WATER BEETLES OF THE GENUS
SUPHISELLUS CROTCH IN THE AMERICAS
NORTH OF COLOMBIA
(COLEOPTERA: NOTERIDAE)

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ABSTRACT. The species and subspecies of Suphisellus Crotch (Coleoptera: Noteridae) occurring north of Colombia are discussed, and keys and figures given for their identification. The following new names, synonyms, or new combinations are suggested: Suphisellus neglectus n. sp. (Colombia, Panama, Guatemala); S. lineatus (Horn) covers S. centralis (Sharp), S. mexicanus (Sharp), and S. lineatus (Wehncke, not Horn), new synonyms; S. insularis (Sharp) covers S. simplex (Sharp), S. similis (Sharp), and S. floridanus (Blatchley), new synonyms; S. rufipes (Sharp) is considered a synonym of S. nigrinus (Aubé); S. punctipennis (Sharp) is reduced to a subspecies of S. bicolor (Say) producing two new combinations, S. bicolor bicolor (Say) and S. bicolor punctipennis (Sharp); S. gibbulus (Aubé) is redefined and lectoholotype and lectoallotype designated. Lectotypes are designated for other species where appropriate.

The genus Suphisellus (Coleoptera: Noteridae) is clearly defined by the following set of characters: protibial spurs present, strong, curved, conspicuous; hind femora with angular cilia (setae or spurs); prosternal process broad, truncate (squarely cut off) behind; apex of prosternal process at least twice its breadth between the anterior coxae, but not broader than long; laminate inner plates of hind coxae with a broad and deep angular excision at the posterior end, leaving on either side a diverging triangular process; hind coxal cavities contiguous; last segment of maxillary palpus emarginate at its apex; pronotum with lateral marginal lines originating at hind angle on either side, diverging toward the middle of margin, and disappearing at about the middle; total length about 1.9 to slightly more than 4 mm.

Most of the species of Suphisellus are highly polished on the dorsum so that they appear shining between any larger punctures present, but a few are so densely punctate or have the microsculpture so strongly incised that they appear matte rather than shining.

The Old World genus Canthhydrus is morphologically very similar,
but the lateral marginal lines of the pronotum are complete to the anterior margin as in the genus *Hydrocanthus*. A few South American noterids, currently placed in *Canthydrus*, need further study. *Suphisellus* is represented by many species in the tropical regions of the Americas, and, as usual with Neotropical genera, as one moves north into the Nearctic the species become fewer and local populations more restricted in habitat. The recognition of some of the species is difficult because of their small size and variability. Hardly any two specimens look exactly alike, and old dried types sometimes cannot be matched with any specimens even when extensive series are available. Most of the variability is simply due to the degree of hardening of the cuticle, which affects color, sculpture, and general body shape. There is almost certainly, however, a genetic basis to the colors and color patterns, and lightly pigmented specimens are not always teneral (callow). The male external genitalia present, in my opinion, the most important characters for delimiting the species populations, which show local and clinal variation in shape, punctation, vestiture, and color pattern.

The genus *Hydrocanthus* in several ways parallels the genus *Suphisellus* in the United States. Each genus has an abundant, nearly unicolorous species, in the coastal plain from about Mobile Bay north to Virginia or Delaware (*H. oblongus* Sharp and *S. gibbulus* [Aubé]). Each genus has a strongly bicolorous form in eastern Texas, Louisiana, Arkansas, and Mississippi and a feebly bicolorous or unicolorous form in the eastern states (*H. texanus* Sharp and *S. bicolor* [Say]). Each genus also has an endemic, darkly colored, species in southern Georgia and Florida, (*H. regius* Young and *S. parsonsi* Young). There is no apparent parallel to *S. punctipennis* Crotch, which is widely distributed in the eastern woodland area but is rare or lacking in the upper Coastal Plain and Piedmont areas, nor are there *Hydrocanthus* species comparable to the small, Antillean-Circum-Caribbean *S. insularis* (Sharp) or the striped *S. lineatus* (Horn).

The parallels between species of *Suphisellus* and *Hydrocanthus* suggest an ecological correlation. I believe, however, that this is the result of selective forces rather than of direct environmental influences. The differences in color may reflect differences in background coloration, that is, the bright stripes of *S. lineatus* (Horn) may be disruptive and concealing in the clear streams and pools in Mexico and Texas while the blackness of *H. regius* may be concealing against the mucky bottoms of streams and pools in southern Georgia and peninsular Florida (Young 1960a, 1960b).

The life history of none of the species has been described in detail,
but all, together with their larvae, are scavenger-herbivores which feed largely in masses of decaying vegetation or among roots dangling in water. The numbers of individuals in decaying mats of water hyacinths (Pistia or Eichornia) or on tree roots dangling in streams are sometimes astounding. None of the species appears to be flightless, and many are attracted to light in large numbers. In Brazil, for example, it is not unusual to take several hundred individuals representing seven or more species in a light trap in a single night.

The genus is in need of revision, but the South American species are so numerous and so poorly known that this cannot be attempted at present. The following keys, figures, and notes may contribute to a better understanding of these small insects, which may be of considerable importance in recycling nutrients in tropical ecosystems (Young 1967).

Abbreviations used in the following discussions are as follows: BMNH (British Mus., Nat. Hist., London); CAS (California Acad. Sci., San Francisco); FM (Field Mus., Chicago); INHS (Illinois Nat. Hist. Surv., Champaign); FSCA (Florida State Coll. Arthropods, Gainesville); MCZ (Mus. Comp. Zool., Harvard Univ., Cambridge, MA); NMNH (U.S. Nat. Mus. Nat. Hist., Washington); NMSU (New Mexico State Univ., Las Cruces); OSU (Ohio State Univ., Columbus); SM (Snow Mus. Univ. Kansas, Lawrence); UMMZ (Univ. Michigan Mus. Zool., Ann Arbor); MNd'HN (Mus. Nat. d'Hist. Nat., Paris).

