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A Key to the American Species of *Hydrocanthus* Say, with Descriptions of New Taxa (Coleoptera: Noteridae)

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ABSTRACT.—The species of the genus *Hydrocanthus* (Say 1823) present a Gondwanan distribution with members in Africa, the Indo-Malayan region, Australia, and the Americas. The African species have been separated in the subgenus *Sternocanthus* Guignot, and the American species present two groups: *Hydrocanthus* sensu stricto with species ranging from Patagonia to Canada (type species *H. iricolor* Say) and *Guignocanthus* n. subg. (type species *H. ancus* Guignot) with species ranging from the Mato Grosso to Texas (described herein). The following new species are described: *Hydrocanthus* (s. str.) *pallisteri* (Central Plateau of Mexico), *H.* (s. str.) *occidentalis* (western Mexico), *H.* (*Guignocanthus*) *guignoti* (Mato Grosso, Brasil). *H.* (s. str.) *atripennis* Say is considered to be the same as *H. texanus* Sharp. [America, Coleoptera, *Guignocanthus*, *Hydrocanthus*, key, new taxa, Noteridae, systematics, water beetles]

The species of water beetles of the genus *Hydrocanthus* (Coleoptera: Noteridae) are widely distributed over the earth in a wide variety of habitats. They are usually associated with filamentous algae, and in North America can usually be found in ponds with cat tails (*Typha* spp.). The American species are much more similar in morphological characters than are the African, Indo-Malayan, and Australian species. The following descriptions and keys should aid future workers with this difficult group.

The following abbreviations are used in the text: AMNH, American Museum of Natural History, New York; CAS, California Academy of Science, San Francisco; FM, Field Museum of Natural History, Chicago; FSCA, Florida State Collection of Arthropods, Gainesville; NMNH, National Museum of Natural History, Washington; NMSU, New Mexico State University, Las Cruces.

Genus *Hydrocanthus* Say

TYPE SPECIES. *Hydrocanthus iricolor* Say (Pennsylvania?, U.S.A.).

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The species of the genus *Hydrocanthus* (Say 1823) are elongate oval beetles, strongly attenuate behind and usually strongly convex above. The terminal segment of the labial palpus is enlarged and usually has a seam along the inner margin with tiny tubercles at either end. The terminal segment of the maxillary palpus also has two tiny tubercles. The front coxae are well separated by the base of the prosternal process which is nearly truncate or very obtusely angulate medially. The apex of the prosternal process is two to three times as broad as the width between the fore coxae. The prosternal process overlaps a part of the metasternum (metasternal keel) which is fused to the jointly fused inner laminae of the hind coxae, the three parts together forming the so-called “ventral platform” of Sharp (1882a). The pronotum has the lateral marginal bead complete from base to front margin and a transverse row of setate punctures just behind the head. The middle and hind legs are both somewhat modified for swimming, the femora of the hind legs being conspicuously expanded and flattened. The hind femora have on their lower surfaces rows of strong setae or small spines, and a distinct “tuft” of setae at the hind angle. The vestiture is greatly reduced on the dorsal surfaces, but strong setate punctures are present on parts at

least of the ventral platform. The punctuation of the prosternum, prosternal process, and metasternum varies in the subgenera and among the species as well as between the sexes in the American species. The secondary sexual characters also vary, but the fore and middle tarsi of males have small suction cups beneath in all species examined. The size varies considerably in different species, the total length ranging from 3.2 mm or less to over 8 mm in some African species.

All of the Old World species can be assigned to the subgenus *Sternocanthus* Guignot (1948: 166, type species *H. micans* Wehncke). They are characterized by the presence of the deeply incised row of setate punctures on the pronotum just behind the head and by the relatively narrowed metasternal keel. The male external genitalia are also diagnostic. The right paramere is slender, usually acute at the tip with a lateral row of elongate setae (Fig. 1A), the left paramere is relatively small, irregular, and rounded at the apex without conspicuous setae (Fig. 1C). The aedeagus is twisted with a broad spermatophoral or sperm packet groove. A slender, flexible appendage of unknown homology extends from near base of the spermatophoral groove and extends under it anteriorly (Fig. 1B). There are at least 23 African, one Indo-Malayan, and one Australian species.

