Koleopterologische Rundschau	78	69–194	Wien, Juli 2008

Revision of the Haliplidae of the Neotropical Region including Mexico (Coleoptera: Haliplidae)

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Abstract

The species of the family Haliplidae (Coleoptera) occurring in the Neotropical Region (including Mexico) are revised. Two genera, *Haliplus* LATREILLE and *Peltodytes* RÉGIMBART, and 53 species of Haliplidae are now recognized in the region of which the following 18 species are here described as new: *Haliplus colombiensis*, *H. costaricanus*, *H. drechseli*, *H. elsaltous*, *H. grandis*, *H. gravidoides*, *H. heppneri*, *H. langleyi*, *H. megapunctatus*, *H. mesoamericanus*, *H. mexicanus*, *H. minimus*, *H. nieseri*, *H. tantoyucanus*, *H. tocumenus*, *H. triplehorni*, *H. unicarinatus*, and *H. youngi*. Lectotypes are here designated for *H. brandeni* WEHNCKE, *H. curtulus* SHARP, *H. fuscipennis* GERMAIN, *H. gravidus* AUBÉ, *H. havaniensis* WEHNCKE, *H. maculicollis* ZIMMERMANN, *H. nigrolineatus* WEHNCKE, *H. obconicus* RÉGIMBART, *H. oblongus* ZIMMERMANN, *H. ornatipennis* ZIMMERMANN, *H. robustus* SHARP, *H. testaceus* ZIMMERMANN, *H. thoracicus* ZIMMERMANN, and *H. tumidus* LECONTE. Only adults are treated in detail, because the knowledge of the immature stages of the Neotropical Haliplidae is very poor. Identification-keys to the species are given. All species are (re)described and illustrated and their distributions mapped. *Haliplus nigrolineatus* was described from Uruguay, but it is identical with the Australian *H. testudo* and therefore excluded from the Neotropical fauna.

Key words: Coleoptera, Haliplidae, *Haliplus*, *Peltodytes*, Neotropical Region, new species, revision, taxonomy.

Introduction

The first catalogue covering the Neotropical area was the worldwide treatment by GEMMINGER & HAROLD (1868) mentioning only one species from this region. The catalogue of BRANDEN (1885) mentioned 10 species from this region. ZIMMERMANN (1920b) reported nine species and he was the first one presenting a key to the Neotropical species as part of a world treatment (ZIMMERMANN 1924). ZIMMERMANN (1921, 1923, 1924, 1928) also described 10 new species, while a few later authors described another 12 species. The most recent catalogue by BLACKWELDER (1944) reported 28 described species. Since ZIMMERMANN (1924) no revisional work has been done covering the region. Recently a key to the species of Argentina was produced by VIDAL SARMIENTO & GROSSO (1971). MORONI (1980) published a key to the species of Chile.

Identification of Neotropical Haliplidae is often very problematic as many species are only known by poor descriptions lacking illustrations. The present revision is based mainly on type material examined by the first author. Furthermore, a large amount of additional specimens was studied. The majority of these specimens was collected by the second author during more than 30 years in many countries of the Neotropical Region.

General information on the biology of Haliplidae was provided by VONDEL (1997). There has not been much research on biology, mode of life and lifecycle of Haliplidae in South and Central America.

Very little is known about the immature stages of Neotropical species. MORONI (1989) described the third instar larva of *Haliplus valdiviensis* MORONI. VONDEL (2001) described the third instar larva of *H. subseriatus* ZIMMERMANN.

Biogeography

Haliplidae are cosmopolitan. This revision deals with all the species occurring in the Neotropical faunal region. There is not a clear border between the Neotropical and the Nearctic Regions, but in fact this border consists of a transition zone covering most of Mexico and probably Cuba and parts of the southern states of the USA.

For practical reasons the Neotropical Realm as treated here includes Mexico and all the Caribbean Islands.

Species described from the USA and obviously belonging to the Nearctic fauna, but reported from the Neotropical Region are included in the species list, identification key and in the distributional notes, but these species are not fully treated.

Material and methods

This study is based on approximately 8,000 specimens. In addition to those in the collection of the National Museum of Natural History, Smithsonian Institution, specimens were borrowed from a number of museums and private collectors. Full label data for all specimens are given and individual identification labels have been placed on all specimens examined. For consistency, dates of collection were converted to day-month-year.

PREPARATION OF MALE GENITALIA. Before dissecting the aedeagus, the beetles are softened in water with detergent for about two hours. The aedeagus is pulled out with a small hooked needle and placed into a drop of alcohol. During dissection, the beetle has to be kept wet to prevent the severed aedeagus jumping out of sight. In alcohol the left and right parameres are separated from the penis by using fine pins. When the alcohol is almost dried, the three parts are usually glued with water-soluble glue on the same piece of cardboard as the beetle. The penis and the parameres are positioned so that they are seen from the lateral side. The water-soluble glue enables one to relax the genitalia to study them in another position or to make temporary slide mounts. In some cases the genitalia are transferred into Euparal on a plastic card, covered by a coverslip and pinned to the original pin. Genitalia should not be glued to plastic cards with water-soluble glue as they are liable to become detached after some time.

ILLUSTRATIONS. Drawings of genitalia were made by using a Swift universal microscope with a camera lucida. The orientation is defined according to VONDEL (1991). The other drawings were made by using a Zeiss binocular with an ocular-micrometer. All illustrations were made by the senior author.

MEASUREMENTS. Measurements were made by using the ocular-micrometer of a Zeiss binocular.

Morphological terms are according to VONDEL (1997), with the exception of the use of "metaventrite"/"metaventral" instead of "metasternum"/"metasternal".

DISTRIBUTION RECORDS AND MAPS. Distribution maps are based on material examined. Countries are used with their present-day boundaries. Locality-names are given, as far as possible, according to the Times Atlas of the World (Comprehensive edition, 1983). Deviating names on original labels are cited, when necessary, in parentheses. In a number of cases we were not able to trace the locality, because of illegible labels. Labels of holo-, para- and lectotypes are precisely cited.

HABITAT DATA. Data on biology are seldom present on labels. Notes on the biology are mainly based on additional field notes, literature and the experience of the authors.

MATERIAL. Material of many institutions and private persons has been studied, including a number of primary types.

The examined material originates from the following institutions and private collections:

BMNH	Natural History Museum, London, UK (M.J.D. Brendell, S.J. Hine, C. Taylor)
CA	Collection M. Archangelsky, Buenos Aires, Argentina
CAS	California Academy of Sciences, San Francisco, California, USA
CB	Collection M. Brojer, Vienna, Austria
CC	Collection J.G.M. Cuppen, Ede, The Netherlands
CE	Collection G. van Ee, Haarlem, The Netherlands
CF	Collection J. Fresneda, Lleida, Spain
CH	Collection L. Hendrich, Berlin, Germany
CJ	Collection S.K. Jasper, College Station, Texas, USA
CMB	Collection P. Mazzoldi, Brescia, Italy
CMU	Collection D. Makhan, Utrecht, The Netherlands
CN	Collection N. Nieser, Tiel, The Netherlands
CNCI	Canadian National Collections, Ottawa, Ontario, Canada (A. Smetana)
CS	Collection A.E.Z. Short, Ithaca, New York, USA
CUIC	Cornell University, Ithaca, New York, USA (E.R. Hoebeke)
CUO	Carleton University, Ottawa, Canada (S.B. Peck)
CV	Collection B.J. van Vondel, Hendrik-Ido-Ambacht, The Netherlands
CW	Collection Wibmer, temporarily in USNM
CY	Collection F.N. Young, now in UMMZ
DEI	Deutsches Entomologisches Institut, Eberswalde, Germany (L. Zerche)
HNHM	Hungarian Natural History Museum, Budapest, Hungary (O. Merkl)
ISNB	Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium (K. Desender)
IZAC	Instituto de Zoologia, Academia de Ciencias de Cuba, Havana, Cuba
MACN	Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina (A.O. Bachmann)
MBUC	Universidad Central de Venezuela, Caracas, Venezuela
MCZC	Museum of Comparative Zoology, Cambridge, Massachusetts, USA (S.P. Cover, P.D. Perkins)
MEL	Museo Entomologico Leon, Nicaragua (J.M. Maes)
MLPA	Museo de la Plata, La Plata, Argentina (N.B. Díaz)
MNHN	Muséum National d'Histoire Naturelle, Paris, France (H. Perrin)
MNNC	Museo Nacional de Historia Natural, Santiago, Chile (J. Moroni)
MOG	Museon, The Hague, The Netherlands (A.L. van Berge Henegouwen)
NHMB	Naturhistorisches Museum, Basel, Switzerland (M. Brancucci)
NMPC	Museum of Natural History, Prague, Czech Republic (J. Hájek)
NMW	Naturhistorisches Museum Wien, Vienna, Austria (M.A. Jäch)
RMNH	Nationaal Natuurhistorisch Museum, Leiden, The Netherlands (J. Huijbregts, J. Krikken)
TAMU	Texas A & M University, College Station, Texas, USA (S. Jasper)
UMMZ	University of Michigan, Ann Arbor, Michigan, USA (M.F. O'Brien)
USNM	National Museum of Natural History, Washington D.C., USA (P.J. Spangler, W. Steiner)
UZMH	Zoological Museum, Helsinki, Finland (O. Biström)
WAU	Wageningen Agricultural University, Wageningen, The Netherlands (Y. Jongema)
ZMAN	Instituut voor Taxonomische Zoölogie (Zoologisch Museum), Amsterdam, The Netherlands (B. Brugge, J.P. Duffels)
ZMHB	Museum für Naturkunde, Alexander Humboldt Universität, Berlin, Germany (M. Uhlig, B. Jaeger)
ZMUC	Zoological Museum, Copenhagen, Denmark (M. Hansen, M. Holmen)
ZSMC	Zoologische Staatssammlung, Munich, Germany (M. Baehr, G. Scherer)

Check list of the species of Haliplidae of the Neotropical Region including Mexico

1. *Haliplus annulatus* ROBERTS, 1913
2. *Haliplus bachmanni* VIDAL SARMIENTO & GROSSO, 1970
3. *Haliplus bonariensis* STEINHEIL, 1869
4. *Haliplus brasiliensis* ZIMMERMANN, 1924
5. *Haliplus camposi* GUIGNOT, 1948
6. *Haliplus carinatus* GUIGNOT, 1936
7. *Haliplus colombiensis* **sp.n.**
8. *Haliplus concolor* LECONTE, 1851
9. *Haliplus confluentus* ROBERTS, 1913
10. *Haliplus costaricanus* **sp.n.**
11. *Haliplus crassus* CHAPIN, 1930
12. *Haliplus cubensis* CHAPIN, 1930
    H. bierigi GUIGNOT, 1936
13. *Haliplus deceptus* MATHESON, 1912
14. *Haliplus drechseli* **sp.n.**
15. *Haliplus elsaltous* **sp.n.**
16. *Haliplus fuscipennis* GERMAIN, 1855
17. *Haliplus grandis* **sp.n.**
18. *Haliplus gravidoides* **sp.n.**
19. *Haliplus gravidus* AUBÉ, 1838
    H. brandeni WEHNCKE, 1883
    H. obconicus RÉGIMBART, 1889
    H. robustus SHARP, 1877
20. *Haliplus havaniensis* WEHNCKE, 1880
    H. curtulus SHARP, 1887
21. *Haliplus heppneri* **sp.n.**
22. *Haliplus immaculicollis* HARRIS, 1828
23. *Haliplus indistinctus* ZIMMERMANN, 1928
24. *Haliplus langleyi* **sp.n.**
25. *Haliplus lewisii* CROTCH, 1873
26. *Haliplus maculicollis* ZIMMERMANN, 1924
27. *Haliplus megapunctatus* **sp.n.**
28. *Haliplus mesoamericanus* **sp.n.**
29. *Haliplus mexicanus* **sp.n.**
30. *Haliplus minimus* **sp.n.**
31. *Haliplus nanus* GUIGNOT, 1936
32. *Haliplus nieseri* **sp.n.**
33. *Haliplus oblongus* ZIMMERMANN, 1921
34. *Haliplus oklahomensis* WALLIS, 1933
35. *Haliplus ornatipennis* ZIMMERMANN, 1921
36. *Haliplus panamanus* CHAPIN, 1930
    H. soekhnandanae MAKHAN, 1992
37. *Haliplus peruanus* ZIMMERMANN, 1924
38. *Haliplus signatus* SHARP, 1887

39. *Haliplus solitarius* SHARP, 1887
40. *Haliplus subseriatus* ZIMMERMANN, 1921
41. *Haliplus tantoyucanus* **sp.n.**
42. *Haliplus testaceus* ZIMMERMANN, 1924
43. *Haliplus thoracicus* ZIMMERMANN, 1923
44. *Haliplus tocumenus* **sp.n.**
45. *Haliplus triplehorni* **sp.n.**
46. *Haliplus tumidus* LECONTE, 1880
47. *Haliplus unicarinatus* **sp.n.**
48. *Haliplus valdiviensis* MORONI, 1980
49. *Haliplus youngi* **sp.n.**

50. *Peltodytes darlingtoni* YOUNG, 1961
51. *Peltodytes mexicanus* WEHNCKE, 1883
52. *Peltodytes ovalis* ZIMMERMANN, 1924
53. *Peltodytes tamaulipensis* YOUNG, 1964

Haliplidae AUBÉ, 1836

Haliplidae AUBÉ 1836: 14; GUÉRIN 1953: 39; VIDAL SARMIENTO & GROSSO 1971: 148; GROSSO 1977: 215; MORONI 1985: 169; SPANGLER 1981b: 153; 1982: 347; ELGUETA & ARRIAGADA 1989: 11; ARCE-PÉREZ 1995: 45.

DIAGNOSIS. Adults: Haliplidae can easily be recognized by the strongly enlarged hind-coxal plates, which at least reach the fifth sternite. The body length ranges from 2–5 mm. The colour varies from completely yellow to red-brown, with or without dark maculation.

Haliplids can also be distinguished from other water beetles by the way they swim. They move their legs alternately (hence, "crawling water beetles"), while most representatives of the water beetle family Dytiscidae, with which some species could be confused, move their legs simultaneously.

Immature stages: Haliplidae have five immature stages: egg, first instar larva (instar I), second instar larva (instar II), third instar larva (instar III) and pupa. Eggs are nearly round to oval, about 0.35–0.45 long and without distinct surface-structure. The chance of finding the eggs during fieldwork is very low. The larvae are very slender, the length ranges from about 2 mm (first instars) to 12 mm (third instars). The colour ranges from almost white to strongly blackened by external growth of micro-organisms. The legs have five segments (coxa, trochanter, femur, tibia, tarsus), while each tarsus bears only one claw. The mandibles have a suction-channel. During fieldwork, larvae are seldom recognized because of their slender and small body, their slow movement and their perfect camouflage among the filamentous algae upon which they are usually found. Furthermore, the larval stage usually lasts only 2–4 weeks.

The pupa is approximately oval, 2–4 mm long, usually white to yellow-white. In lateral view the pupa is contracted ventrally, and is dorsally bearing long setae. Pupae may be found, when the soil along water bodies is sieved.

The family Haliplidae is represented in all major faunal regions by about 200 described species in five genera. The highest number of species is known from the temperate and subtropical zones of the northern hemisphere. In the tropical zones the known number of species is comparatively

low, and most of these species are seldom collected (ZIMMERMANN 1920b, 1924; VONDEL 1992, 1993, 1995, 2005).

The genus *Haliplus* is distributed worldwide. *Peltodytes* occurs in most parts of the world, but it is absent in South America and the Australasian Region. The remaining three genera do not occur in the Neotropical Region: *Algophilus* ZIMMERMANN (South Africa), *Apteraliplus* CHANDLER (North America), and *Brychius* THOMSON (Holarctic Region).

Key to the Neotropical genera of Haliplidae

1 Hind coxal plates leaving last three abdominal sternites freely visible. Ultimate segments of palpi considerably shorter than penultimate ones..... *Haliplus*

– Hind coxal plates covering at least a part of sixth abdominal sternite, only the seventh (last) completely visible. Last segment of palpi longer than penultimate one.....*Peltodytes*

Haliplus LATREILLE, 1802

Haliplus LATREILLE 1802: 77 [type species: *Dytiscus impressus* FABRICIUS, 1787 (= *Haliplus ruficollis* (DEGEER, 1774)), fixed by VONDEL et al. (2006: 229)]; GUÉRIN 1953: 39; GROSSO 1977: 215; SPANGLER, 1981b: 153; 1982: 347; MORONI 1985: 169; ELGUETA & ARRIAGADA 1989: 11.