KEY TO SPECIES AND SUBSPECIES OF SUPHISELLUS OF THE ANTILLES AND AMERICA NORTH OF COLOMBIA

1. Elytra dark brown to black with lighter stripes, bars, spots, or irregular markings ........................................ 2
1'. Elytra uniformly light brown to black without lighter markings .......... 8
2(1). Elytra with distinct yellow stripes contrasting with darker background
(Figs. 1–3,21) length 2.8–3.5 mm; Texas, Mexico, Central America .... 3
2'. Black or dark brown markings of elytra extended so that light stripes,
if present, are interrupted; elytra usually with yellowish spots or bars
and often with a transverse basal and/or medial fascia of lighter spots
or bars (Figs. 4–8) ........................................ 5
3(2). Size larger, length 3.2 to 3.5 mm; male external genitalia as in
Fig. 21; Panama, Colombia, Venezuela, Mexico .... simoni (Régimbart)
3'. Length usually less than 3 mm, male genitalia as in Figs. 1,2,3; western
Mexico, Texas and eastern Mexico, and Central America .... lineatus (Horn)
4(2'). Elytra and pronotum with moderately coarse, close punctures and
with strongly impressed, reticulate microsculpture between punctures;
elytra dark brown to black with margins lighter and bars or fascia of
spots extending inward from the margin near middle; last visible
abdominal sternite feebly impressed medially in both males and females,
the punctuation inconspicuous; male genitalia as in Fig. 4; length 2.7 to
3.0+ mm; eastern woodland area of Canada and U.S. . . . puncticollis Crotch

4'. Elytra and pronotum less strongly punctate with microsculpture reduced or almost lacking; elytra often with some lighter spots or stripes on bases of elytra before middle; average size smaller; West Indies, Central and South America ................................. 5

5(4') Prosternum feebly to distinctly grooved medio-apically and narrow between fore coxae; prosternal margins sometimes almost meeting in front of fore coxae, not flattened, rounded, and extending below general plane of ventral platform ........................................... 6

5'. Prosternum at most very feebly grooved medio-apically; prosternal process not greatly narrowed between fore coxae; prosternum in front of fore coxae more or less flattened, broad ..................... 7

6'. Male external genitalia with tip of penis narrowed in lateral view (Fig. 5); elytra with yellowish spots usually restricted, elongate and not confluent with bar extending inward from margin; last visible abdominal sternite in male feebly impressed before apex, and in female feebly impressed at sides so as to be slightly carinate, the punctation not conspicuous; length 2.7 to 2.9+ mm; Guatemala, Panama, and Colombia ................................. neglectus sp. nov.

6'. Male external genitalia with tip of penis narrowed in lateral view (Fig. 6), somewhat similar to puncticollis (Fig. 4); elytra markings variable, but with median discal spot often confluent with bar extending in from margin; last visible abdominal sternite of male somewhat more strongly impressed before apex, than in female in which it is more strongly impressed at sides; length about 2.3 to 2.7 mm; Guadeloupe, Cuba, Hispaniola ................................. binotatus (Fleutiaux and Sallé)

7(5'). Elytral markings usually including an elongate humeral yellowish stripe and an elongate discal stripe just outside the conspicuous discal stria of punctures; external male genitalia with tip of aedeagus narrowed in lateral view (Fig. 7); last visible abdominal sternite of male feebly impressed before apex, that of female feebly carinate from being laterally impressed; length about 2.3 to 2.5 mm; Guatemala, Nicaragua, British Honduras ................................. varians (Sharp)

7. Elytral light markings irregular or greatly reduced; male external genitalia with aedeagus broadly rounded at tip in lateral view and conspicuously narrowed toward base (Fig. 8); last visible abdominal sternite in both sexes impressed before apex; length about 2.6 to 2.8 mm; Panama, Colombia ................................. subsignatus (Sharp)

8(1'). Body form short, stout, almost hemispherical; prosternum usually longitudinally grooved and arched along with metasternum and coxal laminae, so that ventral platform is not flat; transverse rows of setate punctures on abdomen greatly reduced; size small, length 1.8 to 2.3 mm . . . 9

8. Body form broader near bases of elytra and more or less tapered behind; prosternum, metasternum, and coxal laminae forming a nearly flat ventral platform; size usually larger, length about 1.9 to over 4 mm ............. 10

9(8). Prosternum only feebly grooved; head and pronotum without darker areas, uniformly brownish yellow; elytra little darker than pronotum, usually uniformly brownish yellow; male external genitalia distinctive (Fig. 10); length about 2.2 to nearly 2.4 mm; northwestern Mexico . . . levis (Fall)
9'. Prosternum distinctly grooved; head usually darker at base and pronotum darkened at apex; pronotum sometimes with both base and apex darkened the darkening extending onto disk; elytra nearly always (except in teneral specimens) darker than lightest parts of pronotum, often strikingly contrasting with pronotum and head (Fig. 12); male external genitalia distinctive (Fig. 12, 13, 14); length about 1.9 to 2.2 mm; Florida, West Indies, Central America, Mexico \textit{insectoris} (Chevrolat)

10(9'). Elytra and base of pronotum rather coarsely and closely but shallowly punctate with reticulate microsculpture between the punctures, giving a matte appearance to surface; last visible abdominal sternite of male feebly compressed laterally and minutely carinate toward apex; last visible abdominal sternite of female compressed on either side and distinctly carinate for about \( \frac{1}{2} \) length of sternite; male external genitalia distinctive (Fig. 9); length about 2.5 to 2.7 mm; color uniformly medium brown above and below, the elytra little darker than pronotum or head; peninsular and western Florida and southern Georgia \textit{parsoni} Young

11(10'). Size large for genus, length over 4 mm; elytra darker than pronotum, light brown, pronotum brownish yellow; punctuation of elytra and base of pronotum moderately coarse and close, but microsculpture almost lacking between punctures; last visible abdominal sternite not perceptibly modified in either sex; male external genitalia distinctive; Panama, Venezuela, probably Colombia (Fig. 14) \textit{majuscus} (Sharp)