Hydrocanthus (sensu stricto) is distinguished from the Old World species by the loose row of setate punctures on the pronotum just back of the head which do not form a distinctly incised stria, by the broader metasternal keel and prosternal process, and by the male external genitalia. The males in all species also have a conjoined impression of the prosternal process and metasternal keel which is usually distinctly dish-like when viewed from below. The genitalia differ from those of the Old World species in several respects. The right paramere is bent medially and with only short setae along the edge and over the outer face (Fig. 1D). The left paramere is relatively large and subrectangular (Fig. 1F). The aedeagus is not strongly twisted, and the spermatophoral or sperm packet groove

seems to end near the middle without any separated parts (Fig. 1E).

Guignocanthus subgen. nov.

TYPE SPECIES. *Hydrocanthus ancus* Guignot (Mato Grosso, Brasil).

DIAGNOSIS. Small, elongate, oval beetles, attenuate behind and usually less than 4 mm in total length. Pronotum with loose transverse row of setate punctures back of head, but punctures not confluent incised to form stria. Metasternal keel and prosternal process relatively narrow. Aedeagus of male external genitalia with characteristic hook at tip (Figs. 13A, 14A, and 15A). Parameres differ in each species from one another and from any other members of genus (Figs. 13B, C, 14B, C, and 15B, C).

Hydrocanthus pallisteri sp. nov.

DIAGNOSIS. Similar to *marmoratus* Sharp (1882b: 8) in structure of male genitalia (Fig. 8) but larger, darker colored, and with prosternal and metasternal parts of ventral platform differently punctate in both sexes. Male with prosternum finely densely setate-punctate in front and ventrally in narrow band along either side of prosternal process. Female with prosternum nearly impunctate in front at middle, but prosternal process rather coarsely and irregularly punctate. Elytra dark reddish brown, almost black, in both sexes. Length 4.7–4.8 mm; greatest width at base of pronotum 2.2–2.48 mm.

HOLOTYPE MALE. Elongate oval, attenuate behind. Total length 4.8 mm; greatest width near base of pronotum 2.48 mm width of pronotum at base 2.4 mm; width of pronotum at apex 1.36 mm; length of prosternum and process 0.88 mm; total length of ventral platform 2.32 mm. Elytra dark reddish brown, almost black; head and pronotum reddish yellow, slightly darker along base of head and vaguely on disk of pronotum; venter dark reddish brown, almost as dark as elytra, except on