DIAGNOSIS. Length 2.0–4.6 mm. Yellow to rust-coloured. Body-outlines usually more or less continuously oval. Head rather narrow to wide; distance between the eyes varying from 0.8–2.8 x the width of one eye. Apical segments of maxillary and labial palpi shorter than penultimate segments. Head behind the eyes with sharp grooves: the genal lines. Pronotum widest at the base, with or without basal plicae. Elytra without distinct ridges, at most the intervals slightly elevated or puncture rows locally strongly impressed; with or without maculation; with or without dark stripes on the approximately ten primary puncture rows; with or without micro-punctation. Ventral side yellow to rust-coloured, often with darkened parts. Prosternal process flat, grooved or margined, usually narrowed near the coxae. Metaventral process flat, grooved or pitted in the middle or with one or two pits on each side of the middle. Hind coxal plates rounded posteriorly, not reaching beyond the fifth sternite. Apical sternite not grooved medially. Legs yellow to rust-coloured, often darkened towards the coxae. Hind tibia with or without a setiferous striole on dorsal face. In males the first one, two or three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker-hairs.

The genus *Haliplus* is distributed in all geographical realms. About 150 species are known. At present the genus is divided into six subgenera (GUIGNOT 1955, VONDEL 2005), in the Neotropical Region represented by *Haliplus* s.str., *Haliplidius* GUIGNOT, 1928, *Liaphlus* GUIGNOT, 1928, and *Paraliaphlus* GUIGNOT, 1930.

The status of some of the subgenera is under discussion (VONDEL 1986, 1996). A worldwide study of the family is needed for a better understanding of the generic and subgeneric classification of the family. In the following keys to the species no subgenera are used.

Members of the genus *Haliplus* occur in a large variety of water-types, but the majority of species is found in stagnant water.

Key to the species of *Haliplus* of the Neotropical Region including Mexico

1 Body completely covered with strong micropunctures, elytra not maculate ..... *subseriatus*

– Body not completely covered with micropunctures; if females with fine micropunctures, then elytra maculate 2

2 Eighth elytral puncture row carinate preapically 3

– Eighth elytral puncture row not carinate preapically 4

3 Seventh elytral puncture row carinate preapically (Fig. 47) ..... *carinatus*

– Seventh elytral puncture row not carinate preapically (Fig. 421) ..... *unicarinatus* sp.n.

4 Elytra without maculation 5

– Elytra with maculation 8

5 Metaventral process with two round pits basally (Fig. 66) ..... *concolor*

– Metaventral process with long grooves 6

6 Elytral punctures not darkened ..... *testaceus*

– Elytral punctures, at least for the greater part, darkened 7

7 Metaventral process with two long almost parallel grooves (Fig. 24) ..... *bonariensis*

– Metaventral process with two short diverging grooves (Fig. 142) ..... *fuscipennis*

8 Prosternal process with length less than 1.5 x width at base (Fig. 93) ..... *crassus*

– Prosternal process with length more than 1.5 x width at base 9

9 Pronotal base with plicae opposite fourth or fifth elytral puncture row (Fig. 194) 10

– Pronotal base without plicae 14

10 Pronotum without maculation. Prosternal process posteriorly impressed in the middle ..... (Fig. 197) ..... *immaculicollis*

– Pronotum with maculation. Prosternal process posteriorly not impressed in the middle 11

11 Pronotum with central mark from anterior to posterior edge, in posterior half with light central line (Fig. 250). ..... *mesoamericanus* sp.n.

– Pronotum without central mark reaching from anterior to posterior edge, but only along anterior or posterior edge 12

12 Metaventral process with two round impressions on each side (Fig. 14) ..... *bachmanni*

– Metaventral process without two round impressions on each side (Fig. 42 or Fig. 396) 13

13 Pronotum laterally margined. ..... *camposi*

– Pronotum laterally not margined. ..... *tocumenus* sp.n.

14 Metaventral process only impressed in the middle (Fig. 351) ..... *solitarius*

– Metaventral process not impressed in the middle 15

15 Prosternal process strongly narrowed in anterior half, anteriorly narrower than posteriorly 16

– Prosternal process at most weakly narrowed in anterior half 19

16 Pronotum with longitudinal central mark (Fig. 383) ..... *thoracicus*

– Pronotum without longitudinal central mark 17

17 Length less than 3.0 mm ..... *oblongus*

– Length more than 3.0 mm 18

18 Metaventral process very wide with two strongly diverging grooves (Fig. 244)……. ..... *megapunctatus* sp.n.

– Metaventral process narrow, grooves not strongly diverging (Fig. 434)..... *valdiviensis*

19 Elytral puncture rows 4–6 basally impressed to about 1/4 of elytral length (Fig. 231).... *maculicollis*

– At most fifth elytral puncture row basally impressed..... 20

20 Fifth elytral puncture row basally not in a common impression (check both elytra) 27

– Fifth elytral puncture row basally in a common impression 21

21 Basal impression of fifth elytral puncture row extended along base (Fig. 365). Preapical elytral punctures of row eight with very strong punctures..... *tantoyucanus* sp.n.

– Basal impression of fifth elytral puncture row not extended along base. Punctures of elytral row eight weak in preapical part..... 22

22 Metaventral process with two more or less confluent pits on each side (Fig. 206)..... *indistinctus*

– Metaventral process with a single groove on each side. 23

23 Pronotum with broad longitudinal central mark from anterior to posterior edge (Fig. 260). ..... *mexicanus* sp.n. (sometimes)

– Pronotum at most with mark along anterior edge or base slightly darkened..... 24

24 Metaventral process with strong, nearly round pit on each side and a number of smaller pits (Fig. 60)..... *colombiensis* sp.n.

– Metaventral process with groove on each side..... 25

25 Length less than 3.5 mm..... 26

– Length more than 3.5 mm..... *grandis* sp.n. (sometimes)

26 Shoulders raspy. Metaventral process with impression on each side, at most weak groove towards anterior edge (Fig. 416)..... *tumidus* (sometimes)

– Shoulders not raspy. Metaventral process with continuous groove on each side (Fig. 111)…… ..... *deceptus* (sometimes)

27 Metaventral process with two isolated round pits on each side (Fig. 325)..... 28

– Metaventral process not with two round pits on each side, but at most on each side with two impressions which are more or less confluent..... 30

28 Elytral suture darkened..... 29

– Elytral suture not darkened (Fig. 185)..... *heppneri* sp.n.

29 Secondary punctures on elytral row 3–7 in single row..... *panamanus*

– Secondary punctures on elytral row 3–7 very dense and in more than one irregular row…… ..... *langleyi* sp.n. (sometimes)

30 Metaventral process with one pair of round impressions or a pair of strong impressions with weak posterior groove or puncture row..... 31

– Metaventral process with a pair of long strong longitudinal grooves, in which sometimes two pairs of impressions can be recognized 41

31 Metaventral impressions clearly round..... 32

– Metaventral impressions extended posteriorly 35

32 Body wide, length less than 1.6 x width. Males: tip of penis gradually narrowed. 33

– Body less wide, length more than 1.7 x width. Males: tip of penis parallel-sided 34

33 Length more than 2.9 mm. Shoulders densely raspy. Anterior elytral margin with about 20 teeth. Secondary elytral punctures, except along suture, usually weak and sparse. Pronotum laterally not clearly margined..... *youngi* sp.n.

– Length less than 2.9 mm. Shoulders at most weakly raspy. Anterior elytral margin with about five teeth. Secondary elytral punctures usually strong and dense. Pronotum laterally margined. ..... *cubensis*

34 Length more than 2.5 mm..... *havaniensis*

– Length less than 2.5 mm..... *nanus*

35 Prosternal process gradually widening anteriorly..... 36

– Prosternal process about parallel or narrowed near coxa 38

36 Elytral base darkened from suture to at least fifth puncture row. Prosternal process usually clearly narrowed posteriorly. Pronotum anteriorly with distinct blotch or with vague basal mark, which may be connected to a central mark over total length of pronotum. Males: tip of penis sharp and twisted or parallel-sided and then not twisted..... 37

– Elytral base not darkened. Prosternal process usually not distinctly narrowed posteriorly (Fig. 416). Pronotum generally without mark, if so, elytral punctures outside maculation distinctly darkened. Male: tip of penis twisted but always parallel-sided when seen from different angles (Fig. 419). ..... *tumidus* (most specimens)

37 Elytral apical margin weakly serrate. Pronotum with anterior mark and often with vague basal mark, which may be connected to a central mark over total length of pronotum. Shoulders sometimes raspy. Male: tip of penis twisted and very sharp when seen from a certain angle (Figs. 344, 345)..... *signatus*

– Elytral apical margin distinctly serrate. Pronotum anteriorly with distinct blotch. Shoulders not raspy. Male: tip of penis not sharp and not twisted (Fig. 163) ..... *gravidoides* sp.n. (sometimes)

38 Length less than 3.0 mm. Pronotum without anterior blotch..... 39

– Length more than 4.0 mm. Pronotum with anterior round mark ..... *grandis* sp.n. (sometimes)

39 Prosternal process strongly impressed in anterior part, anterior margin seen from the front strongly curved (Fig. 130). Elytral punctures in maculation not darkened ..... *elsaltous* sp.n.

– Prosternal process weakly impressed in anterior part, anterior margin seen from the front weakly curved. Elytral punctures in maculation darkened..... 40

40 Length less than 2.4 mm. Elytral maculation not mainly restricted to puncture rows but with continuous outline. Sternites weakly punctured, seventh sternite very weakly punctured apically..... *lewisii*

– Length more than 2.4 mm. Elytral maculation mainly restricted to puncture rows, often with vague connecting darkening. Sternites moderately strongly punctured, seventh sternite apically densely punctured ..... *oklahomensis*

41 Elytral apical margin not serrate..... 42

– Elytral apical margin serrate..... 46

42 Secondary punctures in basal part of second elytral interval in a single row 43

– Secondary punctures in basal part of second elytral interval very dense and in more than one irregular row 45

43 Sutural darkening to first secondary puncture row. Pronotum not margined in anterior half….. ..... *minimus* sp.n.

– Sutural darkening to first primary puncture row. Pronotum completely margined. 44

44 Length more than 2.7 mm. Shoulders serrate. Grooves on metaventral process long (Fig. 75).. Pronotum usually anteriorly and posteriorly maculate..... *confluentus*

– Length less than 2.6 mm. Shoulders usually not or weakly serrate. Grooves on metaventral process short (Fig. 5). Pronotum not maculate. ..... *annulatus*

45 Body oval to subparallel. Elytral puncture rows 5–8 not in a common strong impression…….. ..... *triplehorni* sp.n.

– Body strongly tapering, shoulders well pronounced. Elytral puncture rows 5–8 in anterior half strongly developed and in a strong common impression (Fig. 285)..... *nieseri* sp.n.

46 Elytral punctures outside maculation not darkened..... 47

– Elytral punctures outside maculation darkened..... 51

47 Elytral maculation consisting of isolated marks except the sutural one..... 48

– Elytral marks strongly confluent 49

48 Length less than 4.0 mm..... *deceptus* (sometimes)

– Length more than 4.0 mm..... *grandis* sp.n.

49 Prosternal process gradually widening anteriorly..... 50

– Prosternal process narrowed near coxae, anteriorly wider than posteriorly (Fig. 316)……. ..... *ornatipennis* (most specimens)

50 Body oval. Elytral sutural darkening covering second interval. Prosternal process short, strongly punctured (Fig. 120) ..... *drechseli* sp.n.

– Body tapering. Elytral sutural darkening restricted to half of first interval. Prosternal process more slender, weakly punctured (Fig. 33)..... *brasiliensis*

51 Prosternal process narrowed in the middle, anteriorly not wider than posteriorly (Fig. 215). Secondary punctures in basal part of all intervals in more than one irregular row..... *langleyi* sp.n.

– Prosternal process not clearly narrowed in the middle, usually widest anteriorly. Secondary punctures in intervals 3–8 in sometimes irregular single rows..... 52

52 Second secondary puncture row irregular double..... 53

– Second secondary puncture row single..... 54

53 Prosternal process hardly or not grooved (Fig. 335) ..... *peruanus*

– Prosternal process distinctly grooved on each side (Fig. 170) ..... *gravidus*

54 Elytral maculation weak and on row 1 and 2 usually forming only dark lines……. . ..... *indistinctus* (sometimes)

– Elytral maculation distinct and connected to darkened suture. 55

55 Punctures outside maculation not darkened..... *ornatipennis* (sometimes)

– Punctures outside maculation darkened..... 56

56 Pronotal sides not margined. Sutural elytral darkening to first primary puncture row. Shoulders raspy..... *costaricanus* sp.n.

– Pronotal sides margined. Sutural elytral darkening to first secondary puncture row. Shoulders not raspy. ..... *gravidoides* sp.n.

1. *Haliplus annulatus* Roberts
Figs. 1–9

Haliplus annulatus Roberts 1913: 107; Zimmermann 1924: 193.

Type locality: USA, Florida, Taylor Co.

Holotype ♂ (CNCI): "Taylor Co., Florida, W.S. Genung" [not examined].

Material studied: 4 paratypes (2 ♂♂, 2 ♀♀), same data as holotype (CNCI). MEXICO: CHIAPAS: 1 ♂, 4 mi. NW Ocozocoautla, 11.IX.1964, leg. D. Breedlove (CAS); VERACRUZ: 1 ex., 15 mi. SE Tantoyuca, 28.VIII.1965, leg. P.J. Spangler (USNM). NICARAGUA: 8 exs., 20 mi. N Esteli, 31.VI.1967, leg. O.S. Flint Jr. (USNM). USA: not further specified material from ARKANSAS, FLORIDA, GEORGIA, TEXAS.

This species was described from the Nearctic fauna and will be fully treated in the revision of the Nearctic Haliplidae (in prep.).

DIAGNOSIS. Small species (2.0–2.5 mm) with extended elytral maculation. Shoulders not serrate (Fig. 1).

BIOLOGY: This species is collected in ponds and brooks.

DISTRIBUTION (Fig. 500): Mexico (Chiapas, Veracruz), Nicaragua, USA (Arkansas, Florida, Georgia, Texas).

2. *Haliplus bachmanni* VIDAL SARMIENTO & GROSSO
Figs. 10–19

Haliplus bachmanni VIDAL SARMIENTO & GROSSO 1970: 65; VIDAL SARMIENTO & GROSSO 1971: 150.

Type locality: ARGENTINA: Formosa: Ingeniero Guillermo Nueva Juárez.

Holotype ♂ (MLPA): "Ing. Juárez (Formosa), 10.III.[19]60, Bachmann leg." [not examined].

Material studied: ARGENTINA: 2 paratypes (♂♂), "Chaco, 7725, Museo de la Plata, Paratipo, Haliplus bachmanni Vidal S. Grosso, 3437"; 1 paratype (♂), "5848, B.A. Tigre, leg Bachmann, 7.XII.1952, ♂, Museo de la Plata, Paratipo Haliplus bachmanni Vidal S. Grosso, 3437, Col. A.O. Bachmann"; 1 ♀, Chaco; 22 exs., Salta, Santa Victoria E., 29.VII.1960–14.VI.1961, leg. A.O. Bachmann; 2 exs., Formosa, Ing. Juarez, 10.III.1960, leg. A.O. Bachmann (MACN). BRAZIL: 1 ex., Matto Grosso, Caceres, XII.1955, leg. M. Alvarenga (CY). PARAGUAY: 149 exs., Boqueron, Mariscal Estigarribia, 24.II.1992, XI.1993, 7.II.1996, leg. V. Drechsel (CV, NMW).

DIAGNOSIS: Pronotum and elytra with basal impression near fifth elytral puncture row. Metaventral process with four round impressions.

DESCRIPTION: Habitus: body oval, widest in the middle (Fig. 10).

Length of body: 3.0–3.4 mm, width: 1.8–2.1 mm.

Head: red-brown, weakly punctured. Width between eyes 1.1 x width of one eye. Antennae yellow-brown (Fig. 11). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: red-brown, vague semi-circular mark at anterior margin, vague marks opposite third elytral puncture rows. Lateral sides not, or at most near anterior corner, margined. Clear plicae opposite fifth elytral puncture row. Punctures moderately strong, near base coarse (Fig. 10).

Elytra: red-brown with extended vague maculation. Primary puncture rows moderately strong in first rows, but getting very strong in fourth to seventh row; about 27 punctures in first row. Base of fifth row with transverse impression (Fig. 10). Marginal rows not clearly impressed. In basal part of sutural and second interval, secondary puncture rows moderately strong and in two irregular rows (Fig. 12). All punctures in the maculation darkened, otherwise uncoloured. Completely margined, anteriorly smooth, posteriorly serrate.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to sixth sternite, strongly punctured in anterior part. Prosternum margined anteriorly. Prosternal process wide, widest anteriorly; strongly punctured groove on each side, sparsely punctured, anterior edge margined (Figs. 14, 15). Metaventral process with two separate, approximately circular impressions on each side; sparsely, on marginal ridge more densely punctured (Fig. 14). Metacoxal plates moderately strongly, towards suture more weakly punctured. Fifth and sixth sternite with continuous row of punctures. Last sternite moderately strongly punctured.

