same, lateral aspect of aedeagus.
16. *Desmopachria striola* Sharp, dorsal aspect.
17. Same, dorsal aspect of aedeagus and parameres.
18. Same, lateral aspect of paramere.
19. *Desmopachria novacula* sp. n., dorsal aspect of aedeagus and paramere.
20. Same, lateral aspect of paramere.
21. Same, lateral aspect of aedeagus.
22. *Desmopachria portmanni* Clark, dorsal aspect.
23. Same, dorsal aspect of aedeagus and parameres.



PACHRIODESMA GUIGNOT

The members of this subgenus are characteristically brightly marked above with a dark pattern contrasting with the lighter background. They are characteristic of the streams and playas of the southwestern U.S., Mexico and southern California. Two relict species inhabit fluctuating situations in Florida. The markings represent disruptive coloration which renders them very difficult to see in their natural habitats. Five species have been described:

- dispersa* (Crotch) 1873: 388 Texas (Fig. 50)
- latissima* (LeConte) 1851: 205 California (Figs. 8, 9)
- mexicana* Sharp 1882: 19 Mexico (Fig. 48)
- mutchleri* Blatchley 1919: 309 Florida (Fig. 49)
- seminola* Young 1951: 107 Florida (Fig. 51)

PACHRIOSTRIX GUIGNOT

This subgenus is characterized by the sutural striae which are usually distinct at least on the disks of the elytra as incised lines. Otherwise the members vary in the punctuation of the dorsum, presence or absence of distinct dorsal patterns, and especially in the male external genitalia. Some of the species may eventually be shown to belong to other subgenera. Eight species have been described:

- brevicollis* Régimbart 1903: 47 Argentina
- ferrugata* Régimbart 1895: 323 Brasil
- fossulata* Zimmermann 1928: 171 Brasil
- grouvelli* Régimbart 1895: 322 Mexico
- paradoxa* Zimmermann 1923: 32 Brasil
- sanfilippo* Guignot 1957: 361 Venezuela
- striola* Sharp 1887: 752 Panama (Figs. 16-18)
- suturalis* Sharp 1884: 340 Brasil
- varians* Wehncke 1877: 151 Brasil

Of these *sanfilippo* Guignot may be misplaced. The species is described as having striae and is placed in *Pachriostrix*, but according to a paratype received from Sanfilippo, the striae are extremely vague if present. *D. varians* Wehncke is patterned much like members of the subgenus *Pachriodesma* but lacks the pronotal notches of that subgenus.

PORTMANNIA subg. nov.

(Type species, *Hydroporus portmanni* Clark, 1862)

Diagnosis: Body form ovate, usually strongly convex above and below; dorsal punctuation fine, inconspicuous or with coarser punctures on base, along suture, or in striae on disk of elytra; male prosternal process forked, the middle not prolonged into a point; dorsum often with an indistinct darker pattern or elytra marmorate; length usually over 2 mm.

Two groups of species are included: 1) Inconspicuously punctate species ranging from the southwestern United States into Mexico; usually with elytra in large part lighter than head or pronotum and often with darker markings (*D. portmanni* and others.); 2) Darker species from the Hylaeen forest, usually with coarser punctures on part of the dorsum and without distinct markings (*D. laevis* Sharp and others).

The included species are as follows:

Group 1:

- basicollis* Guignot 1949: 151
bryanstoni Clark 1862: 175 Mexico
 (= *polita* Sharp 1882: 17)
dispar Sharp 1882: 17 Mexico
portmanni Clark 1862: 174 Mexico (Figs. 22, 23)
mutata Sharp 1882: 18 Brazil
 (= *bryanstoni* Sharp 1882: 342 not Clark)
variegata Sharp 1882: 16 Mexico

Group 2:

- laevis* Sharp 1882: 341 Brazil
speculum Sharp 1887: 752 Panama
Desmopachria nitidissima Zimmermann (1928: 171) and *D. niger*
 Zimmermann (1923: 33) both from Brazil probably also belong here.