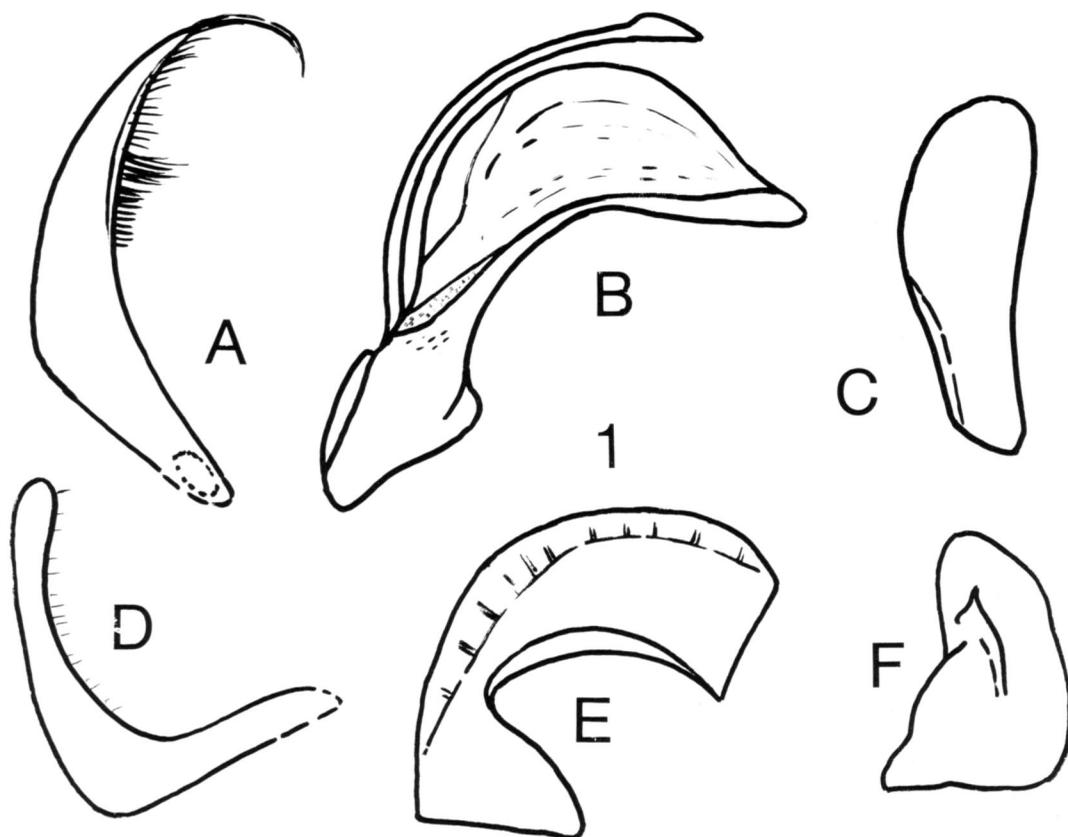


FIG. 1. Comparison of parts of male external genitalia (ABC) of *Hydrocanthus (Sternocanthus) ferruginicollis* Régimbart (Zimbabwe, Wankie Game Preserve, Waterhole 2, 2 Sep 1942, J. Omer-Cooper) with those (DEF) of *Hydrocanthus (s. str.) laevigatus* (Brullé) (Brazil, Mato Grosso, Jacare, Parque Nacional Xingu, Nov 1965, M. Alvarenga and W. C. A. Bokermann). A, Inner aspect of right paramere; B, Left aspect of aedeagus (as in copulatory position); C, Inner aspect of left paramere; D, Inner aspect of right paramere; E, Left aspect of aedeagus as in B; F, Outer aspect of left paramere.

FIGS. 2–15. 2. External genitalia of male *Hydrocanthus (s. str.) iricolor* Say (USA, Pennsylvania, Philadelphia Neck, ex Liebeck Collection, MCZ), same as Fig. 1, but right aspect of aedeagus; 3–12, right aspects of aedeagi of species of *Hydrocanthus (s. str.)*: 3. *Hydrocanthus regius* Young (paratype from USA, Florida, Alachua County, San Felasco Hammock pond W of Gainesville, 5 Oct 1948, FSCA); 4. *Hydrocanthus sharpi* Zimmerman (Ecuador, Guayaquil, F. Campos, NMNH); 5. *Hydrocanthus advena* Sharp (Dominican Republic, Boca China, 10 Jun 1931, J. and S. Klapperich, FSCA); 6. *Hydrocanthus occidentalis* sp. n. (holotype male, CAS); 7. *Hydrocanthus marmoratus* Sharp (Costa Rica, Port Limon, 9 May 1929, P. J. Darlington, Jr., MCZ); 8. *Hydrocanthus pallisteri* sp. n. (holotype male, AMNH); 9. *Hydrocanthus atripennis* Say (Mexico, Tamaulipas, Rio Frio at Limon, 18 Dec 1940, FSCA), compared with type of *Hydrocanthus texanus* Sharp in BMNH; 10. *Hydrocanthus socius* Sahlberg (Brazil, Mato Grosso, Jacare, Parque Nacional Xingu, Nov 1961, M. Alvarenga and W. C. A. Bokermann, FSCA); 11. *Hydrocanthus oblongus* Sharp (USA, Florida, St. Lucie County, 7 Jul 1960, FSCA); 12. *Hydrocanthus paraguayensis* Zimmermann (Uruguay, Maldonado, Cerro Pan de Azucar, 18 Feb 1954, P. R. San Margin, NMNH); 13–15, external genitalia of males of species of *Hydrocanthus (Guignocanthus)* (A, right aspect of aedeagus; B, inner aspect of right paramere; C, inner aspect of left paramere): 13. *Hydrocanthus debilis* Sharp (Mexico, Vera Cruz, Pools 9.2 mi SE of Tampico, 24 Aug 1954, FSCA), compared with type in BMNH; 14. *Hydrocanthus ancus* Guignot (Brazil, Mato Grosso, Jacare, Parque Nacional Xingu, Nov 1961, M. Alvarenga and W. C. A. Bokermann in FSCA); 15. *Hydrocanthus guignoti* sp. n. (holotype male, FSCA).