11'. Size smaller, length rarely 3.8 mm

12(11'). Punctuation of elytral disk (except for discal stria) and base of pronotum fine or almost obliterated, microsculpture little impressed; length 2.6 to 3.8 mm

12'. Punctuation of elytral disk and base of pronotum moderately coarse and impressed, microsculpture more evident (less shining between punctures); length rarely over 2.8 mm

13(12'). Average size smaller, length 2.6 to 2.8 mm; body form shorter, broader; last abdominal sternite transversely impressed before apex in both sexes; elytral punctuation somewhat coarser; usually with elytra nearly black and pronotum and head with dark areas with margins lighter; male genitalia distinctive (Fig. 20); Panama, Colombia, Venezuela, Brazil \textit{curtus} (Sharp)

13'. Average size larger, length 2.8 to 3.8 mm, usually over 3.0 mm; body form more elongate; last abdominal sternite almost unmodified in male, deeply impressed on either side in female; color more uniformly reddish brown or black with margins somewhat lighter; male genitalia as in Fig. 15; South and Central America, Mexico, West Indies \textit{nigrinus} (Aubé)

14(12'). Last visible abdominal sternite impressed on either side in both male and female, more strongly so in female so that sternite may appear medi ally carinate

14'. Last visible abdominal sternite with an oval impression at middle, at least in females

15(14'). Dorsum usually not strikingly bicolorous, or if so elytra dark brown, not black (Fig. 15); male genitalia with aedeagus bent at middle and

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Fig. 1. Suphisellus lineatus (Horn): Left, dorsal outline with color pattern semidiagrammatically represented; right, lateral aspect of aedeagus. Both from Sharp's "Type mihi" (BMNH). Fig. 2. Suphisellus lineatus (Horn): Same as Fig. 1, but both from Sharp's "Type mihi" of mexicanus (BMNH). Fig. 3. Suphisellus lineatus (Horn): Same as Fig. 1, but both from lectoholotype of Sharp's centralis (BMNH). Fig. 4. Suphisellus puncticollis (Crotch):
rounded at tip (Fig. 16); length about 2.4 to 2.8+ mm; inland from coastal plain, from Alabama, Georgia, Tennessee, Kentucky, to Illinois and Indiana, east to South Carolina, Virginia, and Delaware

................................. bicolor punctipennis (Sharp)

15. Dorsum usually strikingly bicolorous, the elytra very dark piceous brown to blue-black (Fig. 17); male genitalia as described in preceding rubric (Fig. 17); length about 2.4 to 2.8+ mm; eastern Texas, Louisiana, Mississippi, Alabama east to Mobile Bay, north to Arkansas and Indiana

................................. bicolor bicolor (Say)

16(14'). Dorsum uniformly reddish brown; discal punctation of elytra deep; body form more elongate (Fig. 19); length about 2.5 to 2.8 mm; male unknown, female with last visible abdominal sternite deeply impressed at middle; Cuba ......................... tenuicornis (Chevrolat)

16'. Dorsum usually feebly bicolorous to moderately bicolorous, the elytra medium to very dark piceous brown; body form less elongate (Fig. 18); male genitalia distinctive (Fig. 18); last visible abdominal sternite impressed at middle in both sexes; length about 1.9 to 2.8 mm, usually about 2.2 to 2.4; coastal plain from Mobile Bay, Alabama, to Dismal Swamp, Virginia, extending inland along rivers .................... gibbulus (Aubé)

Suphisellus lineatus (Horn)


1876 Hydrocanthus lineatus Wehncke, Deutsche Ent. Zeit 20:221 (Mexico).


This species is easily distinguished from all others occurring north of Colombia by its size (length less than 3 mm) and by the distinctive striping of the elytra (Figs. 1, 2, 3). The characters on which Sharp distinguished mexicanus and centralis from lineatus are all variable

Left, dorsal outline as in Fig. 1; middle, tip of aedeagus viewed from above (as in copulatory position); right, lateral aspect of aedeagus. All from a male from Monroe Co., Indiana (UMMZ). Fig. 5. Suphisellus neglectus sp. nov.: Same as in Fig. 4. From paratype male (UMMZ). Fig. 6. Suphisellus binotatus (Fleutiaux and Sallé): Same as in Fig. 4. Dorsal outline and color pattern after a female cotype (BMNH); male genitalia after a male from Cuba (exMCZ). Fig. 7. Suphisellus varians (Sharp): Same as in Fig. 4. After male lectoholotype (BMNH). Fig. 8. Suphisellus designatus (Sharp): Same as Fig. 4. Dorsal outline after unique female type (BMNH); male genitalia after a male from Panama (UMMZ). Fig. 9. Suphisellus parsoni (Young): Left, dorsal outline with dark brown color suggested in part by stippling; right, lateral aspect of aedeagus. Both after male holotype (CAS). Scale: For dorsal outlines 30 mm on figures = 2.6 mm; genitalia 25 mm = 0.4 mm.

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and involve mainly the extension of the dark pattern on the elytra, and the darkening of the pronotum and head. A prosternal groove is present in some specimens of both sexes but is indistinct or lacking in others. The male external genitaria are very similar in all specimens examined from western Mexico, eastern Mexico, and Central America. It is possible that *lineatus*, *centralis*, and *mexicanus* represent subspecies, but the amount of material presently available is insufficient to allow detailed biometrical studies. The distribution of the three populations seems to be disjunct and suggests that of *Lachophilus pictus* (LaPorte) and its subspecies *coccinelloides* Régimbart and *insignis* Sharp (Zimmerman 1970). I suspect, however, that the populations will be found to come together when further collecting is done.