PACHIRIDIS subg. nov.
 (Type species, *Desmopachria iridis* sp. nov.)

Diagnosis: Body form ovate, somewhat flattened; dorsal punctation usually conspicuous, moderately coarse to very coarse; integument between punctures with microsculpture almost invisible at 90x but giving the surface an iridescent sheen in cross-light in part at least and often conspicuously so; male prosternal process forked, the middle not prolonged into a tip; body length usually over 2 mm (1.8 to 2.4 mm). None of the species have been taken at light.

This subgenus contains the following new species:

DESMOPACHRIA IRIDIS sp. nov.

Diagnosis: A moderately large *Desmopachria* about 2.1 to 2.8 mm in length (Fig. 4) with dorsal punctation coarse. Somewhat like *paradoxa* Zimmermann, but smaller and less coarsely punctate, although with similar simple male external genitalia. *Paradoxa* also lacks the microsculpture giving an iridescent cast to the surface in cross-light, has the coarse elytral puncture anastomosing into furrows, and the male prosternal process is not forked. In *iridis* the elytral punctures are confluent in pairs at most and the surface iridescence is marked. The prosternal process of the male is forked, and I can detect no signs of sutural striae on the elytra in this or the following species.

Holotype-Male: Length 2.8 mm; greatest width near bases of elytra 2.0 mm. Head relatively coarsely punctate, more closely and coarsely so than *paradoxa* especially on the base; fovea above antennae rounded, not extending far onto front; clypeus distinctly margined but only feebly truncate in front. Pronotum with smaller punctures on disk than on head, but with coarser punctures along base, toward sides, and sparingly along the front margin. Elytra coarsely punctate with punctures irregular in shape, the larger punctures tending to be in long rows near suture sometimes uniting in pairs interspersed with smaller more regularly rounded

punctures; punctures finer and somewhat denser toward sides and apices of elytra; discal striae obscured by coarse punctation. Venter: Hind coxae and metasternum with coarse punctures, but less coarsely and more shallowly punctate than in *paradoxa*; punctures interspersed with some irregular small ridges or grooves. Anterior coxae rugose on anterior face. Abdomen finely punctate with a few irregular, elongate punctures. Color: Head brownish yellow, faintly darker along base and over clypeal fovea; pronotum about same color as head at sides but with disk and base darker brown; elytra basically yellowish brown, intensely darker (piceous) narrowly along suture and bases; fore and middle legs, antennae, palpi, sides of elytra, and epipleurae light yellowish brown; metasternum and hind coxae brown; hind legs and abdomen lighter brown than coxae.

Male external genitalia as in Figs. 5-7. Aedeagus relatively simple in both ventral and lateral outline. Parameres twisted with elongate setae.

Allotype-Female: Very similar to male. Length 2 mm; greatest width near bases of elytra 1.5 mm.

Holotype, Allotype, and 5 Paratypes from BRAZIL: Pará, stream near Aldeia Coraci, Dec. 3, 1941, Borys Malkin (Florida State Collection of Arthropods = FSCA). Other paratypes from BRAZIL: Maranhão, Rio Gurupi, 30 mi west Canindé, (Aldeia Yavaruhu or Araçu trail), Feb. 14, 1966, Borys Malkin (181-FSCA). Same, 12-15 mi west Canindé, Igarapé, Coraci, Dec. 19, 1965 (1-FSCA) Pará, Aldeia Yavaruhu, Feb. 11, 1966, Borys Malkin (4-FSCA).

DESMOPACHRIA ALDESSA sp. nov.

Diagnosis: Similar to *iridis* but somewhat more elongate oval with elytra more coarsely punctate but with punctures less often elongate or united; iridescent sheen of surface less conspicuous but evident.