anterior part of prosternum and head. Prosternum finely densely setate punctate medially anterior to fore coxae, but almost impunctate at sides anteriorly; fine dense setate punctures extending between coxae then narrowly along sides to apex of prosternal process which is shallowly impressed at hind border, impression without punctures. Base of metasternum almost smooth anteriorly, impressed, and with two conspicuous tubercles. Inner laminae of hind coxae and less than half of metasternal keel densely setate punctate. Abdominal sternites nearly smooth except for very fine microsculpture and usual rows of setate punctures on either side along midline. Last visible sternite with inconspicuous oval matte area near apex. Labial and maxillary palpi much as in *iricolor*. Major setal row on ventral face of hind femur nearly straight. Upper spine of inner pair of hind tibial spurs strongly serrate for about half its length as in *iricolor*. Hind trochanters much as in *iricolor*.

ALLOTYPE FEMALE. Color similar to male but elytra somewhat more contrasting with lighter head and pronotum; not as dark ventrally as male. Total length 4.56 mm; greatest width near base of pronotum 2.24 mm; width of pronotum at base 2.24 mm; width of pronotum at apex 1.26 mm; length of prosternum and process 0.88 mm; total length of ventral platform 2.24 mm. Prosternum appearing almost smooth anterior to fore coxae and to sides, but prosternal process rather coarsely and densely setate-punctate. Metasternum and inner laminae of hind coxae moderately coarsely setate-punctate. Abdomen much as in male. Last visible sternite with small patch of setate punctures on either side toward apex.

SPECIMENS: Holotype and allotype: Mexico, D. F., Xochimilco, 26 Jun 1946, J. and D. Pallister, AMNH. Lightly pigmented specimens which I believe belong to this species are from the following localities in Mexico: Guajuato, 5 mi S of Irapuato, 27 Jul 1962, J. R. Zimmerman, NMSU. Michoacan nr. Cuitzeo, 27 Jul 1962, J. R. Zimmerman, NMSU. Michoacan: Morelia, 22 Aug 1963, J. R. Zimmerman, NMSU.

Hydrocanthus (s. str.) **occidentalis** sp. nov.

Hydrocanthus sp., Leech 1948: 405 (Lower California, based on Horn 1894).

DIAGNOSIS. Similar to *marmoratus*, but larger with aedeagus narrower toward tip (Fig. 6). Female with prosternum and prosternal process setate-punctate in part, not nearly smooth as in *marmoratus*. Male with mesosternal tubercles. Total length about 4.4–4.8 mm; greatest width 2.32–2.4 mm.

HOLOTYPE MALE. Elongate oval, attenuate behind. Total length 4.4 mm; greatest width near base of elytra 2.32 mm; width of pronotum at base 2.3 mm; width of pronotum at apex 0.96 mm; length of prosternum and process 0.88 mm; total length of ventral platform 2.32 mm. Color pale; elytra light yellowish brown with tracheae showing clearly as yellow network; head and pronotum reddish yellow (orange); narrowly darker along anterior and posterior borders of pronotum; venter brownish yellow, darker along sutures as usual. Prosternum finely, rather densely setate punctate between fore coxae but almost impunctate laterally; prosternal process with setate-punctures in double band on either side from behind fore coxae to apex; apex of prosternal process impressed—impressed area nearly smooth. Mesosternum conjointly impressed with prosternal process, the anterior half and impressed area nearly smooth except for two distinct tubercles and double rows of setate-punctures along sides; posterior part of metasternal keel with coarser, sparser punctures than those on prosternum. Inner laminae of hind coxae punctate, much as on metasternum over their entire surface. Abdominal sternites nearly smooth except for usual fine microsculpture and usual rows of setate punctures on either side of middle. Last visible sternite with distinct matte area toward apex and with small patches of setate-punctures at either side of the middle. Labial and maxillary palpi and other ventral characters much as in *iricolor*. Inner spurs of hind tibia strongly serrate for less than half length.