Legs: yellow-brown to brown, darkened towards coxae; setiferous striole on dorsal face of hindleg about 1/3 of length of tibia; longer apical spur 3/4 to 4/5 x length of first tarsal segment (Fig. 13).

Male: first three tarsal segments of fore- and midlegs widened and ventrally bearing a tuft of sucker hairs. Genitalia as illustrated (Figs. 16–19).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 497): Argentina, Brazil, Paraguay.

3. *Haliplus bonariensis* STEINHEIL
Figs. 20–28

Haliplus bonariensis STEINHEIL 1869: 248; RÉGIMBART 1889b: 256; ZIMMERMANN 1920b: 304; 1924: 205; BLACKWELDER 1944: 72; VIDAL SARMIENTO & GROSSO 1971: 149.

Type locality: ARGENTINA: Buenos Aires.

Holotype ♂ (MNHN): "Buen. Aires, bonariensis 14 Steinh., Ex Musaeo E. Steinheil, Holotype ♂ Haliplus bonariensis Steinheil 1869, Muséum Paris, coll. Wehncke, Haliplus bonariensis" [examined].

Material studied: ARGENTINA: 1 ex., Prov. Buenos Aires, 25.I.1905, leg. C. Bruch, Haliplus Bruchi Rég. [nomen nudum!], coll. Kraatz, Zimmermann det. (DEI); 1 ex., Rio Negro, nr. General Conesa, 9.XII.1999, leg. H. Smit (CV); 4 exs., Cap Federal, 6.XII.1953, 19.II.1955, 5.III.1955, leg. Bachmann; 1 ex., Entre Rios, 1º de Mayo[?], 3.X.1961; 1 ex., Buenos Aires, Platanos, 20.IX.1953, leg. Bachmann; 1 ex., Buenos Aires, Arroyo, Chapadmalal, 9.XII.1955; 1 ex., Delta del Paraná, 23.I.1957, leg. Bachmann; 1 ex., Delta del Paraná, INTA [?], VII.1968; 1 ex., Buenos Aires, Sierra Ventana, arr. Del Loro, 18.II.1973; 4 exs., Buenos Aires, El Palomar, 9.VIII.1953 (MACN). URUGUAY: 1 ex., Rocha, Ruta 10, Valizas-Aguas Dulces, 9–11.X.1970, leg. M. Monné, G. Wibmer & M. Moratorio; 1 ex., Colón, Montevideo, 6.II.1953, leg. Ruffinelli (CW).

DIAGNOSIS: Body subparallel. Elytra not maculate. Metaventral process with long groove on each side, which character distinguishes this species from *H. fuscipennis*.

DESCRIPTION: Habitus: body oval, widest just before the middle (Fig. 20).

Length of body: 3.8–4.2 mm, width 2.1–2.3 mm.

Head: yellow-brown, slightly darkened on vertex, weakly and on vertex slightly stronger punctured. Width between eyes about 1.5 x width of one eye. Antennae yellow-brown (Fig. 21). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, slightly darkened along anterior edge. Lateral sides margined, straight to slightly convex. Weakly punctured. Weakly impressed along base (Fig. 20).

Elytra: yellow-brown to brown. Primary puncture rows strong in anterior 1/3 and otherwise moderately strong; about 35 punctures in first row. Fifth to seventh row impressed in basal part (Fig. 20). Secondary puncture rows moderately strong, in posterior part nearly as strong as primary punctures, in basal part of first four or five intervals standing in two very irregular rows (Fig. 22). Completely margined, anteriorly smooth, posteriorly serrate.

Ventral side: yellow-red to dark brown-red; elytral epipleura yellow-red, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process narrowed in anterior half, wider posteriorly than anteriorly, sharply grooved on both sides, moderately strongly, in anterior part densely punctured, anterior edge margined (Figs. 24, 25). Metaventral process longitudinally grooved on both sides; moderately strongly punctured (Fig. 24). Metacoxal plates moderately strongly, towards suture more weakly punctured. Fifth and sixth sternite weakly punctured. Last sternite sparsely punctured.

Legs: yellow to yellow-red; setiferous striole on dorsal face of hind tibia 1/3–1/4 x length of tibia; longer apical spur 3/4 x length of first tarsal segment (Fig. 23).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 26–28).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a river.

DISTRIBUTION (Fig. 496): Argentina, Uruguay.

4. *Haliplus brasiliensis* ZIMMERMANN
Figs. 29–37

Haliplus brasiliensis ZIMMERMANN 1924: 201; BLACKWELDER 1944: 72.

Type locality: BRAZIL.

Holotype ♂ (ZSMC): "Brasilien, Type, Samml. A. Zimmermann, Holotype ♂, Haliplus brasiliensis Zimmermann" [examined].

DIAGNOSIS: Shoulders pronounced, body tapering backwards. Prosternal process only weakly impressed in posterior part. Setiferous striole on dorsal face of hind tibia very long.

DESCRIPTION: Habitus: body with narrow pronotum and strongly pronounced shoulders, strongly tapering behind shoulders (Fig. 29).

Length of body: 3.1 mm, width 1.9 mm.

Head: yellow-red to red-brown, weakly punctured. Width between eyes 1.4 x width of one eye. Antennae yellow (Fig. 30). Palpi yellow. Genal lines behind eyes double.

Pronotum: red-brown, strongly and densely punctured. Lateral sides slightly convex in anterior part, margined. Anterior edge elevated (Fig. 29).

Elytra: red-brown, extensive not clearly defined maculation (Fig. 29). Primary puncture rows moderately strong and dense, 35 punctures in first row. Secondary puncture rows moderately strong and dense (Fig. 31). All punctures outside maculation hardly or not darkened. Completely margined, anteriorly weakly serrate, posteriorly weakly serrate.

Ventral side: red-brown to brown; elytral epipleura red-brown, two rows of strong punctures in anterior part and one row of weak punctures in posterior part, reaching to sixth sternite. Prosternum margined anteriorly, weakly punctured. Prosternal process about parallel, anteriorly slightly widened, posteriorly slightly impressed, weakly punctured (Figs. 33, 34). Metaventral process with laterally strong posteriorly diverging punctured grooves, otherwise hardly punctured (Fig. 33). Metacoxal plates not reaching fifth sternite, strongly and densely, near suture weakly punctured. Fifth and sixth sternite moderately densely and laterally coarsely punctured. Last sternite densely punctured.

Legs: red-brown to brown near coxae; setiferous striole on dorsal face of hind tibia about 1/2 x length of tibia; posterior half in a deep narrow groove; longer apical spur 4/5 x length of first tarsal segment (Fig. 32).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 35–37).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known

DISTRIBUTION (Fig. 497): Brazil.

5. *Haliplus camposi* GUIGNOT
Figs. 38–46

Haliplus camposi GUIGNOT 1948: 96.

Type locality: ECUADOR, Guayaquil.

Holotype ♂ (MNHN): "Guayaquil, ♂, Type, Haliplus camposi Guign. Type ♂, Holotype ♂, Haliplus camposi Guignot 1948, Muséum Paris, coll. Général, Haliplus camposi" [examined].

Material studied: COLOMBIA: 3 exs., Dept. Cesar, Becerril, 21–22.VII.1968, leg. B. Malkin (CY). ECUADOR: 1 ♀, Manabi, Chone, 9.V.1975, in weedy roadside pools, leg. P. Spangler, A. Langley & J. Cohen; 2 ♂♂, 2 ♀♀, Los Rios, Babahoyo, 21.VI.1975, leg. Cohen, Langley & Monnig; 6 exs., 30 km N Guayas Naranjal, 24.XII.1977, leg. J.J. Anderson; 1 ex., Guayaquil, 1940, leg. C.L. Fagan; 51 exs., Guayas, 14,5 km S Boliche, 14.I.1978, roadside drainage ditch, leg. P.J. Spangler, J. Anderson; 4 exs., Guayas, 5,5 km S Nobol, alt. 38 m, 12.I.1978, leg. P.J. Spangler & J. Anderson; 1 ex., Los Rios, 5 km S Quevedo, 14.I.1978, leg. P.J. Spangler & J. Anderson (USNM). PANAMA: 1 ♀, Canal Zone, Madden Forest Pres., at light, 1.VII.1976, leg. A Newton (MCZC). TRINIDAD: 1 ex., Debe, 17.VII.1969, leg. P.J. Spangler (USNM). VENEZUELA: 1 ♂, Barinas, 23.II.1969, leg. P.& P. Spangler (USNM); 2 exs., Edo. Guarico Galabozo Est. Biologica, 23.VI.1963, leg. L.C. Bordon (CY); 1 ex., Apura, Est. Unellez, 15.VIII.1983, leg. J. Lattke; 11 exs., Portuguesa, Est. Exp. San Nicolas, 56 km from Guanare, alt. 180 m, at light, 11.–12.V.1975; 3 exs., Guarico, Hato Las Lajas, 15.VIII.1964, leg. C.J. Rosales & A.D. Ascoli (MBUC); 1 ex., Guarico Co., W San Rafael de Orituco, 20.IX.1980, leg. A. Jansson (UZMH).

DIAGNOSIS: Pronotum and elytra with basal impression. Elytra strongly maculate. Very similar to *H. tocumenus* sp.n., which has the pronotum not margined.

DESCRIPTION: Habitus: body oval, widest in the middle (Fig. 38).

Length of body: 3.2–3.6 mm, width 2.0–2.2 mm.

Head: yellow-brown to brown, weakly punctured. Width between eyes 1.1–1.2 x width of one eye. Antennae yellow-brown (Fig. 39). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, semi-circular dark mark behind anterior margin, small vague mark opposite third elytral puncture row. Lateral sides straight, margined, small incision near anterior corner. Strong plicae at base opposite fifth elytral puncture row, base slightly impressed between these plicae. Weak transverse impression on the disc. Moderately strongly punctured (Fig. 38).

Elytra: yellow to yellow-brown with very extended complicated maculation, sometimes very dark and maculation hardly recognizable (Fig. 38). Primary puncture rows moderately strong, about 36 punctures in first row, basal part of fifth row with strong transverse impression. Secondary puncture rows moderately strong, along basal part of suture and second interval in two irregular rows (Fig. 40). All punctures darkened in the maculation, otherwise uncoloured. Completely margined, anteriorly weakly serrate, posterior serration very dense and teeth about as wide as long.

Ventral side: yellow-brown to brown or sometimes for the greater part very dark; elytral epipleura yellow to yellow-brown, strongly punctured in anterior part, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process wide, anterior part slightly wider; strongly punctured grooves on each side; weakly punctured; anterior edge margined (Figs. 42, 43). Metaventral process with longitudinal impression on each side, in which two separate impressions can be recognized; weakly punctured (Fig. 42). Metacoxal plates moderately strongly, towards suture slightly more weakly punctured. Fifth and sixth sternite with irregular row of weak punctures. Last sternite densely punctured.

Legs: yellow-brown to brown, darkened towards coxae; setiferous striole on dorsal face of hind tibia short, about 1/6 x length of tibia; longer apical spur about as long as first tarsal segment (Fig. 41).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 44–46).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in weedy roadside pools, in a roadside drainage ditch and collected at light.

DISTRIBUTION (Fig. 497): Colombia, Ecuador, Panama, Trinidad, Venezuela.

6. *Haliplus carinatus* GUIGNOT
Figs. 47–55

Haliplus carinatus GUIGNOT 1936: 116; BLACKWELDER 1944: 72; SPANGLER 1981a: 146, 167.

Type locality: CUBA: Habana, Marianao.

Holotype ♂ (MNHN): "Pl. Marianao, Cuba, Prov. Hab[ana], A. Bierigi, 8.1928, ♂, Type, Haliplus carinatus Guignot, Holotype ♂, Haliplus carinatus Guignot 1936, Muséum Paris, coll Guignot, Haliplus carinatus" [examined].

Material studied: CUBA: 1 ex., Matanzas Prov., Cienaga Zapata, at Playa Larga, 11.–12.II.1981, leg. P. Spangler & A. Vega (USNM); 1 ex., Santiago de las Vegas, Habana, 6.VI.1960, leg. M. Barro; 3 exs., Santiago de las Vegas, 5.IX.1923, leg. S.C. Brauer (IZAC); 2 exs., Pinar del Rio, 16.–29.V.1933, leg. H.J. MacGillavry (ZMAN); 8 exs., Soledad, Cienfuegos, 17.X.1926 and VI.1929, leg. Darlington (CY).

DIAGNOSIS: Characterized by the carinate impressed preapical part of the eighth elytral puncture row. The seventh row is apically also carinate, which character distinguishes it from the similar *H. unicarinatus* sp.n.

DESCRIPTION: Habitus: body oval, but before apex with clear bend, widest in the middle (see Fig. 47).

Length of body: 2.7–2.8 mm, width 1.7 mm.

Head: brown, weakly punctured. Width between eyes 1.1 x width of one eye. Antennae yellow-brown (Fig. 48). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, strongly punctured. Lateral sides straight, serrate by coarse punctures, not or hardly margined (Fig. 47).

Elytra: yellow-brown, with extended maculation, which is less dark along anterior 2/3 of suture (Fig. 47). Primary puncture rows moderately strong, about 30 punctures in first row, base of fifth row with sharp transverse impression, end of seventh and especially of eighth row deeply and sharply impressed, these impressions are not connected to each other. Secondary puncture rows modeately strong, along basal part of suture nearly as strong as primary punctures (Fig. 49). Only punctures in maculation darkened. Completely margined, anteriorly and posteriorly serrate.

Ventral side: yellow-red to brown; elytral epipleura yellow-red, reaching to middle of last sternite, strongly punctured in anterior part and weakly in posterior part. Prosternum margined anteriorly. Prosternal process very narrow posteriorly and very wide anteriorly, with strongly punctured grooves on both sides; moderately strongly and anteriorly densely punctured (Figs. 51, 52). Metaventral process anteriorly with large deep impression; in posterior part with a small deep impression on each side, which is slightly continued backwards; sparsely punctured (Fig. 51). Metacoxal plates with protruded apical sutural corners, moderately strongly and densely punctured, towards suture more weakly punctured. Fifth and sixth sternite with continuous row of punctures. Last sternite rather weakly punctured.

Legs: yellow-red; setiferous striole on dorsal face of hind tibia 1/6 x length of tibia; longer apical spur 4/5 x length of first tarsal segment.

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 53–55).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 500): Cuba.

7. *Haliplus colombiensis* sp.n.
Figs. 56–61

Type locality: COLOMBIA: Barranquilla.

Holotype ♀ (USNM): "Colombia, At.[Atlántico?], Barranquilla, 18.III.1969, leg. P. & P. Spangler". **Paratype**: 1 ♀, same data as holotype (USNM).

DIAGNOSIS: Body oval. Base of fifth elytral puncture row impressed. Metaventral process with characteristic pattern of strong and deep pits.

DESCRIPTION: Habitus: body oval to subparallel, widest in the middle (Fig. 56).

Length of body: 2.9 mm, width 1.7 mm.

Head: yellow-brown, weakly punctured. Width between eyes 1.1 x width of one eye. Antennae yellow to yellow-brown (Fig. 57). Palpi yellow to yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown to red-brown with narrow dark mark along anterior edge, moderately, along base strongly punctured. Base weakly impressed opposite fourth elytral row. Lateral sides straight to slightly convex, margined (Fig. 56).

Elytra: yellow-brown to red-brown, with extensive maculation. Primary puncture rows fairly weak, about 30 punctures in first row, fifth row basally impressed (Fig. 56). Secondary puncture rows weak (Fig. 58). Punctures outside maculation not darkened. Completely margined, anteriorly smooth, posteriorly serrate with very sharp teeth.

Ventral side: yellow-brown to dark brown; elytral epipleura yellow-brown to brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process slightly widening anteriorly, with two strongly punctured grooves; sparsely punctured (Figs, 60, 61). Metaventral process with a strong large pit followed by some less stronger pits on each side (Fig. 60). Metaventrite strongly and coarsely punctured. Metacoxal plates strongly, near suture more weakly punctured. Fifth and sixth sternite with complete moderately strong puncture row. Last sternite moderately punctured.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia about 1/8 x length of tibia; longer apical spur nearly as long as first tarsal segment (Fig. 59).

Male: unknown.

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the country in which the types are found.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 497): Colombia.