Holotype-Male: Length 2.48 mm; greatest width near bases of elytra 1.7 mm. Head more finely punctate than in *iridis*, the pits not conspicuously larger toward base; clypeus feebly truncate; clypeal fovea shallow but extending onto front. Pronotum with disk finely punctate much as in *iridis*, but basal pits coarser and sparser. Elytra distinctly more coarsely punctate than in *iridis* but less irregularly shaped, less often united or elongated, and not in very definite rows; some minute punctures irregularly scattered among coarser punctures; elytral discal striae evident even among coarser punctures; elytral punctures finer and sparser toward sides and apices. Venter: Hind coxae and metasternum appearing nearly smooth, but vaguely iridescent in part. Abdomen with some coarse punctures especially toward sides apically. Prosnal process similar to that of *iridis* in males and females. Color much as described for *iridis*, essentially brownish yellow with some darker areas on dorsum and venter.

Male external genitalia as in Figs. 10-12. Aedeagus more or less bifid at tip in ventral aspect, thick in lateral aspect. Parameres less flexulose than in *iridis* with bands of strong setae.

Allotype-Female: Very similar to male in shape, punctation, and coloration. Length 2.2 mm; greatest width near bases of elytra 1.6 mm.

Holotype, Allotype, and 525 Paratypes from BRAZIL: Maranhão. 30 km west of Canindé on Rio Gurupi (Aldeia Yavaruhu or Araçu trail), in isolated stream pools with gravel bottoms, foliage, and mud, Feb. 14, 1966, Borys Malkin (FSCA). Same, Aldeia Coraci, Dec. 3, 1964, Borys Malkin (2-FSCA). Other paratypes from TRINIDAD: Cumuto, 1929, P.J. Darlington, Jr. (37-MCZ). BRASIL: Mato Grosso, Barra do Tapirape, in shaded forest stream, Aug. 10, 1962, Borys Malkin (2-FSCA):

DESMOPACHRIA NOVACULA sp. nov.

Diagnosis: Similar to *iridis* and *aldessa*, but smaller than either and differently punctate. Surface iridescence more marked in some specimens than in others.

Holotype-Male: 2.08 mm in length; greatest width near bases of elytra 1.4 mm. Head punctate much as in *iridis* but basal punctures not conspicuously larger than others; clypeus distinctly margined, feebly truncate in front; clypeal fovea deeper than in *aldessa*, extending onto front. Pronotum finely punctate on disk with basal and anterior marginal punctures coarser, the latter coarser than in *iridis* but finer than in *aldessa*. Elytra coarsely punctate much as in *aldessa*, not as seriate as in *iridis*, seldom united; discal stria of smaller punctures distinct; some minute punctures among larger setate punctures; punctures finer but about as dense toward sides and apically. Venter: Hind coxae nearly impunctate, but with some irregular fine sculpture; metasternum with some fine punctures; abdomen with some sparse irregular punctures. Color much as in *aldessa* and *iridis* basically brownish yellow or yellowish brown with some parts darker.

Male external genitalia as in Figs. 19-24. Aedeagus relatively large modified at tip. Parameres somewhat twisted with rows of distinct setae.

Allotype-Female: Very similar to male. 2.1 mm long; greatest width near bases of elytra 1.4 mm.

Holotype, Allotype, and 49 Paratypes from SURINAM: Krakka-Phedra Road, Surinam District 25, in tiny forest pool, Oct. 25, 1962, Borys Malkin (FSCA).

I have also seen female specimens from the same locality as the types of *iridis* and *aldessa* which may represent this species.

DESMOPACHRIA AUREUS sp. nov.

Diagnosis: Similar to *iridis* but smaller, more ovate and with distinctive male genitalia (Figs. 13, 14, 15). Surface distinctly iridescent between punctures in cross-light.