ALLOTYPE FEMALE. Very similar to male except tracheal tubes less evident in elytra. Total length 4.72 mm; greatest width near bases of elytra 2.32 mm; width of pronotum at base 2.24 mm; width of pronotum at apex 1.3 mm; length of prosternum and prosternal process 0.88 mm; total length of ventral platform 2.48 mm. Smooth area at apex of prosternum and on base of mesosternum not impressed; otherwise, punctation similar. Matte area on last visible abdominal sternite lacking.

SPECIMENS. All from Mexico: Holotype male: Nayarit: Tepic, 21–24 Sep 1953, Borys Malkin, CAS. Allotype female: and 4 paratypes, same data as male, CAS. Nayarit: Tappan 26 Nov 1947, M. Marquis, 2 ex VanDyke Collection in CAS. Nayarit: Tepic, 4 Aug 1956, V. D. Roth, 7 in CAS. Sinaloa: Mazatlan, black light trap, 17–23 Jul 1963, P. J. Spangler, 19 in NMNH. Sinaloa: no other data, 3 in NMNH. Sinaloa: 7 mi S of Mazatlan, 11 Dec 1962, J. R. Zimmerman, 2 in NMSU. Sinaloa: 5–15 mi SW of Escuinapa, 4 Apr 1974, J. R. Zimmerman, 28 in NMSU. Sinaloa: 7 mi NE of Highway 15 on road to San Ignacio, 4 Apr 1974, J. R. Zimmerman, 2 in NMSU. Sinaloa: roadside pond near Villa Union, 10 Apr 1975, J. R. Zimmerman, 1 in NMSU. Jalisco: small stream 5 mi N of La Huerta, 25 Oct 1966, A. H. Smith and J. R. Zimmerman, 5 in NMSU. Jalisco: 6 mi N, 2 mi E of Lattuerta, 22 Mar 1971, J. R. Zimmerman, 1 in NMSU. Jalisco: roadside puddle at N edge of Tecolotlan, 24 Oct 1966, A. H. Smith and J. R. Zimmerman, 4 in NMSU.

Hydrocanthus guignoti sp. nov.

Hydrocanthus debilis Guignot (not Sharp) 1957: 5 (Central and South America).

DIAGNOSIS. Larger and relatively broader than either *ancus* or *debilis*, both of which occur with it in the Mato Grosso of Brazil. Ventral platform of male shallowly impressed at prosternal-mesosternal juncture and without tubercles despite the rather small size. Color largely reddish brown or yellowish brown. Male genitalia (Fig. 13) diagnostic, the aedeagus expanded and hooked toward apex; parameres also distinctive. Total length about 3.6–4.1 mm.

HOLOTYPE MALE. Total length 3.86 mm; greatest width near basal third of elytra 1.84 mm; width of pronotum at base 1.2 mm;

width of pronotum at apex 1.2 mm; prosternal process 0.72 mm; total length of ventral platform 1.8 mm. Body form elongate oval, attenuate behind, relatively broader across humeri than either *ancus* or *debilis*. Color above reddish brown, the elytra just detectibly darker than pronotum and head. Venter yellowish brown, nearly uniformly light. Prosternum and process finely, densely setate-punctate throughout except narrowly along apical border; apical border slightly impressed. Metasternal keel slightly impressed with a smooth triangular area at base, but no tubercles in smooth area; punctate throughout except for basal triangular area with setate-punctures somewhat coarser and not as dense as those of prosternum and prosternal process. Inner laminae of hind coxae setate-punctate throughout with punctures about as coarse and dense as those of metasternal keel. Abdominal sternites nearly smooth with very fine microsculpture; last visible sternite with patches of moderately coarse setate punctures on either side toward apex, but no evident depression. Upper spur of inner pair of hind tibiae serrate for about half its length. Anterior and middle tarsi expanded with rounded suction disks beneath. Labial palpi large but simple. Maxillary palpi with last segment with 2 tiny bumps at tip (sense organs) as usual in genus. Hind trochanters large but not greatly modified.