8. *Haliplus concolor* LECONTE
Figs. 62–70

Haliplus concolor LECONTE 1851: 201; CROTCH 1873: 384: MATHESON 1912: 164; ROBERTS 1913: 105; ZIMMERMANN 1920b: 304; 1924: 199.

Type locality: USA: Colorado.

Holotype ♀ (MCZC): "Type 5433, H.concolor Lec., Colorado, holotype ♀" [examined].

Material studied: MEXICO: 25 exs., Nayarit, Tepic, 15.–24.IX.1953, leg. B. Malkin (CAS). USA: not further specified material from Texas.

This species was described from the Nearctic fauna and will be fully treated in the revision of the Nearctic Haliplidae (in prep.).

DIAGNOSIS: Elytra not maculate. Prosternal process with round impression on each side (see Fig. 62).

BIOLOGY: No details known.

DISTRIBUTION (Fig. 500): Mexico (Nayarit), USA (Colorado, Texas).

9. *Haliplus confluentus* ROBERTS
Figs. 71–79

Haliplus confluentus ROBERTS 1913: 106; ZIMMERMANN 1924: 144.

Type locality: USA: Florida, Taylor County.

Lectotype ♂ (AMNH), **by present designation**: "Taylor Co., 7, Fla, ♂, Acc. 4858, Type Haliplus confluentus, ♂ Type Roberts, Lectotype ♂ designated by B.J.v.Vondel 1993" [examined].

Material studied: 1 paralectotype ♀, same data as lectotype (AMNH). BAHAMAS: 1 ♂, 1 ♀, Berry Islands, Fraziers Hog Cay, 30.IV.1953, leg. E.B. Hayden (CY); 1 ex., Andros, Middle Bight, Big Wood Cay, 6.III.1966, leg. Cartwright (USNM). MEXICO: 26 exs., Veracruz, 15 mi SE Tantoyuca, 28.VIII.1965, leg. P.J. Spangler (USNM). USA: not further specified material from Florida.

This species was described from the Nearctic fauna and will be fully treated in the revision of the Nearctic Haliplidae (in prep.).

DIAGNOSIS: Elytral maculation strongly developed. Shoulders serrate (Fig. 71).

BIOLOGY: Collected in pools (fresh and brackish) and canals.

DISTRIBUTION (Fig. 500): Bahamas, Mexico, USA.

10. *Haliplus costaricanus* sp.n.
Figs. 80–88

Type locality: COSTA RICA: Guanacaste, Taboga.

Holotype ♂ (USNM): "Costa Rica, Guan. Taboga, Agri. Expt. Sta. VI.28.1967, Paul J. Spangler". **Paratypes**: 5 ♂♂, 8 ♀♀. same data as holotype (3 with different date: VI.27.1967) (CV, NMW, USNM).

DIAGNOSIS: Resembles *H. signatus* or *H. tumidus*, but has the metaventral process with a diverging row of strong punctures in a common impression on each side.

DESCRIPTION: Habitus: body short oval, strongly tapering backwards, widest just behind the shoulders (Fig. 80).

Length of body: 3.0 mm, width 1.9 mm.

Head: yellow-brown, vague darkening on vertex, weakly punctured. Width between eyes 1.2 x width of one eye. Antennae yellow to yellow-brown (Fig. 81). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, anteriorly and along base slightly darkened, moderately punctured, along base with stronger puncture row. Anterior edge hooked in the middle. Lateral sides straight to slightly convex, not margined (Fig. 80).

Elytra: yellow to yellow-brown with extensive distinct dark maculation (Fig. 80). Primary puncture rows moderately strong but strong in basal half of third to sixth row, about 33 punctures in first row, basal punctures of fifth row sometimes confluent. Secondary puncture rows weak and sparse, in basal part of sutural row irregular double (Fig. 82). Shoulders raspy. All punctures darkened. Completely margined, anteriorly and posteriorly serrate.

Ventral side: yellow to yellow-brown; elytral epipleura yellow, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process parallel, two grooves with some strong punctures in it, weakly punctured (Figs. 84, 85). Metaventral process with deep diverging impression with some large punctures in it on each side; weakly punctured (Fig. 84). Metacoxal plates moderately, towards suture weakly punctured. Fifth and sixth sternite with complete puncture row. Last sternite moderately punctured.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia 1/3 x length of tibia; longer apical spur nearly as long as first tarsal segment (Fig. 83).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 86–88).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the country in which the types are found.

BIOLOGY: No details known

DISTRIBUTION (Fig. 500): Costa Rica.

11. *Haliplus crassus* CHAPIN
Figs. 89–97

Haliplus crassus CHAPIN 1930: 12; BLACKWELDER 1944: 72.

Type locality: PANAMA: La Cabima.

Holotype ♂ (USNM): "Cabima, Pan., May 28 [19]11, August Busck, Type No. 41760, U.S.N.M., Haliplus crassus Type Chpn.; Holotype ♂" [examined].

Material studied: BRAZIL: 5 exs., Rio Grande do Norte, Ceará-Mirim, 6.–7.VII.1969, leg. P. & P. Spangler (USNM). PANAMA: 98 exs., Coclé, 13 km SW Penonome, Rio Corte Auxiliar, 6.VI.1983, leg. P.J. Spangler, R.A. Faitoute & W.E. Steiner (USNM). PARAGUAY: 31 exs., Fuerte Olimpo, 23.–27.IX and 3.–8.X.1983, clear pond overgrown with aquatic vegetation, leg. B. Malkin (NHMB). VENEZUELA: 7 exs., Guárico, 32 km SW Calabozo, 11.II.1969, leg. P. & P. Spangler; 2 exs., Barinas, Barinas, 23.II.1969, leg. P. & P. Spangler (USNM).

DIAGNOSIS: Large species with distinct maculation. Characterized by the very wide prosternal and metaventral process (Fig. 89).

DESCRIPTION: Body wide oval, widest before the middle.

Length of body: 3.7–4.2 mm, width 2.1–2.5 mm.

Head: light brown, weakly and sparsely punctured. Width between eyes 0.9–1.0 x width of one eye. Antennae yellow-brown (Fig. 90). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown with irregular brown mark in the middle from anterior margin to about 2/3 of the pronotum. Moderately strongly and rather sparsely punctured. Lateral sides straight to slightly convex anteriorly and slightly concave posteriorly, margined (Fig. 89).

Elytra: yellow to yellow-red, extensive maculation (Fig. 89). Primary puncture rows weak, but stronger in basal part, about 28 punctures in first row. Secondary puncture rows weak, except in basal part nearly as strong as primary punctures (Fig. 91). Completely margined, posteriorly very weakly serrate.

Ventral side: yellow to yellow-red, darker towards coxae; elytral epipleura yellow with uncoloured punctures, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process very wide, with two grooves in posterior 2/3, sparsely punctured (Figs. 93, 94). Metaventral process very wide with sharp grooves along the sides and slightly elevated in the middle; lateral ridges strongly punctured; middle weakly punctured (Fig. 93). Metacoxal plates moderately strongly punctured. Fifth and sixth sternite with dense puncture row. Last sternite strongly and densely punctured.

Legs: yellow-red; setiferous striole on dorsal face of hind tibia about 1/4 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 92).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 95–97).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in clear pond overgrown with aquatic vegetation. The following aquatic Coleoptera were found in association with *H. crassus* in Panama, Penonome: Haliplidae: *Haliplus gravidus*, Dytiscidae: *Brachyvatus*, Bidessini, *Derovatellus*, *Hydrovatus*, *Laccophilus*, *Megadytes*, *Pachydrus*, *Thermonectus*, Hydrochidae: *Hydrochus*, Hydrophilidae: *Berosus*, *Derallus*, *Helochares*, *Hydrobiomorpha*, *Hydrophilus*, *Tropisternus*, Noteridae: *Hydrocanthus*, *Suphis*, *Suphisellus*.

DISTRIBUTION (Fig. 498): Brazil, Panama, Paraguay, Venezuela.

12. *Haliplus cubensis* CHAPIN
Figs. 98–106

Haliplus cubensis CHAPIN 1930: 10; BLACKWELDER 1944: 72; SPANGLER 1981a: 167.
Haliplus bierigi GUIGNOT 1936: 115; BLACKWELDER 1944: 72; SPANGLER 1981a: 167. Synonymized by VONDEL (2005: 41).

Type locality *H. cubensis*: CUBA: Cayamas (in prov. Granma or Cienfuegos?).

Type locality *H. bierigi*: CUBA: Habana, Pl. Marianao.

Holotype ♀ (*H. cubensis*) (USNM): "Cayamas, 11.5, Cuba, E.A.Schwarz Collector, Type No. 41758 U.S.N.M., Haliplus cubensis Type Chpn., Holotype ♂ [in fact ♀!]" [examined].

Holotype ♂ (*H. bierigi*) (MNHN): "Pl. Marianao, Cuba, Prov. Hab., 8.1928, A. Bierig, ♂, Type, Haliplus Bierigi Guignot, Holotype ♂, Haliplus bierigi Guignot 1936, Muséum Paris, coll. Guignot, Haliplus bierigi" [examined].

Material studied: BAHAMAS: 1 ♂, N. Andros Isl., Atala Coppice, 10 km WNW Stafford Creek Town, 13.VI.1983, leg. S.M. Fondriest (USNM). CAYMAN ISLANDS: GRAND CAYMAN: 1 ♂, 1 ♀, S. coast of South Sound, 20.VI.1938, light trap, leg. C.B. Lewis & G.H. Thomson; 2 ♂♂, West end of Georgetown, 23.IV and 1.V.1938, light trap, leg. C.B. Lewis & G.H. Thomson; 1 ♂, East End of East End, 30.VI.1938, light trap, leg. C.B. Lewis & G.H. Thomson (USNM). CUBA: 1 ex., Oriente, Cauto El Christo, Cauto river, 12.VIII.1936, leg. Darlington; 4 exs., Cienfuegos, Soledad, 14.X.1926 and VI.1929, leg. Darlington (CY); 1 ♀, Soledad, Cienfuegos, 5.VI.1939, leg. Parsons (MCZC).

DIAGNOSIS: Relatively small. Shoulders at most weakly raspy. Resembles *H. youngi* sp.n. very much, but the latter is more than 2.9 mm long and has the shoulders distinctly raspy.

DESCRIPTION: Habitus: Body wide oval, widest in the middle (Fig. 98).

Length of body: 2.6 mm, width 1.6 mm.

Head: brown-red, hardly punctured. Width between eyes 1.7 x width of one eye. Antennae yellow (Fig. 99). Palpi yellow. Genal lines behind double.

Pronotum: yellow-brown, vague dark mark in the middle, being wider along anterior and posterior margin. Moderately punctured. Lateral sides about straight, margined. Anterior side hooked in the middle (Fig. 98).

Elytra: yellow-brown with extensive brown marking (Fig. 98). Primary puncture rows fairly weak, about 30 punctures in first row. Secondary puncture rows weak, along suture nearly as strong as first primary row in basal area (Fig. 100). All punctures darkened, except in marginal rows. Completely margined, anteriorly serrate.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to sixth sternite, strong uncoloured punctures in anterior part and row of small uncoloured punctures in posterior part. Prosternum margined anteriorly. Prosternal process wider anteriorly, in posterior part grooved along the sides, sparsely and moderately strongly punctured (Figs. 102, 103). Metaventral process with clear round pit on each side; weakly punctured (Fig. 103). Metacoxal plates moderately strongly punctured, with sharp apical-sutural corner. Fifth and sixth sternite with weak puncture row. Last sternite densely punctured in apical 2/3.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur 4/5 x length of first tarsal segment (Fig. 101).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 104–106).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a river and at light.

DISTRIBUTION (Fig. 501): Bahamas, Cayman Islands, Cuba.

13. *Haliplus deceptus* MATHESON
Figs. 107–115

Haliplus deceptus MATHESON 1912: 166; ZIMMERMANN 1920b: 305; 1924: 194.

Type locality: USA: Texas.

Holotype ♀ (CUIC): "TEX., Holotype, Haliplus deceptus R. Matheson, Holotype Cornell U. No. 262.1" [examined].

Material studied: MEXICO: 10 ♂♂, 10 ♀♀, Nuevo Leon, Rio Ramos near Allende, 19.VII.1969, leg. F.N. Young (CY); 17 ♂♂, 15 ♀♀, Coahuila, 20 mi. S Saltillo, 7.VIII.1963, leg. P.J. Spangler (USNM). USA: not further specified material from South Dakota and Texas.

This species was described from the Nearctic fauna and will be fully treated in the revision of the Nearctic Haliplidae (in prep.).

DIAGNOSIS: Elytra with isolated dark marks, at most the discal one confluent with sutural darkening (Fig. 107). Metaventral process laterally with continuous striae (Fig. 111).

BIOLOGY: Collected in a stream.

DISTRIBUTION (Fig. 500): Mexico, USA (South Dakota, Texas).

14. *Haliplus drechseli* sp.n.
Figs. 116–125

Type locality: PARAGUAY: Asuncion.

Holotype ♂ (NMW): "Paraguay, Asuncion, 20.X.1991, leg. U. Drechsel". **Paratypes**: ARGENTINA: 1 ♀, "Formosa, p.Irigoyen [Presidente Irigoyen], X.[1]950, Daguerre, ARGENTINA, 1968 Coll.n J. Daguerre" (USNM). PARAGUAY: 1 ♂, 2 ♀♀, same data as holotype; 16 ♂♂, 41 ♀♀, "Paraguay, Dep. P. te. Hayes, Est. Vaca Reta, 7.II.1996, leg. Drechsel" (CV).

DIAGNOSIS: Small species with vague elytral maculation. Can be distinguished from *H. ornatipennis* by the prosternal process not being narrowed near the coxae.

DESCRIPTION: Habitus: body short oval, widest in the middle (Fig. 116).

Length of body: 2.2–2.6 mm, width 1.3–1.5 mm.

Head: yellow-brown, weakly punctured. Width between eyes 1.2 x width of one eye. Antennae yellow-brown (Fig. 117). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown with brown mark anteriorly, moderately punctured, along base row of stronger punctures, of which the ones opposite third and fourth elytral row lie in a narrow impression. Lateral sides margined and slightly convex. Anteriorly finely margined in the middle (Fig. 116).

Elytra: yellow to yellow-brown, brown maculation consisting of four transverse bands (Fig. 116). Primary puncture rows moderately strong, about 24 punctures in first row. Secondary puncture rows weak (Fig. 118). Punctures outside maculation not darkened. Completely margined, anteriorly and posteriorly serrate.

Ventral side: yellow-brown to brown; elytral epipleura yellow, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process short, slightly widening anteriorly, with two longitudinal grooves, strongly punctured (Figs. 120, 121). Metaventral process with strong puncture row in a diverging deep impression on each side; sparsely punctured (Fig. 120). Metacoxal plates strongly and densely punctured. Fifth and sixth sternite with complete puncture row. Last sternite sparsely punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia 1/4 to 1/5 x length of tibia; longer apical spur 4/5 x length of first tarsal segment (Fig. 119).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 122–125).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the collector of the holotype.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 497): Argentina, Paraguay.

15. *Haliplus elsaltous* sp.n.
Figs. 126–135

Type locality: MEXICO: Durango: 16 miles east of El Salto.

Holotype ♂ (USNM): "Mexico, Dgo., 16 Mi. E. El Salto, temporary grassy meadow pond, VI-29-1964, Paul J. Spangler". **Paratypes**: 99 ♂♂, 119 ♀♀, same data as holotype; 64 ♂♂, 75 ♀♀, "MEXICO, Dgo., Cerro Gordo, vi-28-1964, Paul J. Spangler"; 2 ♂♂, 4 ♀♀, "MEXICO, 11 Mi. W. El Salto, VI-29.30-1964, Paul J. Spangler"; 1 ♀,"Mexico, Dgo., 3 Mi. E. La Ciudad, pond with grassy margins, VII-1-1964, Paul J. Spangler"; 1 ♀, "MEXICO, Pue., Izúcar de Matamoros, VII-13-1964, Paul J. Spangler"; 6 ♂♂, 12 ♀♀, "MEXICO, Mex., 26 Mi. W. Toluca,

VII-10-1964, Paul J. Spangler"; 50 ♂♂, 67 ♀♀, "Mexico, Ags. Aguascalientes, VIII.3–5.1963, Paul J. Spangler" (NMW, USNM).

DIAGNOSIS: Small subparallel to parallel species. Resembles *H. lewisii*, but can be distinguished by the narrow prosternal process, being strongly concave when seen from the front.

DESCRIPTION: Habitus: body narrow, subparallel, widest in the middle (Fig. 126).

Length of body: 2.1–2.7 mm, width 1.1–1.4 mm.

Head: yellow to yellow-brown, moderately punctured. Width between eyes 1.2 x width of one eye. Antennae yellow (Fig. 127). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow to yellow-brown, moderately punctured. Lateral sides straight to slightly convex, margined (Fig. 126).