Specimens examined include: S. *centralis* Sharp, Lectoholotype male (dissected), GUATEMALA, San Gerónimo (Champion) and lecotoallotype female (same data), here designated, in Biological Central American material, (BMNH). Other specimens seen which should represent *centralis* are from: GUATEMALA: Guatemala City (BMNH); BRITISH HONDURAS: Cayo District (FSCA). Specimens examined which represent *mexicanus* Sharp are from: MEXICO: VERA

Fig. 10. *Suphisellus levii* (Fall): Left, dorsal outline and suggested color pattern; lateral outline with ventral platform omitted; view of tip of aedeagus viewed from above (as in copulatory position); right, lateral outline of aedeagus. All after male from Mazatlan, Mexico (BMNH). Fig. 11. *Suphisellus insularis* (Sharp): Same as Fig. 10. After lectoholotype male (MND'H); genitalia after a male from Dade Co., Florida (UMMZ). Fig. 12. *Suphisellus insularis* (Sharp): Same as Fig. 10. After lectoholotype male of *simplex* (Sharp) (BMNH). Fig. 13. *Suphisellus insularis* (Sharp): Same as Fig. 10. After lecotoallotype male of *similaris* (Sharp) (BMNH). Fig. 14. *Suphisellus majusculus* (Sharp): Left, dorsal outline with color pattern represented semidiagrammatically; middle, view of tip of aedeagus viewed from above (as in copulatory position); right, lateral outline of aedeagus. After lectoholotype male of *majusculus* (Sharp) (BMNH). Fig. 15. *Suphisellus nigrinus* (Aubé): Left, dorsal outline of male of Sharp’s “Type mihi” in BMNH; middle, lateral view of aedeagus of male; right, dorsal outline of lectoholotype male of *rufipes* (Sharp) (BMNH). Color patterns suggested by differences in stippling—black, shading to dark brown at margins, in *nigrinus*; dark brown, shading into reddish brown at margins, in *rufipes*. Fig. 16. *Suphisellus bicolor punctipennis* (Sharp): Left, dorsal outline of female lecotoallotype (BMNH); right, lateral view of aedeagus of male lectoholotype (BMNH). Fig. 17. *Suprissellus bicolor bicolor* (Say): Left, dorsal outline with color pattern diagrammatically represented; right, lateral view of aedeagus. Both after a male from Louisiana (UMMZ). Fig. 18. *Suphisellus gibbulus* (Aubé): Same as Fig. 17. Lectoholotype male (BMNH). Fig. 19. *Suphisellus tenuicornis* (Chevrolat): Dorsal outline of cotype female (BMNH). Fig. 20. *Supri- sellus curtus* (Sharp); Dorsal outline and aedeagus viewed from below and from side. After a male from Panama (UMMZ). Fig. 21. *Suphisellus simoni* (Régimbart). Aedeagus from below and dorsal outline. After a male from Panama (UMMZ). Scale: For dorsal outlines 30 mm on figures = 2.6 mm; genitalia 25 mm = 0.4 mm.
CRUZ in BCA material (BMNH), Sharp’s “Type mihi’ of *mexicanus* Sharp (Not type of *lineatus* Wehncke); NUEVO LEON (UMMZ); SAN LUIS POTOSI (NSMU), TAMÁULIPAS (NMNH, NMSU), PUEBLO (UMMZ), VERA CRUZ (UMMZ, NMSU). USA: TEXAS: Calhoun Co. (UMMZ), Cameron Co. (SM), Hidalgo Co. (SM), Refugio Co. (UMMZ). Specimens examined which represent *lineatus* Horn are from: “California”, probably BAJA CALIFORNIA (BMNH); MEXICO: NAYARIT (UMMZ, CAS, NMSU), SINALOA (CAS, NMSU), SONORA (NSMU), MICHOACAN (UMMZ), OAXACA (NMSU), and probably JALISCO (BMNH).

Leech (1948) remarks that although Horn in the original description says, “Cape San Lucas, Lower California and were collected by Mr. Wm. W. Gabb,” in a later paper (1894) Horn says, “Collected by Mr. Gabb in Baja California. Special locality unknown.”

Leech (1948) gives records for Baja California as 5 miles S Miraflores, and 20 miles N Comondu (CAS).

**Suphisellus simoni** (Régimbart)


This species has the elytra striped much as in *S. lineatus*, but the larger size and distinctive male external genitalia (Fig. 21) should distinguish it.

I have seen this species from VENEZUELA (Carlos Bordon, Caracas); PANAMA: Tocumen (FSCA) and Cabima (NMNH); and MEXICO: JALISCO at Barra de Navidad, La Huerta, and Melaque (NMSU).

**Suphisellus puncticollis** Crotch


This species is widespread in the woodland areas of the eastern United States and southern Canada. It is easily distinguished from other species in this area by its size and the dark elytra with the margin lighter and a short bar or broken fascia extending inward from the margin near the middle (Fig. 4). Superficially it is remarkably similar to *S. balzani* (Régimbart), common in Mato Grosso and Rio Grande states of Brasil and in Paraguay. The resemblance is, however, superficial; *puncticollis* is more convex, less attenuate behind, less coarsely punctate on elytra and pronotum, and lacks light markings on the anterior ⅓ of the elytra. The male genitalia also differ. Nevertheless, one is tempted to believe that these two beetles must occupy similar niches in their respective areas.

There is considerable variation in color pattern in the specimens be-
fore me, but I cannot detect any differences suggesting subspeciation.

I have discussed the taxonomy of this species (Young 1954). I have since seen additional specimens from the following FLORIDA counties: Alachua, Baker, Broward, Collier, Dade (Royal Palm State Park, W. S. Blatchley in BMNH), Gilchrist, Glades, Highlands, Jackson, Jefferson, Lake, Lee, Levy, Putnam, Marion, and Monroe. The FSCA holds large series taken with black-light traps in Alachua, Putnam, and Marion counties. I have also seen specimens from GEORGIA, INDIANA, MICHIGAN, NORTH and SOUTH CAROLINA, NEW YORK, VIRGINIA, and ONTARIO.

Suphisellus neglectus sp. nov.