Holotype-Male: Length 1.8 mm; greatest width near bases of elytra about 1.2 mm. Head finely punctate with coarser punctures along base, clypeus distinctly margined, feebly truncate in front; clypeal impressions marked by rows of punctures but not conspicuous. Pronotum very finely punctate on disk with coarser punctures along base and anterior margin. Elytra with coarser denser punctures near base and suture becoming finer and sparser laterally and apically; discal stria detectible, not conspicuous. Venter: Hind coxa, metasternum, and abdomen extremely finely punctate, with microsculpture causing iridescence between punctures. Color: Golden yellow-brown with elytra slightly darker than head and

pronotum; head with base slightly darker; pronotal disk slightly darker than margins and sides; elytra narrow, very dark brown (piceous) along suture and bases.

Male external genitalia as in Figs. 13-15. Aedeagus short, turned down at tip in lateral aspect. Parameres similar to those of *iridis* and *novacula* with distinct rows of strong setae.

Allotype-Female: very similar to male. Length 1.9 mm; greatest width near bases of elytra 1.28 mm.

Holotype, Allotype, and 406 **Paratypes** from BRAZIL: Maranhão, Rio Gurupi, 30 km west Canindé (Aldeia Yavaruhu or Araçu trail), Feb. 14, 1966, Borys Malkin (FSCA). Other paratypes are from BRAZIL: Pará, Aldeia Yavaruhu, Feb. 11-25, 1966, Borys Malkin (2-FSCA). SURINAM: Krakka-Phedra Road, Surinam District 25, tiny forest pool, Oct. 25, 1962, Borys Malkin (30-FSCA).

HINTONIA subg. nov.

(Type species, *Desmopachria ubangoides* sp. nov.)

Diagnosis: Body form ovate, convex above. Dorsal and ventral punctation very fine, but surface between punctures usually with a fine microsculpture which gives all or part of surface an iridescent cast in crosslight. Clypeus of male with wide, usually translucent protuberant border, extending forward and upward like a scoop. Antennae with basal segments large, the 2nd especially large, and more or less angulate on the inner, upper angle in males; large but less angulate in females. Length 1.1 to 2.0 mm.

I take pleasure in naming this subgenus for the late Howard E. Hinton, F.R.S., whose collecting in tropical America added greatly to our knowledge of the aquatic fauna of that area.

The genus contains the following new species:

DESMOPACHRIA UBANGOIDES sp. nov.

Diagnosis: A moderately large species for the genus, about 1.8 to 2.0 mm long by about 1.0-1.2 mm wide near basal 1/3 of elytra. Body form ovate, (Fig. 24), strongly convex above, less strongly so ventrally. Clypeus of male extended with thin margin, protuberant in front suggesting the extended lower lips of the Ubanges. Antennae with basal segments large in both sexes, the 2nd distinctly large and the 3rd segment as long as the 4th and 5th combined. Elytra with darker markings forming irregular spots and fascia contrasting with the lighter basic color. Dorsum finely, sparsely punctate with microsculpture between punctures giving the surface a distinct iridescent cast in cross-light.

Holotype-Male: Length 1.9 mm; greatest width near basal 1/3 of elytra about 1.2 mm. Body form ovate, strongly convex above, somewhat more flattened ventrally. Head finely, sparsely punctate with surface between punctures appearing smooth and shining at 90x or in part iridescent; clypeus almost impunctate with anterior margin thin, translucent, conspicuously expanded; opaque anterior border of clypeus elevated at middle and feebly ridged back toward front; antennae with 2nd segment large, angulate on outer upper corner and with a projecting seta; 3rd