ALLOTYPE FEMALE. Very similar to male but larger. Total length 4.08 mm; greatest width near basal third of elytra 2.0 mm; width of pronotum at base 1.88 mm; width of pronotum at apex 1.2 mm; prosternal process 0.80 mm; total length of ventral platform 2.0 mm. Ventral platform with only small smooth impression between prosternal process and metasternal keel, otherwise punctate much as in male. Coloration very similar.

TAXONOMIC NOTE. This is the *Hydrocanthus debilis* Sharp of Guignot (1957).

SPECIMENS. Holotype (FSCA), Allotype (FSCA), and 158 paratypes (FSCA and FM): Brazil, Mato Grosso, Jacaré, in Parque Nacional Xingu, Nov 1965, M. Alvarenga and W. C. A. Bokermann, at light. Paratypes will be distributed to other museums.

KEY TO AMERICAN SPECIES
OF *HYDROCANTHUS*

- 1. Row of setate punctures on pronotum just behind head deeply incised, usually appearing as a transverse stria; metasternal keel relatively narrow; male external genitalia with spermatophoral groove twisted and subtended by a slender appendage (Fig. 1B); African, Indo-Malayan, and Australian species Subgenus *STERNOCANTHUS*
- 1'. Row of setate punctures on pronotum behind head not deeply incised; metasternal keel broad, or if not, aedeagus of male external genitalia with a distinct hook at tip (Figs. 13, 14, 15); American species.... 2
- 2(1'). Total length usually over 4.1 mm; metasternal keel broadened; male external genitalia with tip of aedeagus at most only feebly hooked (Fig. 1E, 2, etc.)Subgenus *HYDROCANTHUS* s. str., 3
- 2'. Total length rarely over 4.0 mm, or if slightly more, male external genitalia with tip of aedeagus distinctly hooked (Figs. 13, 14, 15)..... Subgenus *GUIGNOCANTHUS*, subg. n., 17
- 3(2). Middle of prosternum and prosternal process in both sexes appearing completely smooth under ordinary magnifications or rarely with a very few small punctures along the sides; metasternal process smooth in part; dorsal outline oval, distinctly broadened at the humeri; head, pronotum, and elytra similarly colored, usually light brown with the elytra sometimes marmorate; aedeagus of male external genitalia broadened at middle in lateral outline (Fig. 10); total length 4.1–4.5 mm; Brazil, Argentina, Paraguay, Trinidad, Cayenne, Venezuela, Bolivia, Peru *H.* (s. str.) *socius* Sahlberg
- 3'. Prosternum and prosternal process punctate in part, at least in males and often also in females 4
- 4(3'). Females with prosternal process smooth, nearly impunctate; prosternum of females often impunctate; elytra often dark brown to blue black contrasting with lighter head and pronotum (bicolorous), but some species very dark on dorsum or more uniformly light brown 5
- 4'. Both males and females with prosternum and prosternal process moderately to densely setate-punctate 11
- 5(4). Mature specimens very dark shining brown or blue-black with only margins of head, pronotum, and elytra lighter; females with prosternum and prosternal process smooth or very nearly so; males without metasternal tubercles except in small specimens, but with a distinct prosternal-metasternal impression; aedeagus of male external genitalia (Fig. 3) similar to, but somewhat broader in lateral outline than in *H. iricolor* (Fig. 2); length 4.2 to over 5.8 mm; peninsular Florida and southern Georgia *H.* (s. str.) *regius* Young
- 5'. Head, pronotum, and elytra nearly the same light to dark brown or with elytra darker, contrasting with lighter head and pronotum..... 6
- 6(5). Elytra very dark brown to blue-black, contrasting sharply with the lighter head and pronotum (bicolorous) except in teneral individuals..... 7
- 6'. Dorsum often unicolorous, light to dark brown or with elytra only slightly darker than head and pronotum 9
- 7(6). Male with tubercles on metasternum; prosternal process of female smooth, but prosternum with setate punctures at sides and in middle; lateral outline of aedeagus narrowed toward apex (Fig. 4); length about 4.5–5.0 mm; widespread from Venezuela to Argentina (= *H. atripennis* Sharp) *H.* (s. str.) *sharpi* Zimmermann
- 7'. Males with or without metasternal tubercles; females with prosternum and prosternal process very smooth..... 8
- 8(7'). Elytra usually marmorate; males with metasternal tubercles; females with prosternum and prosternal process very smooth; aedeagus of male external genitalia narrowed at tip in lateral outline (Fig. 5); length about 4.2–5.0 mm; Antilles: Guadeloupe, Puerto Rico, Hispaniola, Trinidad, Cuba? *H.* (s. str.) *advena* Sharp
- 8'. Elytra usually blue-black in mature specimens; males with or without metasternal tubercles; females with prosternum and prosternal process nearly smooth or with only a few small setate punctures; aedeagus of male external genitalia similar in lateral outline to that of *H. iricolor* but proportionately smaller (Fig. 9); length about 4.3–5.2 mm; some populations in Texas, Mississippi, Louisiana, and probably other states... some *H.* (s. str.) *atripennis* Say
- 9(6'). Males with setate punctation of prosternum and prosternal process reduced, sometimes appearing almost smooth; males with metasternal tubercles; elytra usually marmorate, sometimes darker than head and pronotum; aedeagus of male external genitalia somewhat thickened, shortened in lateral outline (Fig. 7); length about 4.1–4.7 mm; Central America from Panama to Mexico *H.* (s. str.) *marmoratus* Sharp
- 9'. Males without metasternal tubercles except in some very small individuals; prosternum and prosternal process densely setate-punctate; elytra concolorous with head and pronotum or only slightly darker; total length usually over 4.5 mm 10
- 10(9'). Male with apex of prosternal process and base of