Diagnosis. Superficially similar to S. varians (Sharp), binotatus (Fleutiaux & Sallé), and subsignatus (Sharp), but easily separated by differences in the male external genitalia (Fig. 5). Distinguishable from S. varians and subsignatus by the grooved prosternum and more reduced light color pattern of the elytra, and from S. binotatus by the more reduced light color pattern of the elytra and the less pronounced modification of the last visible abdominal sternite in both male and female.

Holotype Male. Ovate, narrowed behind, moderately convex above and feebly convex below, the ventral platform nearly flat. Total length 2.8 mm; greatest width near bases of elytra 1.4 mm; width of pronotum at base 1.3 mm; width at apex of pronotum 0.8 mm; length of prosternal process 0.4 mm; total length of ventral platform (prosternum, metasternum, and coxal laminae) 1.3 mm. Head with punctation reduced, smooth, shining with microsculpture reduced. Pronotum much like head except for usual setigerous punctures along side and anterior margins and large rather shallow punctures along base. Elytra more regularly punctate, with punctures much like those at base of pronotum but with larger punctures on disk and near base along suture; discal stria of punctures obscured by other punctation; elongate marginal setae not conspicuous. Venter: Ventral platform much as in binotatus in structure and punctation, but with apex of prosternal process somewhat more deeply impressed and base of metasternum not as deeply impressed; prosternum narrowed between the fore coxae, with elongate groove distinct; a similar groove on basal ⅓ of metasternum, thence narrowing and continuing to apex of ventral platform. Ventral platform narrower than in varians or subsignatus. Last visible abdominal sternite impressed at middle, but not so distinctly so as in binotatus; fore and middle tarsi expanded with small suction pads similar to binotatus.

Allotype Female. Similar to male, except that last visible abdominal
sternite is impressed at sides, but less so than in *binotatus* and not appearing carinate. Punctuation and elytral markings much as in male. Prosternal groove not as distinct but similar to that of male. Total length 2.9 mm; greatest width near bases of elytra 1.6 mm.

**Color and Pattern.** Holotype male with head yellowish brown with vaguely darker area at base; pronotum yellowish brown with an irregular darker reddish brown spot in middle of anterior margin; elytra dark reddish brown (almost piceous) with narrowly lighter side margins and three small yellow spots arranged as follows: 1) a rounded spot on disk behind base, about equidistant from side margin and suture and well-separated from base; 2) a lateral elongate spot near side margin (connected to lighter side margin in some apparently teneral specimens); and 3) an elongate discal spot at about middle of elytron. Elytral suture with a small area at base lighter (Fig. 5). Female allotype similar but with head slightly more infuscate and pronotal base slightly infuscate.

**Variation.** An extensive series before me is surprisingly constant in punctuation and elytral markings. Specimens from Guatemala and Colombia are quite similar except that the Colombian examples are slightly larger. The reduction of the elytral light pattern to small spots seems characteristic of mature specimens. Some specimens from Guatemala show an additional small yellow spot behind the median discal spot near the suture as in typical *binotatus*.

**Types.** Holotype, allotype (UMMZ), and 85 paratypes from **COLOMBIA:** Magdalena; Isla Salamanca Parque National, 80 km. west of Santa Marta, 22 Feb. 1968, 23 Feb. 1968, and 16 Mar. 1968, B. Malkin (UMMZ, FM); Santa Marta, Rodadero, in permanent swampy pond, 20–22 Mar. 1968, 6, B. Malkin (UMMZ, FM). **GUATEMALA:** Paso Antonio, 400’, Champion, 2 marked ‘n.sp.” in cotype series of S. *varians* (BMNH). **PANAMA:** Tocumen, Jul.–Aug. 1970, BLT, 122, Diego Navas (FSCA). **BRITISH HONDURAS:** Cayo Provide, Mile 66 on western highway, 14 Jul. 1969, BLT, W. and D. Hasse, 6 (FSCA); Paratypes will be distributed to other museums and individuals. Two damaged specimens from **MEXICO:** TABASCO: Teapa (NMSU) are probably also *neglectus*.

This species was first recognized among the cotypes of *S. varians* in the Biologia Centrali Americana material in BMNH. Its distinctness only became apparent upon dissection of males.

**Suphisellus binotatus** (Fleutiaux & Sallé)

This species is very similar in most characteristics to *S. neglectus*, but is easily distinguished by the structure of the male aedeagus. The color pattern appears to be variable, and it is possible that more than one species is involved. Cotypes from Guadeloupe (BMNH) have characteristic light bars extending inward from the marginal pale area and small spots on the apical ⅔ of the elytra near the suture (Fig. 6). Specimens from Cuba and Hispaniola associated with males (MCZ), however, have inward extensions of the light margin and the apical spots are lacking. I cannot detect any significant differences among specimens from the three islands, and suspect that they represent a widespread species possibly represented by subspecies in the various islands. Except for its smaller size and smoother dorsum this species resembles *S. puncticollis*.

Specimens examined include: **GUadeloupe**, 2 female cotypes (BMNH). **Cuba**: Soledad, Cienfuegos (MCZ). **Hispaniola**: **DOMINICAN REPUBLIC**: Sanchez (MCZ).

**Suphisellus varians** (Sharp)

1882 *Canthydrus varians* Sharp, Biologia-Centrali Americana, Coleopt. 1(2):5 (GUATEMALA, Paso Antonio)

The characters of the male external genitalia and the elongate light markings of the elytra (Fig. 7) should distinguish this species. The prosternum is relatively broad between the fore coxae and lacks the characteristic groove of *neglectus* and *binotatus*.

To fix this name I designate as Lectoholotype a dissected male from the cotype series and as Lectoallotype an associated female with the same data (BMNH).

Other specimens examined are from: **NICARAGUA**: Granada (FSCA). **BRITISH HONDURAS**: Cayo District (FSCA).