segment long, as long as 4th and 5th combined. Pronotum slightly more coarsely punctate than head on the disk, but punctures about as sparse; somewhat more coarsely punctate along posterior margin toward the sides and along anterior margin toward sides; sides distinctly margined (beaded); length along middle slightly greater proportionately than in the North American *D. convexa* (Aubé); surface between punctures distinctly iridescent in cross-light although microsculpture is barely visible at 90x in cross-light; microsculpture apparently composed of an irregular network of fine anastomosing strigae; outer basal angles of pronotum recurved, barely visible from directly above. Elytra punctate about as on pronotum; discal stria of coarser punctures distinct, but not conspicuous; punctures sparser toward sides and apices; surface between punctures distinctly iridescent in cross-light much as on pronotum. Venter with hind coxae, metasternum, and abdomen finely sparsely punctate; punctures about size of those on head; surface shining between punctures not evidently iridescent. Prosternal process much as in female, not forked. Last visible abdominal sternite feebly transversely impressed; surface with fine microsculpture, but not evidently iridescent. Color: Clypeus brownish yellow shading to dark brown on front and base. Pronotal disk dark brown with lateral margins yellowish brown to brownish yellow. Elytra brownish yellow to yellowish brown with dark brown markings covering most of surface except for lighter spots and marks (Fig. 24); pattern of lighter spots diffuse and difficult to follow because of iridescence of surface. Venter mostly yellowish brown with hind coxae and metasternum very dark brown on outer parts, reddish brown in middle. Appendages mostly yellowish brown or brownish yellow. Male external genitalia unique, aedeagus with tip appearing membranous; parameres with a notch in outer 1/3 of inner margin and with a terminal brush of setae (Fig. 25).

Allotype-Female: Very similar to male. Length 1.9 mm; greatest width near basal 1/3 of elytra 1.1 mm. Antenna with 2nd antennal segment large, but not so sharply angulate at upper, inner angle as in male. Clypeus with median ridge as in male, but not protuberant to front, simply rounded.

Holotype-Male and 2 **Paratypes** from BRAZIL: Amazonas, Rio Pixuna, Dec. 22, 1947, Harald Sioli (BMNH in J. Balfour-Browne collection).

Allotype-Female and 3 **Paratypes** from BRAZIL: Amazonas, Igarapé, Agua Boa, Dec. 22, 1947, Harald Sioli (BMNH in J. Balfour-Browne collection).

Paratypes from ECUADOR: Napo Province, Limoncocha on Río Napo, Nov. 10, 1974 black-light trap, B.A. Drummond, Jr. (2 in FSCA).

DESMOPACHRIA SIOLII sp. nov.

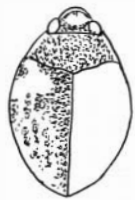
Diagnosis: A small species, about 1.6 mm long by 1.0 mm wide near basal 1/3 of elytra, similar to *ubangoides* but differing in its smaller size and distinctive male external genitalia. Antennae and clypeus much as in *ubangoides*. Elytra with dark melanic pattern reduced but specimens seen are teneral (callow).

Holotype-Male: Length 1.6 mm; greatest width near basal 1/3 of elytra about 1.0 mm. Smaller, more broadly ovate, and less convex above than *ubangoides*. Dorsal microsculpture reduced so that iridescence is less marked but still clearly evident. Head more finely and sparsely punctate than in *ubangoides*; surface