- metasternum conjointly deeply, distinctly impressed; general color usually dark reddish brown; aedeagus of male in lateral outline as in Fig. 3; length about 4.2–5.5 mm; some populations in northwestern Florida and southern Georgia. some *H. (s. str.) regius* Young
- 10'. Male with apex of prosternal process and base of metasternal platform shallowly impressed; general coloration usually brownish yellow or light brown with elytra only slightly darker even in fully matured individuals; total length about 4.3–5.5 mm; associated males with aedeagus in lateral outline as in Fig. 2; eastern United States, California? (= *H. similator* Zimmermann) some *H. (s. str.) iricolor* Say
- 11(4'). Total length about 4.1–4.8 mm; dorsum nearly uniformly light to dark brown, the elytra only rarely darker than head and pronotum; male with distinct metasternal tubercles; aedeagus of male external genitalia distinctly narrower in lateral outline than in other species (Fig. 11); Gulf and Atlantic coastal plains from Texas to the Carolinas, Cuba, the Bahamas *H. (s. str.) oblongus* Sharp
- 11'. Total length usually over 4.5 mm; general coloration uniform on dorsum or with elytra distinctly darker than head and pronotum; males with or without metasternal tubercles 12
- 12(11'). Elytra very dark with reddish irrorations; male with apex of prosternum and base of metasternum distinctly impressed, but without tubercles on metasternum; female with prosternal process nearly impunctate behind forecoxae and a triangular space on metasternal base smooth; lateral outline of aedeagus of male external genitalia distinctive (Fig. 12); total length about 5.0–5.1 mm; Paraguay, Uruguay, and probably southern Brazil *H. (s. str.) paraguayensis* Zimmermann
- 12'. Elytra concolorous with head and pronotum or nearly so or elytra darker than head and pronotum, but not irrorated with red or yellow; males with or without tubercles on metasternum 13
- 13(12'). Dorsum dark reddish brown appearing almost black, lighter along margins of head, pronotum, and elytra; male with distinct metasternal tubercles; female with prosternal process distinctly setate-punctate; aedeagus of male external genitalia narrowed in lateral outline toward apex (Fig. 8); length about 4.4–4.8 mm central plateau of Mexico *H. (s. str.) pallisteri* sp. n.
- 13'. Elytra contrasting with lighter head and pronotum or dorsum nearly uniformly reddish or yellowish brown, but not appearing very dark 14
- 14(13'). Elytra in mature specimens shining black or blue-black, rarely irrorated with lighter color or with internal structure visible as an internal reticulum . . . 15
- 14'. Elytra only slightly darker than head and pronotum, rarely shining brown, never appearing black 16
- 15(14). Average size larger, total length about 4.6–5.6 mm; males without metasternal tubercles, but with prosternal process punctate along sides; females with prosternum and prosternal process punctate; external genitalia of male with lateral outline of aedeagus more expanded toward apex (Fig. 1E) in comparison with *H. iricolor*; widespread but rare in collections; Venezuela to Argentina (= *H. dispar* Guignot and probably *H. rubignosa* Guignot) . . . *H. (s. str.) laevigatus* (Brullé)
- 15'. Average size smaller, total length about 4.2–4.8 mm; males with metasternal tubercles in small individuals, but tending to lack them in larger individuals and in populations to the north in Indiana, Illinois, and Arkansas; males and most females with prosternum and prosternal process distinctly punctate, but some individual females in some populations have the punctation reduced; male external genitalia similar to those of *H. iricolor* (Fig. 9) with which *atripennis* may intergrade west of the Appalachian Mountains; as here defined, *H. atripennis* ranges from eastern Mexico to southern Canada west of the Appalachians, common in Texas, Arkansas, Louisiana, and Mississippi north to Illinois and southern Indiana; the typical bicolorous form rare eastward in Florida and the Atlantic Coastal Plain north to the Carolinas (= *H. texanus* Sharp) *H. (s. str.) atripennis* Say
- 16(14'). Male with distinct metasternal tubercles; average size smaller, total length about 4.4–4.8 mm; lateral outline of aedeagus of male external genitalia narrowed toward apex (Fig. 6); western Mexico, Baja California *H. (s. str.) occidentalis* sp. n.
- 16'. Males without distinct metasternal tubercles even in small individuals; apex of prosternal process and base of metasternum not very strongly impressed; average size larger, total length about 4.4 to over 5.3 mm; lateral outline of aedeagus of male external genitalia as in Fig. 2; eastern North America from Maine and Ontario to Michigan, northern Indiana, and south to Virginia and North Carolina east of the Appalachians; probably intergrades with *H. atripennis* in Indiana, Ohio, and North Carolina and possibly with *H. regius* in Georgia and South Carolina, but the smooth females in the northeastern U.S. (*H. similator* Zimmermann) are not likely to be due to introgression *H. (s. str.) iricolor* Say
- 17(2'). Form narrow, attenuate behind, not strongly convex above; sides of pronotum not strongly arched; elytra brown, somewhat marmorate; apex of prosternal process relatively narrow; posterior edges of hind tibiae feebly arched; male with only a small subtriangular smooth area on metasternal base; aedeagus of male external genitalia with tip distinctly hooked in lateral aspect (Fig. 14A) and parameres distinctive