**Suphisellus subsignatus** (Sharp)


The unique female type (Fig. 8) of this species (Panama in BMNH) agrees well with males and females from **PANAMA**: Canal Zone, Albrook Forest site (NMNH); Tocumen (FSCA); Gambosa (FSCA). **COLOMBIA**: Isle Salamanca, Parque Nacional (UMMZ).

Fleutiaux and Sallé (1889) record subsignatus from Guadeloupe, but this record probably belong to *binotatus* or a new species.

**Suphisellus insularis** (Sharp)


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Careful comparison of the types of the four names cited above convinces me that they represent a single widespread species. The male genitalia are very similar in all four, and the other characters cited by Sharp and Blatchley are variable. See Figs. 11–13.

The types of *S. similaris* from Veracruz, Mexico, are slightly larger than *insularis* from Florida, Cuba, Hispaniola, Puerto Rico, and Guatemala, but are otherwise very similar. The types of *similaris* are all light yellowish brown without indication of darker markings on the pronotum, but this may be due to their being teneral (callow). Other specimens from Veracruz (Reyes-Castillo) and Guerrero (FSCA) have the elytra darker than the pronotum, but the latter is not infuscated.

The Central American, Antillean, and Floridian specimens are similar in having dark elytra without any lighter markings and a dark mark at least at the anterior edge of the pronotum. Some specimens from Florida have both base and apex of pronotum darkened and the marks united on the disk.

Specimens examined include: “San Domingo, Coll. M. de Bouvouloir” (presumably Santo Domingo in Villas Province, CUBA), type male of *insularis* in Museum National d'Histoire Naturelle, Paris. CUBA: Cienfuegos, Soledad (MCZ). Hispaniola: DOMINICAN REPUBLIC: Sanchez (MCZ). HAITI: Miragoane (MCZ). PUERTO RICO: Lake Guanica (MCZ). GUATEMALA: Paso Antonio, 5000', Champion, Biologia Centrali Americana material (BMNH), Sharp’s types of *simplex*. The middle specimen of three on card is designated Lectoholotype, GUATEMALA: Paso Antonio, 400', Champion (Biologia Centrali Americana Material [BMNH]), Sharp’s types of *similaris*. Dissected male in cotype series is designated Lectoholotype; female specimen marked “Type” is designated Lectoallotype. MEXICO: VERACRUZ (UMMZ). GUERRERO: 0.6 mi. S Puerto Marques (Acapulco) (FSCA). USA: FLORIDA: Lake Okeechobee, Okeechobee Co. 6 Mar. 1913, W. S. Blatchley (Purdue Univ., Lafayette), Blatchley’s types of *floridanus*. The label specimen is designated Lectoholotype; Dade Co., Royal Palm State Park, W. S. Blatchley (BMNH). I have also seen specimens from the following FLORIDA counties: Alachua, Broward, Collier, Dade, Glades, Highland, Lake, Martin, Osceola, St. Lucie, Sarasota, and Volusia (UMMZ, FSCA). *Suphisellus insularis* is often extremely abundant in masses of decaying water hyacinths in southern Florida and also is attracted to light.
Suphisellus levis (Fall)

1909 *Canthydrus levis* Fall, Canadian Ent. 41:161 (LOWER CALIFORNIA: San Jose del Cabo).

This species appears to be separable from *insularis* by the characters in the key. It seems to be consistently larger, and the external male genitalia are different although of the same general type as those of *insularis*. (Fig. 10).

I have seen specimens only from MEXICO: NAYARIT: Tepic (CAS); SINALOA: Mazatlan (BMNH). Farther south in GUERRERO, *insularis* occurs on the west coast, and these two putative species may actually merge.

Leech (1948) had not seen this species from Lower California.

Suphisellus parsoni Young

1952 *Suphisellus parsoni* Young, Florida Ent. 35(4):157 (Sebring, FLORIDA).

This species is similar to *S. gibbulus* (Aubé) in size and shape, but differs from any other species in the genus known to me in the coarse, dense elytral and basal pronotal punctuation and the distinctly impressed microsculpture between the punctures. It also differs from both *bicolor* and *gibbulus* in the male external genitalia and secondary sexual characters. (Fig. 9).

At present, *parsoni* is known from only a few localities: FLORIDA: Highlands Co., Sebring, 20 July 1942, at light, Carl T. Parsons, holotype and allotype (CAS), Liberty Co., 5 mi. S Wilma on Fla. 65 (UMMZ); pond 7 mi. E Wilma, associated with sphagnum (UMMZ), Walton Co., hog wallow near Bruce (UMMZ), Okaloosa Co., Stream 3 mi. W. Blackwater (UMMZ); GEORGIA: Charlton Co., Okefenokee Swamp (SM). It may be a sphagnum bog species which is mixed in most collections with *gibbulus*.

Suphisellus majusculus (Sharp)

1882 *Canthydrus majusculus* Sharp, Biologia Centrali Americana, Coleopt. 1(2):6 (PANAMA: David, Champion).

The large size and coarse, distinct, punctuation of the elytra and base of the pronotum should make this species easy to recognize (Fig. 14). It seems, however, to be relatively rare.

Specimens examined include: PANAMA: (Champion) in Biologia Centrali Americana material (BMNH), Sharp's cotypes. The dissected male in this series is designated Lectoholotype. PANAMA: Tocumen (FSCA). VENEZUELA: ESTADO GUARICO: Calabozo, Estación Biológica (Carlos Bordon, Caracas); Santa María de Ipira, 200 m (Bordon, Caracas; UMMZ).
**Suphisellus nigrinus** (Aubé)

1838 *Hydrocanthus nigrinus* Aubé, Species Général des Coléoptères, 6:411 (ANTILLES and BRAZIL from collections of Chevrolat and Buquet).