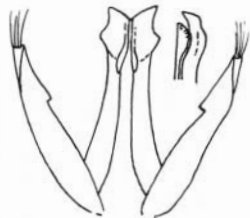
FIGURES 24-51

24. *Desmopachria ubangoides* sp. n., dorsal aspect.
25. Same, dorsal aspect of aedeagus and parameres with lateral aspect of tip of aedeagus.
26. *Desmopachria siolii* sp. n., dorsal aspect of aedeagus and parameres.
27. Same, color pattern of left elytron.
28. *Desmopachria minuta* sp. n., dorsal aspect of aedeagus and parameres.
29. Same, color pattern of left elytron.
30. *Desmopachria convexa* Aubé, dorsal aspect.
31. Same, dorsal aspect of aedeagus and parameres with lateral aspect of paramere at right.
32. *Desmopachria glabricula* Sharp, dorsal aspect. Color pattern suggested by dotted lines.
33. Same, dorsal aspect of aedeagus and parameres.
34. *Desmopachria bifasciata* Zimmermann, dorsal aspect.
35. Same, dorsal aspect of aedeagus and parameres.
36. *Desmopachria nitida* Babington, dorsal aspect.
37. Same, dorsal aspect of aedeagus and parameres.
38. Same, lateral aspect of paramere.
39. Same, lateral aspect of aedeagus.
40. *Desmopachria subnotata* Zimmermann, dorsal aspect.
41. Same, dorsal aspect of aedeagus and parameres.
42. Same, lateral aspect of paramere.
43. *Desmopachria ovalis* Sharp, dorsal aspect.
44. Same, dorsal aspect of aedeagus and parameres.
45. *Desmopachria attenuata* Régimbart, dorsal aspect.
46. Same, dorsal aspect of aedeagus and parameres.
47. Same, lateral aspect of paramere and aedeagus at right.
48. *Desmopachria mexicana* Sharp, dorsal aspect.
49. *Desmopachria mutchleri* Blatchley, dorsal aspect.
50. *Desmopachria dispersa* LeConte, dorsal aspect.
51. *Desmopachria seminola* Young, dorsal aspect.

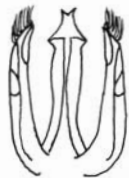
(Figs. 48-51 are drawn at a smaller scale than other figures).



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26



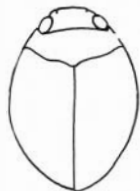
27



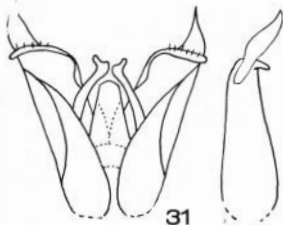
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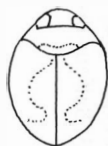
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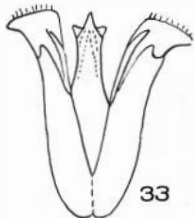
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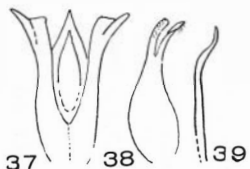
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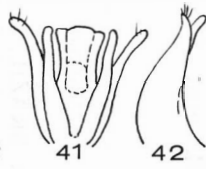
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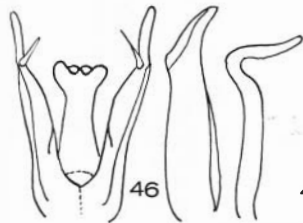
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between punctures iridescent; clypeal margin less strongly upturned but protruding and central ridge distinct; antenna with 2nd segment enlarged and almost right-angled on upper inner corner; 3rd segment about as long as 4th and 5th together. Pronotum punctate much as in *ubangoides*, but surface smooth and shining; outer basal angles not so strongly recurved, reflecting less convex upper surface; surface iridescence reduced, but detectible in cross-light (probably more evident in fully hardened specimens. Elytra slightly more coarsely punctate than in *ubangoides*; discal stria of coarser punctures evident; surface iridescence more evident than on head or pronotum. Venter with metasternum, hind coxae, and abdomen with some barely visible fine punctures. Prosternal process not forked, flattened at middle of apex as in *ubangoides*. Color: Head brownish yellow darker along base. Pronotum yellowish brown, narrowly darker along base and vaguely on middle of disk. Elytra brownish yellow with darker brown markings as in Fig. 27. Venter brownish yellow, darker along sutures and at joints as usual. Male external genitalia unique, the aedeagus bifid at tip and parameres peculiarly shaped toward tips and with rows of setae (Fig. 26).

Allotype-Female: Very similar to male. Length about 1.5 mm; greatest width near basal 1/3 of elytra about 1.0 mm. Antennae and clypeus less strongly modified than in male.

Holotype from BRAZIL: Amazonas, Igarapé, San Benedito, "Entre detritus fluer.", June 10, 1948, Harald Sioli (BMNH in J. Balfour-Browne collection).