- (Fig. 14BC); length about 3.2–3.4 mm; Cayenne, Bolivia, Brazil (Guignot 1957: 6)
 *H. (Guignocanthus) ancus* Guignot
- 17'. Body form broader, less strongly attenuate behind; sides of pronotum distinctly arched; apex of prosternal process relatively broad behind fore coxae; posterior edges of hind tibiae strongly arched; male with apex of prosternal process and base of metasternum feebly but distinctly impressed, the smooth area of the metasternum broadly triangular. 18
- 18(17'). Average size larger, length about 3.6–4.1 mm; somewhat broader across the humeri; aedeagus of male external genitalia distinctive with tip distinctly hooked and middle dilated in lateral aspect (Fig. 15A); parameres also diagnostic (Fig. 15BC); Brazil (= *H. debilis* Guignot 1957: 5, not Sharp)
 *H. (Guignocanthus) guignoti* sp. n.
- 18'. Average size smaller, length about 3.0–3.6 mm; narrower across humeri; aedeagus of male external genitalia distinctive, hooked at tip and resembling a bird's head in lateral aspect (Fig. 13A); parameres more alike than in other species (Figs. 13BC); wide ranging from Texas to Paraguay (= *H. finitismus* Guignot 1957: 6) . . . *H. (Guignocanthus) debilis* Sharp

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