Elytra: yellow with extensive vague brown maculation (Fig. 126). Primary puncture rows moderately strong, about 32 punctures in first row. Secondary puncture rows weak and sparse (Fig. 128). Punctures not darkened. Completely margined, anteriorly weakly serrate, posteriorly serrate.

Ventral side: yellow to yellow-brown; elytral epipleura yellow, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process parallel and very narrow, slightly narrowed in posterior and in anterior half, sparsely punctured, with two strongly punctured grooves; anterior part strongly impressed in the middle, anterior edge strongly concave when seen from the front (Figs. 130–132). Metaventral process with distinct pit followed by diverging groove on each side; sparsely punctured (Fig. 131). Metacoxal plates sparsely and fairly weakly punctured. Fifth and sixth sternite with weak puncture row. Last sternite strongly punctured in apical half.

Legs: yellow to yellow-brown; setiferous striole on dorsal face of hind tibia with few sparse punctures and 1/4 x length of tibia; longer apical spur as long as first tarsal segment (Fig. 129).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 133–135).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the type locality.

BIOLOGY: Collected in a temporary grassy meadow pool and pond with grassy margins. The following aquatic Coleoptera were found in association with *H. elsaltous* in Mexico, El Salto: Dytiscidae: *Deronectes*, Haliplidae: *Haliplus grandis*, *Peltodytes mexicanus,* Hydrophilidae: *Helochares* and in Mexico, La Ciudad: Dytiscidae: *Agabus*, *Bidessus*, *Dytiscus*, *Hydroporus*, *Hygrotus*, Hydraenidae: *Ochthebius*, Hydrophilidae: *Berosus*, *Helophorus*.

DISTRIBUTION (Fig. 500): Mexico (Aguascalientes, Durango, México, Puebla).

16. *Haliplus fuscipennis* GERMAIN
Figs. 136–146

Haliplus fuscipennis GERMAIN 1856: 389; ZIMMERMANN 1920b: 308; 1924: 202; BLACKWELDER 1944: 72; MORONI 1973: 193; 1980: 30; CAMOUSSEIGHT & MORONI 1976: 3.

Type locality: CHILE.

Lectotype ♀ (MNNC), **by present designation**: "♀, fuscipennis P.G., Guignot det. 1953, Haliplus Liaphlus fuscipennis Germain, Sintipe 1, Haliplus Liaphlus fuscipennis Germain, Det. J. Moroni 74, CHILE M.N.H.N., Tipo No.1. Lectotype ♀ Haliplus fuscipennis Germain 1855 des. Vondel 1992".

Material studied: CHILE: 1 ♂, Vina del Mar, XI.1897; 1 ♂, Chili, P. Germain (MNHN); 2 exs., Llifén [?], I.1941 (USNM); 1 ♀, Vina del Mar, II.1897; 2 ♂♂, 1 ♀, Chili (MNNC); 1 ex., Chile Central; 1 ex., Casa Blanca,

30.IX.1966, leg. T. Solerviceus A.; 4 exs., Concepcion, Escuadron, 25.XI.1987 and 17.VIII.1991, leg. T. Cekovalovic (CM).

DIAGNOSIS: Body parallel to subparallel. Elytra not maculate. Metaventral process with short groove on each side. Very similar to *H. valdiviensis*, which is larger and has the elytra vaguely maculate.

DESCRIPTION: Habitus: body long oval, subparallel, widest in the middle, shoulders weakly pronounced (Fig. 136).

Length of body: 4.0 mm, width 2.0 mm.

Head: yellow-brown, moderately strongly and densely punctured. Width between eyes 1.8–1.9 x width of one eye. Antennae yellow (Fig. 137). Palpi yellow, last segment about half the length of penultimate segment (Figs. 139, 140). Genal lines behind eyes double.

Pronotum: yellow-brown. Lateral sides margined, clearly bent inwards in anterior half. Moderately strongly punctured, row of stronger punctures along base (Fig. 136).

Elytra: yellow-brown with sometimes vague marks on intervals and a transverse vague band slightly distant from base (Fig. 136). Primary puncture rows moderately strong and dense, about 40 punctures in first row. Secondary puncture rows moderately strong, accompanied by small punctures, along basal part of suture in two irregular rows (Fig. 138). Completely margined, anteriorly smooth, posteriorly weakly serrate.

Ventral side: yellow-brown to brown on prosternal and metaventral process; elytral epipleura yellow reaching to sixth sternite with uncoloured punctures. Prosternum margined anteriorly, sparsely punctured. Prosternal process narrow, anteriorly as wide as posteriorly, slightly narrowed in anterior half, on both sides sharply grooved, moderately punctured, anterior edge margined (Figs. 142, 143). Metaventral process on each side with clear impression which is extended towards anterior edge as a slight impression; moderately punctured (Fig. 142). Metacoxal plates moderately punctured, near suture more weakly punctured. Fifth and sixth sternite in the middle with a few, laterally with more punctures. Last sternite weakly punctured in posterior part.

Legs: yellow; setiferous striole on dorsal face of hind tibia very short; longer apical spur 2/3 x length of first tarsal segment (Fig. 141).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 144–146).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs. Dorsal and ventral side in most parts slightly micropunctured.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 496): Chile.

17. *Haliplus grandis* sp.n.
Figs. 147–155

Type locality: MEXICO: Puebla.

Holotype ♂ (USNM): "Mexico, Pue., Puebla, VIII-18-1964, Paul J. Spangler". **Paratypes**: 2 ♂♂, same data as holotype; 1 ♂, 1 ♀, "Mexico, Pue., 11 Mi N. Zacatlan, VIII.27.1965, Paul J. Spangler"; 1 ♀, "Dist.Fed. Mex, L. Conradt"; 1 ♂, 1 ♀, Mexico, Mexico City, VI.21.1957, David Lanch"; 1 ♂, "Mexico, Guanajuato, 20 June 1957, D.R. Lanch"; 1 ♂, Mexico, Morelia, Michoacan, Aug.10.1957, David Lanch"; 1 ♂, "Mexico, Mich., 14 Mi W. Hidalgo, VII.8.1964, Paul J. Spangler"; 2 ♀♀, "Mexico, Dgo., 25 Mi. W. Durango, VI.29.1964, Paul J. Spangler"; 1 ♀, "Mexico, Mich., 8 Mi. S. Zacapu, VII.6.1964,Paul J. Spangler"; 16 ♂♂, 11 ♀♀, "Mexico, Dgo., 16 Mi. E. El

Salto, temporary grassy meadow pond, VI.29.1964, Paul J. Spangler"; 2 ♂♂, 3 ♀♀, "Mexico, Dgo., Cerro Gordo, VI.28.1964, Paul J. Spangler"; 4 ♂♂, 2 ♀♀, "Mexico, Mich, Patzcuaro, VII.7.1964, Paul J. Spangler"; 1 ♀, "Mexico, Jalisco, S. Juan de Lagos, VIII.3.1963,Paul J. Spangler"; 1 ♀, "Mexico, Jalisco, 13 Mi. N. Chapala, VIII.1.1963, P.J. Spangler"; 1 ♂, "Mexico, Ags., Aguascalientes, VIII.3–5.1963, P.J. Spangler" (NMW, USNM); 3 ♀♀, "MEX., Zacatecas, 61 mi. W. of Presnillo, Alt. 8100 feet, pool, stream bed, 25.VI.1954, R.H. Brewer" (CAS); 1 ♀, "10 Mi. E. Zacapa, Mich., Mex., Sept. 21. 1938, Lipovsky" (MCZC); 1 ♂, "USA: New Mexico: Hidalgo Co, Rt. 80, 1.3 mi S. of Rodeo, 5.VIII.2003, A.E.A. Short, ditch/pond [AS-03-040]" (CS).

DIAGNOSIS: Large subparallel species. Metaventral process with short impression on each side.

DESCRIPTION: Habitus: body oblong oval to nearly parallel in the middle, widest in the middle (Fig. 147).

Length of body: 4.2–4.5 mm, width 2.2–2.4 mm.

Head: yellow-brown, densely punctured. Width between eyes 1.3–1.4 x width of one eye. Antennae yellow-brown (Fig. 148). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow to yellow-brown, anteriorly small square mark, moderately punctured, basally with some stronger punctures in a common groove opposite fourth and fifth elytral row. Lateral sides margined (Fig. 147).

Elytra: yellow to yellow-brown, maculation consisting of a number of marks in even intervals which are sometimes connected to each other and to the narrow darkened suture (Fig. 147). Primary puncture rows moderately strong, about 43 punctures in first row, basal punctures of fourth and fifth row widened and usually in an impression. Secondary puncture rows weak, sutural row irregular double in basal part (Fig. 149). Punctures outside maculation not darkened. Completely margined, anteriorly very weakly serrate, posteriorly serrate.

Ventral side: yellow-brown; elytral epipleura yellow, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process slightly narrowed posteriorly and in the middle, with strong punctures forming a kind of groove along the sides, strongly and densely punctured (Figs. 151, 152). Metaventral process with diverging groove on each side; densely punctured (Fig. 151). Metacoxal plates moderately punctured. Fifth and sixth sternite with dense row of small punctures. Last sternite strongly and densely punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia absent; longer apical spur 3/4 x length of first tarsal segment (Fig. 150).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 153–155).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the relatively large size of this species.

BIOLOGY: Collected in a ditch/pond, in a temporary grassy meadow pond and in a pool in a stream bed. Up to an altitude of 2400 m. The following aquatic Coleoptera were found in association with *H. grandis* in Mexico, El Salto: Dytiscidae: *Deronectes*, Haliplidae: *Haliplus elsaltous*, Hydrophilidae: *Helochares*.

DISTRIBUTION (Fig. 501): Mexico (Aguascalientes, Durango, Jalisco, México Distrito Federál, Michoacán, Puebla, Zacatecas), USA (New Mexico).

18. *Haliplus gravidoides* sp.n.
Figs. 156–165

Type locality: MEXICO: Campeche, 21 miles east of Campeche.

Holotype ♂ (USNM): "Mexico, Camp., 21 Mi. E. Campeche, VII.27.1964, Paul J. Spangler" [in a weedy roadside ditch]. **Paratypes**: BELIZE: 1 ♀, "BELIZE, Cayo Dist., San Ignacio (8km S), 23 May 1986, colln 16, Paul J. Spangler & Robin A. Faitoute, collected from stock pond, ♀" (USNM); 1 ♂, 1 ♀, "Beliza, Orange Walk, Dist. Rio Bravo Pres., 2.2.1996, 1 mi. HQ, roadside pond, leg. W.D. Shepard (1178)"; 2 ♂♂, 1 ♀, "Belize, Orange Walk, Dist. Rio Bravo Pres., 2.1.1996, 1.4 mi E. Tres Laguas, leg. W.D. Shepard (1180)" (CV, NMW). CUBA: 1 ♀, "Pen. Guanahacabibes, El Veral, 10-X-1967, Pinar del Rio, CUBA, Brodie" (IZAC). GUADELOUPE: 1 ♂, "Marie Galante, Mare du Moulin, St. 754, 1.II.1964, P. Wagenaar Hummelinck, Haliplus robustus Sharp, det. B.J. van Vondel 1987" (ZMAN). MEXICO: 22 ♂♂, 31 ♀♀, same data as holotype; 41 ♂♂, 52 ♀♀, "Mexico, Camp., 10 Mi S. Campeche, VII.28.1964, Paul J. Spangler" (NMW, USNM).

DIAGNOSIS: Resembles *H. gravidus* very much, but can be distinguished by the confluent elytral maculation instead of the striped appearance of *H. gravidus*.

DESCRIPTION: Habitus: Body oval, slightly tapering backwards, widest in the middle (Fig. 156).

Length of body: 3.1–3.3 mm, width 1.8–1.9 mm.

Head: yellow-brown, densely punctured. Width between eyes 1.4 x width of one eye. Antennae yellow to yellow-brown (Fig. 157). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown with large dark mark anteriorly and a small mark posteriorly, moderately punctured, punctures on disc and along base darkened. Lateral sides margined, margin not reaching anterior edge. Anterior edge elevated in the middle (Fig. 156).

Elytra: yellow with extensive dark brown maculation, which almost covers posterior 2/3 (Fig. 156). Primary puncture rows moderately strong in first rows, fairly strong in basal part of fourth to sixth row, about 39 punctures in first row. Secondary puncture rows moderately strong, but fairly strong and dense and double in basal part of sutural interval (Fig. 158). All punctures darkened. Completely margined, anteriorly and posteriorly serrate.

Ventral side: yellow to yellow-brown; elytral epipleura yellow, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process narrowed in posterior part, groove on each side, strongly punctured (Figs. 160, 161. Metaventral process with long diverging groove on each side; weakly punctured (Fig. 160). Metacoxal plates moderately punctured. Fifth and sixth sternite with dense irregular puncture row. Last sternite fairly strongly punctured.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia 1/3 x length of tibia; longer apical spur nearly as long as first tarsal segment (Fig. 159).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 162–165).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the strong resemblance with *H. gravidus*.

BIOLOGY: Collected in ponds and in a weedy roadside ditch. The following aquatic and semi aquatic Coleoptera were found in association with *H. gravidoides* in Mexico, Campeche: Dytiscidae: *Bidessus*, *Hydrovatus*, *Laccophilus*, *Neoclypeodytes*, *Thermonectus*, Haliplidae: *Haliplus signatus*, Hydrophilidae: *Berosus*, *Hydrophilus*, *Tropisternus*, Noteridae: *Hydrocanthus*, *Suphis*.

DISTRIBUTION (Fig. 501): Belize, Cuba, Guadeloupe, Mexico (Campeche).

19. *Haliplus gravidus* AUBÉ
Figs. 166–174

Haliplus gravidus AUBÉ 1838: 26; RÉGIMBART, 1889b: 257; ZIMMERMANN 1920b: 308; 1924: 204; GUIGNOT 1948: 97; BLACKWELDER 1944: 72.

Haliplus robustus SHARP 1877: 120; SHARP 1882: 2; 1887: 748; FLEUTIAUX & SALLÉ 1889: 369; RÉGIMBART 1889b: 257; ZIMMERMANN 1920a: 224; 1920b: 308; 1924: 204; CHAPIN 1930: 12; GUIGNOT 1948: 97; BLACKWELDER 1944: 72; PECK 1993: 152. Synonymized by ZIMMERMANN (1920b: 308).

Haliplus brandeni WEHNCKE 1883: 146; BLACKWELDER 1944: 72. Synonymized by VONDEL (2005: 46).

Haliplus obconicus RÉGIMBART 1889a: 381; RÉGIMBART 1889b: 257; CHAPIN 1930: 11; GUIGNOT 1948: 97; BLACKWELDER 1944: 72; VIDAL SARMIENTO & GROSSO 1970: 63; 1971: 150. Synonymized by VONDEL (2005: 46).

Type locality *H. gravidus*: BRAZIL.

Type locality *H. robustus:* ANTIGUA.

Type locality *H. brandeni:* DOMINICAN REPUBLIC.

Type locality *H. obconicus:* BRAZIL, Minas Gerais, Caraça.

Lectotype ♂ (*H. gravidus*) (MNHN), **by present designation**: "gravidus, Chevrolat Aubé, h.in Brasilia, D. Trobert, Ex Musaeo Dejean, Lectotype ♂, designated by B.J. v. Vondel 1993, Haliplus gravidus Aubé 1838, Museum Paris, coll. Wehncke Haliplus gravidus".

Lectotype ♂ (*H. robustus*) (BMNH), **by present designation**: "Antigua, Summer 1872, Purves, Type, Sharp Coll. 1905.-313, Haliplus robustus Sharp, Lectotype ♂ Haliplus robustus Sharp des. Vondel 1992, Haliplus robustus Type D.S.".

Lectotype ♀ (*H. brandeni*) (MNHN), **by present designation**: "Branden, St Domingo [Dominican Republic], Lectotype ♀ designated by B.J.v. Vondel 1993, Haliplus brandeni Wehncke 1883, Muséum Paris coll. Wehncke Haliplus brandeni".

Lectotype ♂ (*H. obconicus*) (MNHN), **by present designation**: "Caraça (Minas Géraez), Brésil, E. Gounelle, 1.2.1885, ♂, Muséum Paris, Coll. Maurice Régimbart 1908, obconicus Régb. Type, TYPE, Muséum Paris coll. Général, Haliplus obconicus, Lectotype ♂ designated by B.J.v. Vondel 1993, Haliplus obconicus Régimbart 1889".