Allotype from BRAZIL: same as holotype except, "Barranco are 0.20 m prof.", Apr. 15, 1948, Harald Sioli (BMNH in J. Balfour-Browne collection).

DESMOPACHRIA MINUTA sp. nov.

Diagnosis: This is the smallest known Dytiscid water beetle measuring only slightly more than 1 mm in length and 0.72 mm in greatest width. It is smaller than *Liodessus microscopicus* Zimmermann which it somewhat resembles in having the elytra lightly spotted. The surface is only feebly iridescent, but the expanded male clypeus and enlarged 2nd antennal segment of both sexes relate it to *ubangoides* and *siolii*.

Holotype-Male: Length 1.1 mm; greatest width near bases of elytra 0.72 mm. Ovale, convex above somewhat less convex below. Head, pronotum, and elytra very finely and shallowly punctate, the surface between punctures smooth and shining for the most part, but in part with a fine microsculpture appearing iridescent in cross-light. Venter with hind coxae, metasternum, and abdomen almost impunctate at 90x. Head with clypeus broadly margined, projecting in front. Antennae with 2nd segment enlarged, the 3rd longer than 4th and 5th combined, the outer segments compact (partly broken off in holotype). Color: Head and pronotum largely brownish yellow, darker along bases. Elytra basically brownish yellow with melanic infusion of dark brown leaving exposed six or seven light brownish yellow spots distributed as in Fig. 29. Venter mostly brownish yellow, darker along sutures and some indefinite areas. Male external genitalia unique, aedeagus divided. Parameres with peculiar "hooked" appendage on inner edge (Fig. 28).

Allotype-Female: Very similar to male. Length 1.1 mm; greatest width near bases of elytra 0.72 mm. Last antennal segment large, subulate.

Holotype and **Allotype** from BRAZIL: Mato Grosso, Porto Velho, Aug. 31, 1937, H.E. Hinton (BMNH, in J. Balfour-Browne collection).

DESMOPACHRIA (s. str.)

The typical subgenus of *Desmopachria* contains a rather diverse lot of small beetles. I suggest that they be treated in the following groupings for the present:

Convexa-grana Group characterized by the presence of a curved hook or tip on each paramere of the male external genitalia with a moveable spur just before the apex. (Figs. 30,31). The species are small, brown, seed-like beetles rarely over 1.8 mm long. Several of the species are to me indistinguishable on external characters, and can be separated only by study of the external male genitalia.

The described species are:

convexa (Aubé) 38-479 U.S., Canada

circularis Sharp 82-18 Guatemala

grana (LeConte) 55-294 S.E.U.S. ↷

Glabricula Group characterized by the sclerotized aedeagus and modified parameres which, however, lack moveable spurs (See Figs. 32,33). The only described species is:

glabricula Sharp 82-18 Mex.

Nitida Group characterized by the apparently double parameres and the feebly sclerotized aedeagus (Figs. 36-39). Most of the species of this group are Neotropical and closely resemble members of the *convexa-grana* group. The described species is:

nitida Babington 41-17 Brasil.

Attenuata Group characterized by the elaborately modified male aedeagus (Figs. 45-47). This group, to date, is known only from Brazil. The only described species is:

attenuata Régimbart 95-323 Brazil.

Ovalis Group characterized by the ovate, convex form and simple male genitalia (Figs. 43-44) but lacking the distinctive characters of the subgenus *Portmannia*. The only described species is:

ovalis Sharp 82-340 Brazil

Subnotata Group characterized by the male genitalia (Figs. 40-42). In this group *subnotata* is distinguishable from most species by the light spots on the bases of the elytra, but the other members are more uniformly colored. The described species are:

phacoides Guignot 50-1 Brazil

subnotata Zimmermann 21-192 Brazil

subtilis Sharp 82-341 Brazil

D. subtilis Sharp may be the same as *phacoides* Guignot.

Signata-bifasciata Group characterized by having distinct elytral light markings contrasting against the darker background, and by the relatively simple male external genitalia. The species seem to be characteristic of the Hylean forest in Brazil and adjacent areas. The described species are:

bifasciata Zimmerman 21-192 (Figs. 34-35).

pulvis Guignot 58-35 Brazil

signata Zimmerman 21-192 Brazil

Several of the above groups are probably artificial, but they should allow some simplification of the classification. The *convexa-grana* group is limited to North America, Central America, and the Antilles. The others are primarily Neotropical.