This species is very widespread if we base the characterization on the external male genitalia. The principal variation is in color (Fig. 15). The supposedly canalicate prosternum cited by Sharp seems to me illusory. Within series from Brazil, the prosternum is nearly flat, feebly channeled, or deeply channeled. In specimens I have seen from the Antilles the prosternum is at most feebly grooved. *Suphisellus rufipes*, described from “Cuba, Amazonas, and (Parana?)”, at most represents a smaller Antillean-Mexican-Central American subspecies.

Many specimens from the Antilles and Mexico, which should represent *rufipes*, are almost as darkly pigmented as typical *nigrinus* from Brazil, but others, especially those from Mexico, are much lighter, sometimes resembling feebly bicolorous specimens of *bicolor*. None of the Antillean-Mexican-Central American specimens I have examined has the prosternum as deeply grooved as some specimens of *nigrinus* from Brazil.

I have seen specimens of this species or complex from: BRAZIL (BMNH, UMMZ, FM, NMNH, FSCA, et al.). BOLIVIA (UMMZ). COLOMBIA (UMMZ). SURINAME (Rijksmuseum, Leyden and UMMZ). TRINIDAD (UMMZ). ECUADOR (NMNH). VENEZUELA (UMMZ; Bordon, Caracas).

Specimens referable to *rufipes* because of their lighter coloration have been examined from: CUBA: marked “female type,” here designated Lectoholotype (BMNH). BRAZIL: Amazonas cited by Sharp, but apparently a small, possibly teneral specimen of *nigrinus* (BMNH). ANTIGUA (NMNH). CUBA: Soledad (MCZ); Cayamas (NMNH). JAMAICA (FSCA, NMNH). COSTA RICA (NMNH). PANAMA CANAL ZONE: Ancon (NMNH); Corozol (NMNH); Chiva Chiva (UMMZ). PANAMA: Cabima (NMNH); LaChorrera (UMMZ). MEXICO: TABASCO (BMNH); TAMAULIPAS (UMMZ); VERA CRUZ (BMNH, UMMZ, NMSU); CAMPECHE (NMSU; CHIAPAS: Azufere NMSU); JALISCO: La Huerta (NMSM); OAXACA (NMSU). I have also seen specimens referable to *rufipes* from COLOMBIA and VENEZUELA (UMMZ).

The specimen from Parana, cited doubtfully by Sharp, does not seem to be in the BMNH. Fleutiaux and Sallé (1889) record *nigrinus* from Guadeloupe.

**Suphisellus bicolor** (Say)

1834 *Noterus bicolor* Say, Trans. Am. Soc. Phil. 4:446 (Louisiana, Mr. Barabino).

In its typical form this is a very striking insect, with pale yellowish
brown ("honey yellow" Thomas Say) head and pronotum and blue-black elytra. This strongly bicolorous form extends as far north as Indiana, but is replaced to the east by a paler form which is only feebly bicolorous or uniformly yellowish brown above. The male external genitalia of the typical form and the paler eastern form (punctipennis Sharp) are identical in structure, and aside from color the differences between the two are variable and largely clinal in nature. That is, from the northeast toward Louisiana and Texas specimens become progressively smaller, less coarsely punctate, and apparently narrower and more convex. The secondary sexual characters are also identical, and contrast with those of S. gibbulus (Aubé). The relationship between the latter species and bicolor will be discussed later.

The eastern form is rare and spotty in distribution compared with the typical form. I have not been able to find mixed populations except in Indiana, but I believe that the two interbreed in Mississippi, Alabama, Missouri, Indiana, and southern Illinois. The striking difference between the bicolorous and unicolorous or feebly bicolorous forms is not strictly due to environment. I have kept the unicolorous Indiana form in the laboratory for over a year without any intensification of the elytral coloration.

I believe that S. bicolor has the same relationship to punctipennis as that seen in Hydrocanthus iricolor (Say), in which the unicolorous northern-northeastern form intermixes and interbreeds with the strongly bicolorous form that extends from Texas northeastward. The unicolorous condition in this insect also is not strictly environmental and does not change during life after the initial hardening of the cuticle.

Despite the similarity of male external genitalia and secondary sexual characters, and the clinal nature of other differences between bicolor and punctipennis, I think the color differences indicate genetic differences which distinguish two subspecific populations. I therefore suggest the following new combinations.

**Suphisellus bicolor bicolor** (Say) New Combination

The range of this bicolorous population extends from eastern Texas northward to Indiana and eastward to Alabama (Fig. 17). About at Mobile Bay, Alabama, it is replaced by the feebly bicolorous or unicolorous S. gibbulus in the lower coastal plain, and to the north by punctipennis.

Material examined includes specimens from the following counties or parishes in
the USA: ALABAMA: Mobile; ARKANSAS: Arkansas, Monroe, Ouachita; INDIANA: Monroe; LOUISIANA: Concordia, Grant, LaSalle, Madison, Pointe Coupee, Rapides, St. Landry, Tensas; MISSISSIPPI: Newton; TEXAS: Aransas, Brazos, San Jacinto, Valverde, Victoria (UMMZ, NMNH).

This typical form has been reported from California (Leech 1970) where it was almost certainly accidentally introduced.

**Suphisellus bicolor punctipennis** (Sharp) New Combination


Sharp’s types of this species are marked “Amer. Bor. Horn” and “Carolina #509.” The latter is a male, and I hereby designate it as the Lectoholotype (Fig. 16). The number 509 refers to Sharp’s identification number. The accompanying female marked “Amer. Bor. Horn” I designate as the Lectoallotype.

All specimens cited by me under this name previously (Young 1954) prove, on the basis of male external genitalia and secondary sexual characters, to be teneral, lightly colored specimens of *gibbulus*.

I have seen very similar specimens from the following counties in the eastern USA: ALABAMA: Cherokee, Greene, Houston, Montgomery; DELAWARE: Kent, Bombay Hook, (OSU); GEORGIA: Hart, Fulton; ILLINOIS: Pope, Lake Glendale, (INHS); INDIANA: Monroe; KENTUCKY: Clinton; NEW JERSEY: Burlington; NORTH CAROLINA: Cherokee; TENNESSEE: Campbell, Fentress; SOUTH CAROLINA: Beaufort; VIRGINIA: Albemarle (all records represented by specimens in UMMZ, NMNH, FSCA, and FM unless otherwise indicated.)