Material studied: ANTIGUA: 2 paralectotypes of *H. robustus* (1 ♂, 1 ♀), same data as lectotype (BMNH); 4 syntypes of *H. robustus*: 2 ♂♂, 1 ♀, "Antigus, Purves, Det. Sharp 2654, Type, det. Sharp 1877 Haliplus robustus Sharp, Type"; 1 ♀, "Antigua, Purves, det. Sharp, 2654, Haliplus robustus Ind. Typ. D.S., det. Sharp Haliplus robustus Sharp". ARGENTINA: 1 ex. Chaco (MACN). BARBADOS: 7 exs., St. Lucy, pond near Chance Hill, 22.XI.1960; 53 exs., Stewarts Hill, St. John, in pool, 12.–23.VIII.1958, 14.–18.VII.1960 and 19.VIII.1960; 3 exs., Stewart Hill, St. Philip, pond, 7.IX.1964 (BMNH). BOLIVIA: 42 exs., Santa Cruz, Charagua, cattle pool with submerged shore vegetation, 30.–31.I.1985 and 2.–6.II.1985, leg. B. Malkin (NHMB). BONAIRE: Onima, watertank, 13.XI.1936, leg. P. Wagenaar Hummelinck; 2 exs., Pos Baca Grandi, 2.IX.1948, leg. P. Wagenaar Hummelinck (ZMAN). BRAZIL: 55 exs., Rio Grande do Norte, Ceará-Mirim, 6.–7.VII.1969, leg. P. & P. Spangler; 1 ex., São Paulo, Piracicaba, blacklight, 13.XII.1965, leg. C.A. Triplehorn; 4 exs., Bahia, 5 km W Ilheus, 4.VII.1969, leg. P. & P. Spangler (USNM); 1 ex., Rio Grande do Sul, Pelotas, XI.1955, leg. C. Biezanko (DEI). COLOMBIA: 12 exs., Magdalena, Sevilla, leg. Darlington (MCZ). COSTA RICA: 56 exs., 7 Mi. NW Liberia, 13.VII.1965, leg. P.J. Spangler; 21 exs., 5 Mi. SW Liberia, 24.VII.1965, leg. P.J. Spangler; 50 exs., 16 Mi. S La Cruz, 13.–25.VII.1965, leg. P.J. Spangler; 1 ex., Puntarenas, 22.VII.1965, leg. P.J. Spangler; 55 ex., Guan Taboga, Agri. Expt. Sta., 27.–28.VI.1967, leg. P.J. Spangler (USNM); 1 ex., Puntarenas Prov., roadside pools 7.9 km SE La Palma, Osa Pension, 08°36,07'N, 83°25,95', alt. 36 m, 18.VI.2003, leg. A.E.A. Short; 1 ex., Guanacaste Prov., Hwy 1, 0.2 km S Sta Rosa NP, in rocky pool, 10°52,62'N, 85°35,38'W, 15.vi.2003, leg. A.E.Z. Short. CURAÇAO: 5 ♂♂, 6 ♀♀, Santa Martha, X.1956, leg. R.H. Cobben (WAU); 1 ex., Tanki di Terra Corá, 2.III.1965, leg. P. Wagenaar Hummelinck (ZMAN). DOMINICAN REPUBLIC: 2 exs., Boca Chica, alt. 10 m, 6.X.1971, leg. J. & S. Klapperich (NHMB); 3 exs., Montecristi Copey, 21.VII.1969, leg. P. & P. Spangler; 4 exs., Distrito Nacional, 4 km N Guerra, large pond, 15.XI.1984, leg. P. & P. Spangler & R.A. Faitoute (USNM); 2 exs., Sánchez, VII.1938, leg. Darlington (CY); 5 exs., 2 km E Cabarete, cattle pool with Chara, alt. 20 m, 14.IV.1991, leg. J.G.M. Cuppen (CC); 1 ♀, Juan Dolio, VII.2005, leg. R. Fencl (NMPC). ECUADOR: 1 ex., Guayaquil, on board of ship, 5.I.1950; 26 exs., Guayaquil, 1940, leg. C.L. Fagon; 2 exs., Guayas, 30 km N Naranjal, 24.XII.1977, leg. J.J. Anderson; 1 exs., Guayas, Olon, blacklight, 29.II.1976, leg. J. Cohen; 209 exs., Guayas, 5.5 km S Nobel, alt. 38 m, 12.I.1978, leg. P.J. Spangler & J. Anderson; 34 exs., Guayas, 14.5 km S Boliche, roadside drainage ditch, 14.I.1978, leg. P.J. Spangler & J. Anderson; 11 exs., Guayas, Playas, at blacklight, 22.–23.II.1976, leg. J. Cohen (USNM); 4 exs., 9 mi S. Santa

Rosa, El Oro, 23.I.1955, leg. E.I. Slinger & E.S. Ross (CAS). ECUADOR: GALAPAGOS ISLANDS: 1 ex., Santa Cruz, Sta. Rosa, alt. 180 m, Tortoise Reserve, Trans forest, UV+ beating, leg. S. Peck; 1 ex., Santa Cruz, CDRS, Pto. Ayora, arid zone, at light, 4–7.III.1992, leg. S. Peck; 1 ex., Santa Cruz, Pto, Ayora, arid zone, 1.–30.V.1992, UV light, leg. Cook & Peck (CUO); 1 ex., Santa Cruz, Tortuga Bay (Pto, Ayora), UV light, 8.V.1992, leg. Cook & Peck (CV). GUATEMALA: 1 ex., Pijije, 8.VII.1965, leg. P.J. Spangler; 1 ex., 15 Mi. W Pijije, 5.VIII.1965, leg. P.J. Spangler; 1 ex., Suchitepéquez, Finca Chocola, alt. 800 m, 11.VI.1966, leg. Flint & Ortiz (USNM). GUYANA: 4 exs., Ogle, 16.–20.VII.1962, leg. J. Maldonado C. (USNM). MARGARITA ISLAND: 1 ex., Laguna Honda, 16.V.1936, leg. P. Wagenaar Hummelinck (ZMAN). MARIE-GALANTE: 5 exs., Mare du Moulin, 1.II.1964, leg. P. Wagenaar Hummelinck (ZMAN). MEXICO: 21 exs., Nayarit, 7 Mi. S Tepic, 26.VII.1963, leg. P.J. Spangler; 3 exs., Vera Cruz, Cuitlahuac, 10.–12.VIII.1964, leg. P.J. Spangler; 1 ex., Oaxaca, Zanatepec, 22.VII.1964, leg. P.J. Spangler (USNM); 1 ♀, Nayarit, Acaponeta, 15.VIII.1960, leg. P.H. Arnaud Jr., E.S. Ross & D.C. Rentz (CAS). PANAMA: 1 ex., Tabernilla, Canal Zone, VII.1917, leg. A. Busck; 1 ex., La Cabima, 17.V.1911, leg. A. Busck; 10 exs., Coclé, 13 km SW Penonome, Rio Coclé Auxiliar, 6.VI.1983, leg. P.J. Spangler, R.A. Faitoute & W.E. Steiner; 6 exs., Tocumen Airport, 7.VII.1967, leg. P.J. Spangler; 1 ♂, Tocumen, 1.–5.VI.1970, leg. B.L.T. Diego Navas; 10 exs., Veraguas, 9 Mi. W Los Algarrobos, pasture pond, 5.VII.1967, leg. P.J. Spangler; 5 exs., Coclé, 5.3 Mi E. Anton, grassy pond, 6.VII.1967, leg. P.J. Spangler (USNM). PARAGUAY: 1 ex., Cordillera, San Bernardino, 22.VI.1969, leg. P.& P. Spangler (USNM). PUERTO RICO: 1 ♀, Caguas, V.1950, leg. R. Jorge; 213 exs., Hwy. 31, km 14 nr Los Torres [?], weedy roadside ditch, 8.I.1963, leg. P.J. Spangler; 1 ex., Baya mon, at light, 26.XII.1932; 42 exs., San Juan Airport, 26.XII.1962 and 2.I.1963, leg. P.J. Spangler; 6 exs. Magueyes, 1.I.1963, leg. P.J. Spangler (USNM). ST. LUCIA: 1 ♂, Fishponds Union Agr. Sta., 28.VII.1963, leg. O.S. Flint; 1 ♂, Gros Islet, 30.VII.1963, leg. Flint & Cadet (USNM). ST. MARTIN: 1 ex., Bloomendale Cistern, 5.XI.1955, leg. P. Wagenaar Hummelinck (ZMAN). SURINAM: 1 ex., Rorac (MCZ). TRINIDAD: 1 ex., Debe, 7.VII.1969, leg. P. & P. Spangler (USNM); 1 ♂, Icacos Swamp, 18.I.1964, leg. P. Wagenaar Hummelinck (ZMAN). VENEZUELA: 1 ex., Aragua, Cata, 20.II.1969, leg. P. & P. Spangler (USNM); 1 ♀, Paraguana, 16.II.1937, leg. P. Wagenaar Hummelinck (ZMAN). COUNTRY?: 2 exs., "M/69/M, barácіy [?]" (ZMUC).

DIAGNOSIS: Elytra with striped maculation, shoulders pronounced. Metaventral process on each side with long groove, in which two impressions may be recognized. *Haliplus gravidoides* may be confused with this species, but has a transverse extended elytral maculation instead of stripes on puncture rows. This species is very variable in shape. Body from subparallel to distinctly tapering apically. Anterior margin of pronotum usually, but not always elevated.

DESCRIPTION: Habitus: body wide, strongly pronounced shoulders, widest before the middle (Fig. 166).

Length of body: 2.8–3.5 mm, width 1.7–2.2 mm.

Head: red-brown to dark brown, clearly and densely punctured. Anterior edge near antenna strongly lifted. Width between eyes about 1.3 x width of one eye. Antennae yellow-brown (Fig. 167). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: red-brown to dark brown, vague dark marks along anterior edge and along base opposite fourth elytral puncture row. Lateral sides margined, about straight. Anterior margin beaded in the middle. Moderately strongly and densely punctured, except in two small areas beside the middle (Fig. 166).

Elytra: dark brown with black stripes on the puncture rows (Fig. 166). Primary puncture rows strong and dense, about 37 punctures in first row, fifth to ninth row impressed in anterior half. Secondary puncture rows strong and dense, in anterior part of first (sutural) and second interval in two irregular rows (Fig. 168). Completely margined, anteriorly clearly serrate, posteriorly weakly serrate.

Ventral side: brown-red to dark brown; elytral epipleura brown-red, reaching to last sternite. Prosternum margined anteriorly. Prosternal process gradually widening anteriorly, grooved on both sides, densely punctured, margined along anterior edge (Figs. 170, 171). Metaventral process anteriorly with on both sides a small deep impression, posteriorly on both sides with a long deep impression, in which two deeper impressions can be recognized (Fig. 170). Metacoxal

plates strongly, towards suture more weakly punctured, sutural apex sharp. Fifth and sixth sternite densely punctured. Last sternite densely punctured.

Legs: red-brown; setiferous striole on dorsal face of hind tibia short; longer apical spur 4/5 x length of first tarsal segment (Fig. 169).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 172–174).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in ponds and pools (with vegetation like Chara or grass), in drainage ditches, in rivers and at light. The following aquatic Coleoptera were found in association with *H. gravidus* in Puerto Rico, in a weedy roadside ditch near Los Torres: Dytiscidae: *Copelatus*, *Laccophilus*, Hydrophilidae: *Enochrus*, *Hydrobiomorpha*. In Panama, Los Algarrobos, it was found in association with: Dytiscidae: *Thermonectus*, Hydrophilidae: *Berosus*, *Hydrophilus*, *Tropisternus*, Noteridae: *Hydrocanthus*. In Panama, Penonome, it was found in association with: Dytiscidae: *Brachyvatus*, Bidessini, *Derovatellus*, *Hydrovatus*, *Laccophilus*, *Megadytes*, *Pachydrus*, *Thermonectus*, Haliplidae: *Haliplus crassus,* Hydrochidae: *Hydrochus*, Hydrophilidae: *Berosus*, *Derallus*, *Helochares*, *Hydrobiomorpha*, *Hydrophilus*, *Tropisternus*, Noteridae: *Hydrocanthus*, *Suphis*, *Suphisellus*. In the Dominican Republic, Guerra, it was found in association with Dytiscidae: *Anodocheilus*, *Derovatellus*, *Laccophilus*, *Thermonectus*, Hydrophilidae: *Enochrus*, *Tropisternus lateralis*, *T. collaris*, Hydrochidae: *Hydrochus*, Noteridae: *Hydrocanthus*, *Notomicrus sharpi*.

DISTRIBUTION (Fig. 496): Antigua, Argentina, Barbados, Bolivia, Bonaire, Brazil, Colombia, Costa Rica, Curaçao, Dominican Republic, Ecuador, Galapagos Islands, Guatemala, Guyana, Margarita Island, Marie-Galante, Mexico, Panama, Paraguay, Puerto Rico, Saint-Martin, St. Lucia, Surinam, Trinidad, Venezuela.

20. *Haliplus havaniensis* WEHNCKE
Figs. 175–184

Haliplus havaniensis WEHNCKE 1880: 74; ZIMMERMANN 1920b: 309; 1924: 201; BLACKWELDER 1944: 72; SPANGLER 1981a: 167.

Type locality: CUBA.

Lectotype ♀ (MNHN), **by present designation**: "Riedel, Cuba, Lectotype ♀ designated by B.J. v. Vondel 1993, Haliplus havaniensis Wehncke 1880, Muséum Paris, coll. Wehncke Haliplus havaniensis".

Material studied: BAHAMAS: 15 ex., Andros, Andros Town, 1.–13.III.1966, leg. O.L. Cartwright (USNM); 4 ♂♂, 2 ♀♀, Nassau, New Providence, 13.IV.1953, leg. E.B. Hayden; 4 ♂♂, 3 ♀♀, Berry Islands, Fraziers Hog, 30.IV.1953, leg. E.B. Hayden (CY). CUBA: 1 ♀, Ciudad de Habana, Santiago de las Vegas, 6.VI.1960, leg. M. Barro; 1 ♂, 1 ♀, Santiago de Cuba, Vista Alegre[?], at light, 20.VI.1946 and 15.V.1947, leg. C.T. Ramsden (IZAC); 1 ♀, Pinar del Rio, 16–29.V.1933, leg. H.J. MacGillavry (ZMAN); 4 ♂♂, 1 ♀, Matanzas, Cienaga Zapata, at Playa Larga, 11.–12.II.1981, leg. P.J. Spangler & A. Vega; 1 ♀, Sancti Spritus, Sierra Escambray Gavina, 13.II.1981, leg. P.J. Spangler & A. Vega (USNM). DOMINICAN REPUBLIC: 197 exs., Montecristi Copey, 21.VII.1969, leg. P. & P. Spangler (USNM); 2 ♂♂, 1 ♀, 2 km E. Cabarete, cattle pool with Chara, 14.IV.1991, leg. J. Cuppen (CC). MEXICO: 1 ♂, 4 ♀♀, Chiapas, PN Lagumas de Montebello, 10.VIII.1989, leg. Fresneda (CF); 8 exs., Chiapas, San Cristóbal de las Casas, 16°42'44"N, 92°36'59"W, 2136 m a.s.l.29.X.2007, leg. M. Brojer "(7b)" (CB, CV, NMW); 1 ex., same data, but "(7e)" (NMW). USA: FLORIDA: 2 exs., Homestead, VI.1929, leg. Darlington; 3 exs., Monroe County, Vaca Key, brackish pool, 22.VIII.1949, leg. J.S. Haeger & F.N. Young; 2 exs., Old Town, 7.II.1939, leg. R.H. Beamer; 8 exs., Monroe County, Lower Matecumbe Key, brackish pools, 12.VIII.1941, leg. F.N. Young; 1 ♂, Dade County, Miami, 26.VI.1939, leg. F.N. Young (CY).

DIAGNOSIS: Body oval and fairly short (length more than 1.7 x width). Pronotum and elytra maculate. Metaventral process with round pit on each side, sometimes followed by a row of

punctures or even a weak groove. May be confused with *H. cubensis,* which is shorter (length less than 1.5 x width).Comparison of the male genitalia, especially the tip of the aedeagus, are sometimes necessary for a reliable determination.

DESCRIPTION: Habitus: body wide oval, widest before the middle (Fig. 175).

Length of body: 2.8–3.1 mm, width 1.7–1.9 mm.

Head: brown-red, densely, on vertex sparser punctured. Width between eyes 1.5–1.6 x width of one eye. Antennae yellow (Fig. 176). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow-red, anterior central part slightly darkened, along base and opposite fifth elytral puncture rows darkened. Lateral sides margined, about straight (Fig. 175).