Desmopachria bituberculata Guignot 1958: 34 is a *Brachyvatus* to judge by specimens in his collection (Paris).

Desmopachria variolosa Régimbart (1895: 322) doubtfully from Sumatra on tobacco is probably not a *Desmopachria*. The unique type in the Paris Museum has a remarkable dorsal sculpture of very coarse and in part confluent punctures with a distinct but incomplete sutural stria at about the middle of the elytron, but it is shortened at base and apex. A distinct discal stria runs from base to about apical 1/3 of elytron, and there is a vague outer stria on basal 1/2 of elytron. The clypeus is distinctly but finely margined somewhat acuminate in front. The elytra are laterally carinate much as in *Uvarus inflatus* (Young), and the body form is more acuminate anteriorly, broader medially, and more attenuate behind than in most *Desmopachria*.

RESUMEN

Este trabajo consiste en una clave para los géneros *Desmopachria* (Coleoptera: Dytiscidae) y una clasificación de las especies en sub-géneros y grupos. Se describen los subgéneros siguientes: *Pachiridis* (especie tipo *D. iridis* Young) Brazil; *Hintonia* (especie tipo *D. ubangoides* Young) Brazil; *Portmannia* (especie tipo *D. portmanni* Clark, 1862). Se describe las siguientes especies nuevas: *D. (Pachiridis) iridis* Brazil; *D. (Pachiridis) aldessa* Brazil, Trinidad; *D. (Pachiridis) novacula* Surinam; *D. (Pachiridis) aureus* Brazil, Surinam; *D. (Hintonia) ubangoides* Brazil, Ecuador; *D. (Hintonia) siolii* Brazil; *D. (Hintonia) minuta* Brazil. Los miembros del subgénero *Desmopachria* (s. str.) se dividen en grupos con base en los órganos genitales masculinos. *D. (Hintonia) minuta* es el ditísido más pequeño que se conoce, midiendo apenas 1,1 mm de largo.

LITERATURE CITED

The older references may be found in Blackwelder, R.E., Checklist of the Coleopterous insects of Mexico, Central America, the West Indies, and South America, Part 6, Bull. 185, United States National Museum, 1957. References not included there are as follows:

Blatchley, W.S.

1919.

II. Insects of Florida Va. Supplementary notes on the water beetles. Bull. Amer. Mus. Nat. Hist., 41: 305-322.

- Guignot, F.**
1949. Trentième note sur les Hydrocanthares (Col.). Bull. Soc. Ent. France, 54: 146-153, 2 figs.
- Guignot, F.**
1950. Trente-troisième note sur les Hydrocanthares. Bull. Inst. Sci. Nat. Belg., Brussels, 26, 10 p., 3 figs.
- Guignot, F.**
1957. Viaggio in Venezuela di Nino Sanfilippo III. Contribution a la connaissance des Dytiscides Sud — Americains (3eme serie). Ann. Mus. Stor. Nat. Genova, 69: 361-362.
- Guignot, F.**
1958. Contribution a la connaissance des Dytiscides et Gyrinides Sud-Americains. Rev. Franç. Ent., 25: 33-42, 7 figs.
- Young, F.N.**
1951. A new water beetle from Florida, with a key to the species of *Desmopachria* of the United States and Canada (Coleoptera: Dytiscidae). Bull. Brooklyn Ent. Soc., 46: 107-112, 1 pl.