**Suphisellus tenuicornis** (Chevrolat)

1863 *Hydrocanthus tenuicornis* (Chevrolat, Ann. Soc. Ent. France (Ser. 4) 3:199 (CUBA).

I have seen only a single female of this species in the Sharp collection (BMNH). It is marked “W.I. Cuba, ex coll. Chev.” and “Cotype.” This individual is nearly uniformly reddish brown and looks very much like a large female *S. gibbulus* (Fig. 19). I think the name should be retained pending the examination of Chevrolat’s other types and new material from Cuba. The species seems to be very rare in collections, and is not represented in the extensive collections of P. J. Darlington, Jr. (MCZ).

It is interesting that the differences between the specimen I have seen and *gibbulus* from Florida are very similar to those between *Hydrocanthus oblongus* Horn from Florida and supposed Cuban specimens of that species. That is, in the Cuban examples the color is reddish, and the size is larger.
Suphisellus gibbulus (Aubé)
1838 Suphis gibbulus Aubé, Species général des Coléoptères 6:414, (UNITED STATES).

This species has been synonymized with S. bicolor (Zimmerman 1919:115), but is smaller on the average, somewhat more convex, and has the last visible abdominal sternite impressed in the middle in both sexes. The male external genitalia are similar to those of bicolor, but the aedeagus is slender and more attenuate toward the tip (Fig. 18). I believe these differences along with differences in punctuation and coloration indicate the existence of a distinct species population in the Gulf and Atlantic coastal plane from Mobile Bay area in Alabama to the Dismal Swamp of Virginia.

The question is, does the name gibbulus apply to this population or to punctipennis? I have been unable to locate specimens in the Aubé collection in Paris (MNd'HN), and therefore propose as Lectoholo-type and Lectoallotype a male and female cotype in the Sharp collection (BMNH) marked "Type mihi, Amer. Bor. ex Mus. DeJean." I have compared specimens from Alachua Co. Florida (Payne's Prairie, 23 July 1960, F. N. Young ex UMMZ), with the above types and distributed them under that name. Additional specimens from this series are available for distribution to museums upon request.

As defined above, gibbulus proves to be a highly variable species, but the variation is difficult to quantify. In general, specimens from southern Florida are smaller and increase in average size northward then westward and northeastward. Teneral specimens are not only more lightly colored, but are larger and appear broader and differently punctate than fully hardened individuals from the same series. I have examined and dissected numerous specimens from many localities throughout the range and cannot find any characters which suggest the existence of separate populations.

I have found no evidence that interbreeding occurs between gibbulus and b. bicolor or b. punctipennis, and have, in fact, found only one mixed population. The two species seem usually to occupy different habitats. The mixed population is from South Carolina (Beaufort Co., Cambahee River marsh, 25 July 1959, F. N. Young [UMMZ]). In a series of 18 males and females, the small, unicolorous males have the genitalia and secondary sexual characters of gibbulus, while a single larger, strongly bicolorous male has the genitalia and secondary sexual characters of b. bicolor. Among the females, the larger specimens usually have the compressed last visible sternite characteristic of
bicolor females, while the male smaller females and some larger ones, as well as the males, have this sternite impressed at the middle. The appearance of the single strongly bicolorous male individual so far outside the range of typical b. bicolor is puzzling. It is possible that it indicates interbreeding with gibbulus and subsequent recombination, allowing the expression of the bicolorous condition.

Suphisellus gibbulus is one of the commonest beetles in Florida and in the lower coastal plains of Georgia. I have examined material from the following counties: ALABAMA: Mobile, (H. P. Löding) probably in Baldwin Co.; Grand Bay, Mobile Co. (H. P. Löding); GEORGIA: Bryan, Brantley, Bullock, Charlton, Clinch, Echols, Glynn, Lanier, Liberty, Lowndes, Mitchell, Pulaski, Seminole, Telfair; FLORIDA: Alachua, Baker, Bay, Brevard, Broward, Calhoun, Citrus, Clay, Collier, Columbia, Dade, Franklin, Gadsen, Gilchrist, Hamilton, Hardee, Hendry, Hernando, Highlands, Hillsboro, Indian River, Jackson, Jefferson, Lafayette, Lake, Lee, Leon, Levy, Liberty, Madison, Marion, Martin, Okaloosa, Okeechobee, Osceola, Palm Beach, Pinellas, Polk, Putnam, St. Johns, St. Lucie, Seminole, Sumter, Taylor, Volusia, Walton, Washington. It probably occurs in every county in Florida. SOUTH CAROLINA: Barnwell, Beaufort, Brunswick. (Voucher specimens for the above records are in UMMZ, FSCA, or FM.)

Suphisellus curtus (Sharp)


This species looks like a large bicolor with infuscated pronotum and head. It should be readily separable from the other species by its size, coloration, and male external genitalia (Fig. 20). It seems to be widely-distributed in South America.

I have examined specimens from BRAZIL (UMMZ), VENEZUELA (UMMZ, Bordon, Caracas), COLOMBIA (UMMZ), PANAMA: Tocumen (FSCA). Sharp (1882) questionably places a specimen marked “Pampas (Germain)” with the type. He says that this specimen is larger, more convex and elongate, but very close to curtus (in collection of M. de Bouvouloir).

Undescribed Species

A male from El Salto, JALISCO, collected by H. E. Hinton (BMNH) and a few specimens from La Huerta, JALISCO, collected by J. R. Zimmerman (NMSU), probably represent an undescribed species. The elytral markings resemble those of varians, but the male genitalia are more like those of neglectus.

A single female from Tepic, NAYARIT, collected by Boris Malkin (CAS), looks like a teneral lineatus, but is very coarsely punctate on the dorsum.

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LITERATURE CITED