Elytra: red-brown with extended brown maculation (Fig. 175). Primary puncture rows moderately strong, about 32 punctures in first row. Secondary puncture rows moderately strong, along suture nearly as strong as primary punctures (Fig. 177), all punctures darkened. Completely margined, anteriorly serrate, posteriorly smooth or very slightly serrate.

Ventral side: brown-red to brown, darkened towards coxae; elytral epipleura red-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process nearly parallel-sided, slightly wider anteriorly, grooved on both sides, sparsely, in grooves strongly punctured (Figs. 179, 180). Metaventral process with strong pit on each side, posteriorly followed by a diverging row of strong punctures, otherwise weakly punctured (Fig. 179). Metacoxal plates strongly, towards suture slightly more weakly punctured, reaching to end of fifth sternite. Fifth and sixth sternite with complete row of punctures. Last sternite strongly punctured in apical half.

Legs: red-brown; setiferous striole on dorsal face of hind tibia about 1/3 x length of tibia, consisting of about five sparse punctures; longer apical spur 4/5 x length of first tarsal segment (Fig. 178).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 181–184).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a cattle pool with Characeans, in brackish pools and at light.

DISTRIBUTION (Fig. 502): Bahamas, Cuba, Dominican Republic, Mexico, USA (Florida).

21. *Haliplus heppneri* sp.n.
Figs. 185–193

Type locality: PERU: Madre de Dios, Rio Tambopata Res., 30 km southwest of Pto. Maldonado.

Holotype ♂ (USNM): "Peru, Madre de Dios, Rio Tambopata Res., 30 air km SW Pto. Maldonado, 290 m., 16–20.XI.1979, J.B. Heppner, subtropical moist forest". **Paratypes**: 7 ♂♂, 16 ♀♀, same data as holotype (NMW, USNM).

DIAGNOSIS: Small. Elytra with isolated marks, suture not darkened. Metaventral process with four round pits.

DESCRIPTION: Habitus: body short oval, slightly tapering, widest just before the middle (Fig. 185).

Length of body: 2.4–2.5 mm, width 1.4–1.5 mm.

Head: yellow-brown, moderately punctured. Width between eyes 0.9 x width of one eye. Antennae yellow to yellow-brown (Fig. 186). Palpi yellow to yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, small central dark mark anteriorly and posteriorly, moderately but along base slightly stronger punctured. Lateral sides not clearly margined, punctures can give the impression of a margin (Fig. 185).

Elytra: yellow-brown to red-brown, separate small marks on intervals, suture only weakly darkened (Fig. 185). Primary puncture rows fairly strong, lateral rows not impressed, about 23 punctures in first row. Secondary puncture rows fairly strong and dense, sutural row more or less double (Fig. 187). All punctures darkened. Completely margined, anteriorly weakly serrate, posteriorly smooth to very weakly serrate.

Ventral side: red-brown, slightly darkened towards coxae; elytral epipleura yellow-brown, reaching to six sternite. Prosternum margined anteriorly. Prosternal process narrowed posteriorly, with two longitudinal strongly punctured grooves; moderately punctured (Figs. 189, 190). Metaventral process with two nearly circular impressions on each side which are connected by a weaker impression; moderately punctured (Fig. 189). Metacoxal plates strongly, near suture weakly punctured. Fifth and sixth sternite with single puncture row. Last sternite sparsely punctured in apical part.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia about 1/7 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 188).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 191–193).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the collector of the holotype.

BIOLOGY: Collected in subtropical moist forest.

DISTRIBUTION (Fig. 197): Peru.

22. *Haliplus immaculicollis* HARRIS
Figs. 194–201

Haliplus immaculicollis HARRIS 1828: 164; ZIMMERMANN 1920b: 309; 1924: 73.
Haliplus ruficollis sensu MATHESON 1912: 169 (nec DEGEER, 1774).

Type locality: North America.

Type material: Not located.

Material studied: MEXICO: 4 exs., Tamaulipas, Cuevadel Abra, 10 mi. S. Ciudad Monte on P.A. Hwy, 12.XI.1963, leg. J.R. Reddell (USNM). USA and CANADA: Not further specified material from many states.

This species was described from the Nearctic fauna and will be fully treated in the revision of the Nearctic Haliplidae (in prep.).

DIAGNOSIS: Small species (length 2.5–2.9 mm). Pronotum with basal plicae. Prosternal process impressed posteriorly.

BIOLOGY: Nearctic specimens are collected in lakes, ponds and rivers.

DISTRIBUTION (Fig. 501): Mexico, USA, Canada.

23. *Haliplus indistinctus* ZIMMERMANN
Figs. 202–210

Haliplus indistinctus ZIMMERMANN 1928: 165; BLACKWELDER 1944: 72.
Haliplus obconicus sensu VIDAL SARMIENTO & GROSSO 1970: 63 (nec RÉGIMBART, 1889a).

Type locality: PARAGUAY.

Holotype ♂ (ZSMC): "Paraguay, Type, Samml. A. Zimmermann, Holotype ♂ Haliplus indistinctus Zimmermann" [examined].

Material studied: ARGENTINA: 1 ex., Tucuman, 20 km S Tucuman, 23.V.1969, leg. P. & P. Spangler; 1 ex., Tucuman, 15 km W Tucuman, 22.V.1969, leg. P. & P. Spangler; 1 ex., Buenos Aires, Tigre, 17.II.1968, leg. O.S. Flint Jr (USNM); 1 ♂, 1 ♀, Salta, Tartagal, temporary water, 12–19.XII.1990, leg. M. Archangelsky (CA); 1 ex., Argentina, leg A. Breyer; 3 exs., Chaco, San Bernardo, 5.VIII.1978, leg. Osvaldo; 1 ex., Buenos Aires, Parque Pereyra, XII.1959, leg. A.O. Bachmann; 1 ex., Buenos Aires, 1.XII.1957, leg. A.O. Bachmann; 2 exs., Entre Rios, Concordia, 8.VI.1958; 2 exs., Formosa, Ing. Juarez, 6.–10.III.1960; 1 ex., Santiago del Estero, 14.VI.1962, leg. McKinlay; 3 exs. Salta, Tartagal, 9.III.1961, leg. Bachmann; 1 ex., Salta, Santa Victoria E., 19.VI.1961; 2 exs., Entre Rios, Gualeguay, II.1952; 20 exs., Chaco, S. Bernardo, 9.VIII.1978; 8 exs., Cjaco. BOLIVIA: 10 exs., Santa Cruz, Charagua, cattle pool with submerged shore vegetation, 30.–31.I. and 2.–6.II.1985, leg. B. Malkin (NHMB); 13 exs., Santa Cruz, Ayacucho, 13.–14.V.1969, leg. P. & P. Spangler; 9 exs., Santa Cruz, Santa Cruz, 11.–12.V.1969, leg. P. & P. Spangler (USNM); 1 ♀, San Antonio de Parapeti, Rio Parapeti, Santa Cruz, 15.–19.VII.1964, leg. B. Malkin (CY). BRAZIL: 7 exs., Rio Grande do Norte, Ceará-Mirim, 6.–7.VII.1969, leg. P. & P. Spangler (USNM); 1 ♀, Rio Grande do Sul, Pelotas, 7.X.1956, leg. C. Biezanko (DEI). CHILE: 1 ♂, Concepcion, San Luis, 26.I.1992 (NMW). PARAGUAY: 1 ex., Alto Paraguay, Madrejon, 15.V.1995, leg. Drechsel; 1 ♀, Canendiyu, Lagunita, 10.X.1991, leg. Drechsel; 6 exs., Presidente Hayes, Est. Vaca Reta[?], 7.II.1996, leg. Drechsel; 15 exs., Asuncion, 2.II.1990, 29.IX.1990, 5.–13.X.1990, 3.–5.X.1991 and 28.XII.1991; 1 ex., Misiones, Ayolas, 17.IV.1991, leg. U. Drechsel; 2 exs., Misiones, Yasi-Cañy, 13.V.1991, leg. U. Drechsel (CV); 24 exs., Canendiyu, 6 km E Chupa Pou, Chupa Pou, 11 km S Igatini, natural pond with permanent aquatic vegetation, 21.–22.XI.1994, leg. B. Malkin; 5 exs., Puerto Olimpo, clear pond, 23.–27.IX.1983, leg, B. Malkin (NHMB); 6 exs., Central, 2 km N Luque, 23.–24.VI.1969, leg. P. & P. Spangler; 8 exs., Cordillera, San Bernardino, 22.VI.1969, leg. P. & P. Spangler; 1 ex., Asuncion, Swim pool, 30.VIII.1980, leg. D.C. Lowrie; 5 exs., Paraguari, 25 km SE Ybycui in Ybycui National Park, 12.–24.IV.1980, leg. P.J. Spangler et al. (USNM); 1 ♂, Itapúa, Hohenau, 5.X.1937, leg. Jacob (DEI); 1 ex., Hohenau, Alto Parana [most likely: Itapúa], leg. H. Jacob (BMNH); 1 ♀, Central, Fernando de la Mora, II.1992, leg. B. Garcete (MEL). TRINIDAD: 2 exs., Debe, 17.VII.1969, leg. P. & P. Spangler (USNM). VENEZUELA: 12 exs., Guárico, 32 km SW Calabozo, 11.II.1969, leg. P. & P. Spangler; 1 ex., Guárico, 8 km N Corozo Pando, black light, 11.–21.VI.1984, leg. F.W. Eiland & V. Linares (USNM); 7 exs., Portuguesa, Est. Exp. San Nicolas, 56 km from Guanare, alt. 180 m, light trap, 11.–12.V.1975; 1 ex., Cojedes, Galeras del Pao, 26.VI.1963, leg. C.J. Rosales & A. Perez; 1 ex., Aragua, El Limon, alt. 450 m, 3.V.1982, leg. B. Bechyne; 1 ex., Guarico, Hato Las Lajas, 15.VIII.1964, leg. C.J. Rosales & A.D. Ascoli (MBUC); 18 exs., Edo, Guarico, Galabozo, Est. Biologica, 23.VI.1963, leg. C. Bordon (CY).

DIAGNOSIS: Body oval, elytral maculation fairly weak and not connected to sutural darkening.

DESCRIPTION: Habitus: body oval, widest in the middle (Fig. 202).

Length of body: 2.8–3.6 mm, width 1.5–2.0 mm.

Head: red-brown, weakly punctured. Width between eyes 1.2 x width of one eye. Antennae yellow (Fig. 203). Palpi yellow. Genal lines behind eyes double.

Pronotum: red-brown, vague mark along anterior margin and vague marks opposite third elytral puncture rows. Moderately strongly punctured, base slightly impressed. Lateral sides slightly convex, margined (Fig. 202).

Elytra: red-brown with vague marks on even intervals, on parts of puncture rows and along suture (Fig. 202). Primary puncture rows moderately strong and dense, about 32 punctures in first row, base of fifth row slightly impressed, fifth to ninth row with strong punctures in anterior part. Secondary puncture rows moderately strong, along suture in two rows in anterior half (Fig. 204). Completely margined, anteriorly weakly serrate, posteriorly weakly serrate.

Ventral side: red-brown to brown; elytral epipleura red-brown, strongly punctured in anterior part and vaguely punctured in posterior part, just reaching to sixth sternite. Prosternum margined anteriorly, hardly punctured. Prosternal process nearly parallel, strong grooves on both sides, moderately strongly punctured (Figs. 206, 207). Metaventral process with on both sides two well defined, but slightly confluent impressions; weakly punctured (Fig. 206). Metacoxal plates not

reaching fifth sternite, moderately strongly, near suture weakly punctured. Fifth and sixth sternite weakly punctured. Last sternite weakly, on apex more strongly punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia consisting of a few punctures; longer apical spur 4/5 x length of first tarsal segment (Fig. 205).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 208–210).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in temporary and permanent pools and at light.

DISTRIBUTION (Fig. 498): Argentina, Bolivia, Brazil, Chile, Paraguay, Trinidad, Venezuela.

24. *Haliplus langleyi* sp.n.
Figs. 211–220

Type locality: ECUADOR: Napo, two km north of Lago Agrio.

Holotype ♂ (USNM): "Ecuador, Napo. Lago Agrio (2 km N), 27 aug. 1975, Andrea Langley, Ecuador Peace Corps Smithsonian Institution Aquatic Insects Survey". **Paratypes**: BRAZIL: 1 ♂, 1 ♀, "Brazil, S.P. Piracicaba, X.7.1965, blacklitetrap, C.A. Triplehorn" (USNM); 4 ♀♀, "Brazil, Sao Paulo, Piracicaba, blacklight, 13.XI.1965, Coll. C.A. Triplehorn" (CA). ECUADOR: 11 ♂♂, 4 ♀♀, same data as holotype; 2 ♂♂, 1 ♀, "Ecuador, Napo, Lago Agrio (3km SW), 25 Aug. 1975, at blacklights, Langley & Cohon, Ecuador Peace Corps Smithsonian Institution Aquatic Insects Survey" (NMW, USNM).

DIAGNOSIS: Body oval. Elytral secondary punctures very dense in more than one row. Grooves on prosternal process posteriorly ending in a pit.

DESCRIPTION: Habitus: body oval (Fig. 211).

Length of body: 3.3–3.6 mm, width 1.9–2.1 mm.

Head: yellow-brown, vertex slightly darker, weakly but fairly sparsely, on vertex stronger punctured. Width between eyes 1.2 x width of one eye. Antennae yellow-brown (Fig. 212). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, vague brown mark anteriorly and in middle of base, moderately punctured, punctures in the middle darkened. Lateral sides concave, margined (Fig. 211).

Elytra: yellow-brown with dark marks which are on the disc connected to the weaker darkened suture (Fig. 211). Primary puncture rows moderately strong, about 32 punctures in first row. Secondary puncture rows weak but very dense and in basal half in two or three irregular rows (Fig. 213). All punctures darkened. Completely margined, anteriorly weakly serrate, posteriorly serrate.

Ventral side: yellow to yellow-brown; elytral epipleura yellow to yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process nearly parallel, weakly narrowed near coxae, with two grooves which are deepest in posterior part, weakly punctured (Figs. 215, 216). Metaventral process with two pits in a common impression on each side; weakly or not punctured (Fig. 215). Metacoxal plates moderately punctured. Fifth and sixth sternite with irregular puncture row. Last sternite weakly punctured in apical part.

Legs: yellow to yellow-brown on knees and coxae; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur 3/4 x length of first tarsal segment (Fig. 214).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 217–220).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the collector of the holotype.

BIOLOGY: Collected at blacklight.

DISTRIBUTION (Fig. 497): Brazil, Ecuador.

25. *Haliplus lewisii* CROTCH
Figs. 221–230

Haliplus lewisii CROTCH 1873: 384; MATHESON 1912: 166; ROBERTS 1913: 108; ZIMMERMANN 1920b: 310; 1924: 144.

Type locality: USA: Texas.

Lectotype ♀ (MCZC), **by present designation**: "Lewisii, Texas, Type, Haliplus pantherinus Aubé, Lectotype ♀ designated by B.J. v. Vondel 1993".

Material studied: MEXICO: 2 ♀♀, Tamaulipas, 25 Mi. S Matamoros, 29.VIII.1965, leg. P.J. Spangler (USNM). USA: not further specified material from Texas.

This species was described from the Nearctic fauna and will be fully treated in the revision of the Nearctic Haliplidae (in prep.).

DIAGNOSIS: Relatively small species (length 2.5 mm) with variable elytral maculation. Prosternal process parallel, anterior margin weakly concave when seen from the front. Resembles *H. elsaltous* sp.n., which, however, has the anterior margin of the prosternal process strongly concave.

BIOLOGY: Collected in ponds and swamps.

DISTRIBUTION (Fig. 501): Mexico (Tamaulipas), USA (Texas).

26. *Haliplus maculicollis* ZIMMERMANN
Figs. 231–239

Haliplus maculicollis ZIMMERMANN 1924: 205; BLACKWELDER 1944: 72.

Type locality: ARGENTINA: Santiago del Estero, Rio Salado.

Lectotype ♂ (ZSMC), **by present designation**: "Republique ARG^{NA}, Chaco de Santiago del Estero, Rio Salado [not in dep. Chaco !], LECTOTYPE ♂ Haliplus maculicollis Zimmermann des. Vondel 1992".

Material studied: ARGENTINA: 1 ♂ paralectotype, same data as lectotype (ZSMC); 1 ♂ paralectotype, same data as lectotype, completed by: "Collection Peschet, Museum Paris 1945, coll. R. Peschet, COTYPE, Haliplus maculicollis Type, PARALECTOTYPE ♂, Haliplus maculicollis Zimmermann des. Vondel 1992, Muséum Paris, coll. géneral, Haliplus maculicollis" (MNHN); 1 ex., Salta, General Ballivián, VIII.1927, leg. G.L. Harrington; 6 exs., Santiago del Estero, Cap. Aeropuerto, 4.II.1961, leg. Kohler (USNM); 1 ex., Buenos Aires, 19.II.1955, leg. Bachmann; 2 exs., Formosa, Ing. Juarez, 6.III.1960 (MACN). URUGUAY: 1 ex., Colonia, Playa Arenisca, 11.IV.1976, leg. G.J. Wibmer & Z. Assandri (CW); 1 ex., Beltrán, Santiago del Estero, 28.–29.III.1892, leg. L.E. Peña G. (ZMHB).

DIAGNOSIS: Characterized by the basally grooved third to seventh elytral puncture rows. Most parts of elytral puncture rows with dark stripe. Metaventral process very wide.

DESCRIPTION: Habitus: body oval, widest in the middle, shoulders slightly pronounced (Fig. 231).

Length of body: 3.2–3.5 mm, width 1.9–2.1 mm.

Head: yellow, weakly punctured. Width between eyes 1.3 x width of one eye. Antennae yellow (Fig. 232). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow, anterior margin with narrow transverse mark in which darkened punctures, weakly punctured. Lateral sides slightly convex anteriorly, margined (Fig. 231).

Elytra: yellow with narrow dark stripes on puncture rows, dark stripes interrupted in basal part of first four rows and in the middle of fifth to ninth row (Fig. 231). Primary puncture rows moderately strong anteriorly to weak posteriorly, except near shoulders darkened, about 35 punctures in first row, third to seventh row clearly to strongly impressed in basal 1/3. Secondary puncture rows weak to hardly visible, along anterior part of suture in two irregular rows (Fig. 233), not darkened. Completely margined, anteriorly and posteriorly weakly serrate.

Ventral side: yellow to yellow-red; elytral epipleura yellow, with strong uncoloured punctures in anterior part, just reaching to sixth sternite. Prosternum margined anteriorly, hardly punctured. Prosternal process parallel, grooved on both sides, weakly punctured (Figs. 235, 236). Metaventral process strongly diverging posteriorly; on both sides with two almost confluent impressions, which are weakly continued to anterior margin; weakly and between impressions hardly punctured (Fig. 235). Metacoxal plates not reaching fifth sternite, relatively weakly punctured. Fifth and sixth sternite with single weak puncture row. Last sternite punctured on apical part.

Legs: yellow with darkened coxae; setiferous striole on dorsal face of hind tibia 1/3 x length of tibia; longer apical spur 3/4–4/5 x length of first tarsal segment (Fig. 234).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 237–239).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a river.

DISTRIBUTION (Fig. 497): Argentina, Uruguay.

27. *Haliplus megapunctatus* sp.n.
Figs. 240–249

Type locality: BRAZIL: Minas Gerais, Lagoa Santa.

Holotype ♂ (ZMUC): "Lagoa Santa, Warwing [leg.?], 66 St.S.". **Paratypes**: 1 ♂, 3 ♀♀, same data as holotype (ZMUC).

DIAGNOSIS: Body very wide. Elytral puncture row in anterior part extremely strong. Metaventral process very wide.

DESCRIPTION: Habitus: body oval, strongly tapering backwards, widest before the middle (Fig. 240).

Length of body: 3.7 mm, width 2.4 mm.

Head: brown, fairly densely punctured. Width between eyes 1.1 x width of one eye. Antennae yellow-brown (Fig. 241). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: brown, vaguely darkened in the middle, moderately punctured, weakly impressed along base. Lateral sides straight to weakly convex, margined (Fig. 240).

Elytra: yellow-brown to red-brown, suture vaguely darkened and small vague marks on even intervals (Fig. 240). Primary puncture rows weak in posterior 2/3 but strong to extremely strong in basal 1/3, fifth to seventh row basally in a strong impression, about 28 punctures in first row. Secondary puncture rows weak but dense, double in basal part (Fig. 242). Punctures in posterior part darkened, in anterior part not or hardly darkened. Completely margined, anteriorly smooth, posteriorly serrate with sharp dense teeth.

Ventral side: yellow-brown to dark brown; elytral epipleura yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process narrowed near coxae, with two longitudinal grooves, sparsely punctured (Figs. 244, 245). Metaventral process very wide, with long punctured diverging groove on each side (Fig. 244). Metacoxal plates moderately punctured. Fifth and sixth sternite with irregular puncture row. Last sternite densely punctured.

Legs: yellow-brown to red-brown; setiferous striole on dorsal face of hind tibia very long, about 1/2 x length of tibia; longer apical spur 4/5 x length of first tarsal segment (Fig. 243).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 246–249).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the very strong punctures on elytral anterior part.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 498): Brazil.

28. *Haliplus mesoamericanus* sp.n.
Figs. 250–259

Type locality: MEXICO: Oaxaca, Tapanatepec.

Holotype ♂ (USNM): "Mexico, Oax. Tapanatepec, VIII.23.1965, P.J. Spangler". **Paratypes**: COSTA RICA: 1 ex., "Costa Rica, 5 Mi. SW Liberia, VII.24.1965, Paul J. Spangler"; 11 ex., "Costa Rica, 7 Mi. NW Liberia, VII.24.1965, Paul J. Spangler"; 6 ex., "Costa Rica, 10 Mi. NW Liberia, VII.24.1965, Paul J. Spangler" [total of preceding 3 localities: 8 ♂♂, 10 ♀♀] (USNM). EL SALVADOR: 1 ♀, "El Salvador, Zacatecoluca, VIII.1.1965, P.J. Spangler"; 1 ♀, "El Salvador, Metalio, VIII.4.1965, P.J. Spangler"; 2 ♂♂, 3 ♀♀, "El Salvador, 19 Mi. W. Acajutta, VII.8.1965, Paul J. Spangler"; 1 ♂, "El Salvador, Chalcuapa Santa Ana, July 28, 1957, David Lanch, small roadside pond"; 2 ♀♀, "El Salvador, La Union, San Miguel, VII.24.1957, David Lanch"; 4 ♀♀, "El Salvador, km 40 nr. Colima, 30 Jun. 1966, Flint & Ortiz" (USNM). GUATEMALA: 4 ♀♀,"Guatemala, Pijije, VII.8.1965, P.J. Spangler" (USNM). HONDURAS: 1 ♀♀, "Honduras, Nacaome, 17.4 km W Jicaro Galan, Jct. Hwy CA1, 100 mts, 02 June 1973, Erwin & Hevel Central American Expedition 1973"; 1 ♀, "Honduras, 10 Mi. W Choluteca, VII.29.1965, Paul J. Spangler"; 1 ♂, "Honduras, Jicara Galan Jct., 5 Mi. W., VII.9.65, Paul J. Spangler" (USNM). MEXICO: 1 ♂, 1 ♀, "Mexico, Sinaloa, Mazatlan, VII.17–23.1963, P.J. Spangler, Haliplus crassus Chapin det. P.J. Spangler"; 1 ♂, "Mexico, Nayarit, San Blas, VII.26.1963, P.J. Spangler"; 1 ♂, 1 ♀, "Mexico, Sinaloa, 7 Mi. N Rosario, VII.24.1963, P.J. Spangler"; 66 ♂♂, 72 ♀♀, "Mexico, Sinaloa, Mazatlan, VII.17–23.1963, P.J. Spangler"; 22 ♂♂, 14 ♀♀, "Mexico, Chis, 5 Mi. NW Huixtla, VIII.22.1965, P.J. Spangler"; 10 ♂♂, 7 ♀♀, same data as holotype (USNM); 1 ♀, "MEX., Sinaloa, Mazatlan, 14.VIII.1960, near beach, P.H. Arnaud Jr., E.S. Ross, D.C. Rentz" (CAS). NICARAGUA: 34 ♂♂, 15 ♀♀, "Nicaragua, 13 Mi. N. Sn. Benito, VII.11.1965, Paul J. Spangler" NMW, USNM); 1 ♂, 8 ♀♀, "Nicaragua, 10 Mi. N. Rivas, VII.11.1965, P.J. Spangler" (USNM); 1 ♂, "Nicaragua, 22 Mi. S. Rivas, VII.26.1965, P.J. Spangler" (USNM). PANAMA: 1 ♀, "Panama, Tocumen Airport, 7.VII.1967, P.J. Spangler" (USNM). TRINIDAD: 1 ♀, "Trinidad, Debe, VII.17.1969, P. & P. Spangler" (USNM).

DIAGNOSIS: Prosternum and elytra with basal impression. Pronotum with central dark mark from anterior to posterior edge.

DESCRIPTION: Habitus: body oval, widest just behind the shoulders (Fig. 250).

Length of body: 3.3–4.0 mm, width 2.0–2.3 mm.

Head: red-brown, moderately punctured. Width between eyes 1.0 x width of one eye. Antennae yellow to yellow-brown (Fig. 251). Palpi yellow to yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-red, wide central mark from anterior to posterior edge with less dark midline in posterior half. Moderately, along base stronger punctured, distinct basal impression opposite fifth elytral row. Impressed in posterior corner. Lateral sides straight, not margined (Fig. 250).

Elytra: yellow-brown with extensive dark maculation (Fig. 250). Primary puncture rows moderately strong to fairly strong in basal part of fourth to sixth row, about 40 punctures in first row, fifth row basally impressed. Secondary puncture rows fairly strong, irregular double row in base of sutural interval (Fig. 252). Punctures outside maculation not darkened. Completely margined, anteriorly serrate, posteriorly serrate with fine sharp teeth.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process parallel, slightly narrowed near coxae, two grooves which are deepest in posterior part, strongly punctured (Figs. 254, 255). Metaventral process with diverging groove on each side in which some strong punctures are recognizable; grooves weakly extended forward; lateral ridges strongly punctured (Fig. 254). Metacoxal plates densely and fairly strongly punctured. Fifth and sixth sternite with complete puncture row. Last sternite fairly strongly punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur about as long as first tarsal segment (Fig. 253).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 256–259).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the fact that this species is widespread in Middle America.

BIOLOGY: Collected in a roadside pond.

DISTRIBUTION (Fig. 502): Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Trinidad.

29. *Haliplus mexicanus* sp.n.

Figs. 260–269

Type locality: MEXICO: Chiapas, five miles northwest of Huixtla.

Holotype ♂ (USNM): "MEXICO, Chis., 5 Mi. NW Huixtla, VIII-22-1965, P.J. Spangler". **Paratypes**: 1 ♂, 2 ♀♀, same data as holotype (CV, USNM).

DIAGNOSIS: Large oval species. Pronotum with large central mark from anterior to posterior edge. Prosternal and metaventral process very wide.

DESCRIPTION: Habitus: body oval, widest in the middle (Fig. 260).

Length of body: 4.0–4.1 mm, width 2.3–2.4 mm.

Head: yellow-brown to red-brown, moderately punctured. Width between eyes 0.9 x width of one eye. Antennae yellow-brown to brown (Fig. 261). Palpi yellow-brown to brown. Genal lines behind eyes double.

Pronotum: yellow-brown, wide central dark mark from anterior to posterior edge. Moderately punctured. Lateral sides slightly convex, only margined near posterior corner (Fig. 260).

Elytra: yellow-brown with extensive dark brown maculation (Fig. 260). Primary puncture rows moderately strong in basal 1/3 but weak in posterior 2/3, about 30 punctures in first row, fifth to seventh row impressed in basal part (Fig. 262). Secondary puncture rows moderately strong, in basal part of first intervals irregular double and in sutural row coarse, in posterior half nearly as strong as primary punctures. Completely margined, anteriorly smooth, posteriorly serrate with sharp teeth.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process wide, parallel, slightly narrowed in anterior half, two longitudinal grooves, strongly punctured especial on lateral ridges (Figs. 264, 265). Metaventral process very wide; strongly punctured diverging groove on each side; strongly punctured (Fig. 264). Metacoxal plates fairly weakly and towards suture sparsely punctured. Fifth and sixth sternite with dense irregular puncture row. Last sternite moderately punctured.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 263).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 266–269).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the country in which the types are found.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 501): Mexico.

30. *Haliplus minimus* sp.n.
Figs. 270–278

Type locality: ECUADOR: Guayas, 14.5 km south of Boliche.

Holotype ♂ (USNM): "Ecuador, Guayas, Boliche (14,5 km S), 14 jan. 1978, P.J. Spangler & J. Anderson, collected in roadside drainage ditch". **Paratypes**: 2 ♂♂, 7 ♀♀, same data as holotype (CV, NMW, USNM); 1 ♀, "Ecuador, Guayas, Naranjal (30 km N.), 24 December 1977, Jos. J. Anderson, Ecuador Peace Corps Smithsonian Institution Aquatic Insect Survey" (USNM).

DIAGNOSIS: Small oval species. Elytral punctures strong in anterior half. Metaventral process with long diverging row of strong punctures on each side.

DESCRIPTION: Habitus: body oval, widest in the middle, side of pronotum making an angle to the shoulder of the elytra (Fig. 270).

Length of body: 2.2–2.5 mm, width 1.3–1.5 mm.

Head: yellow-brown to brown, weakly and sparsely punctured. Width between eyes 1.4 x width of one eye. Antennae yellow to yellow-brown (Fig. 271). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, longitudinal dark mark, which is narrow in posterior half and wider anteriorly. Weakly and fairly sparsely punctured. Slightly impressed along base. Lateral sides only weakly diverging anteriorly, convex, only margined in posterior half (Fig. 270).

Elytra: yellow-brown with dark marks on even intervals and along suture, discal marks connected (Fig. 270). Primary puncture rows strong in anterior half and weak in posterior half, about 25 punctures in first row. Secondary puncture rows weak, but fairly strong along basal part of suture (Fig. 272). Completely margined, anteriorly very weakly serrate, posteriorly smooth.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to fifth sternite. Prosternum margined anteriorly. Prosternal process parallel, two grooves with sparse row of strong punctures in it, weakly punctured (Figs. 274, 275). Metaventral process with diverging impressed row of strong punctures on each side; weakly punctured (Fig. 274). Metacoxal plates strongly but sparsely, towards suture more weakly punctured. Fifth and sixth sternite with sparse puncture row. Last sternite weakly punctured in apical part.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia 1/8 x length of tibia; longer apical spur 4/5 x length of first tarsal segment (Fig. 273).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 276–278).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the relatively small size.

BIOLOGY: Collected in roadside drainage ditch.

DISTRIBUTION (Fig. 498): Ecuador.

31. *Haliplus nanus* GUIGNOT
Figs. 279–284

Haliplus nanus GUIGNOT 1936: 115; BLACKWELDER 1944: 72; SPANGLER 1981a: 167.

Type locality: CUBA: Habana, Marianao.

Holotype ♀ (MNHN): "Pl. Marianao, Cuba, Prov. Hab., A. Bierig, 8.1928, ♀, Type, Haliplus nanus Guignot, Holotype ♀ Haliplus nanus Guignot 1936, Muséum Paris coll. Guignot, Haliplus nanus" [examined].

Material studied: CUBA: 1 paratype ♀, same data as holotype (MNHN).

DIAGNOSIS: Very small body.

DESCRIPTION: Habitus: body small, short oval, widest in the middle (Fig. 279).

Length of body: 2.2–2.4 mm, width 1.3–1.4 mm.

Head: yellow-brown, sparsely punctured. Width between eyes 1.7–1.9 x width of one eye. Antennae yellow (Fig. 280). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow-brown with large vague darkening along anterior and posterior margin which meet in the middle. Lateral sides straight to slightly concave in posterior half and slightly convex in anterior half, margin hardly recognizable due to strong punctures giving anterior part a serrate character. Moderately strongly punctured, along base a row of stronger punctures (Fig. 279).

Elytra: yellow-brown with a very extended dark maculation (Fig. 279). Primary puncture rows moderately strong, about 23–25 punctures in first row. Secondary puncture rows relatively strong and not dense, sutural row sparse and in one single row in basal area (Fig. 281). All punctures darkened. Completely margined, anteriorly serrate, posteriorly smooth.

Ventral side: brown-red to brown; elytral epipleura yellow-red, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process nearly parallel or gradually widening anteriorly, slightly narrowed in posterior part, grooved on both sides, moderately strongly and densely punctured, anterior edge margined (Figs. 283, 284). Metaventral process with a deep circular impression on each side; weakly punctured (Fig. 283). Metacoxal plates moderately strongly, towards suture more weakly punctured. Fifth and sixth sternite weakly punctured. Last sternite weakly to moderately strongly and sparsely punctured.

Legs: yellow-red to brown-red; setiferous striole on dorsal face of hind tibia short, about 1/6 x length of tibia; longer apical spur longer than first tarsal segment (Fig. 282).

Male: unknown, probably: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs.

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 501): Cuba.

32. *Haliplus nieseri* sp.n.
Figs. 285–293

Type locality: BRAZIL: São Paulo, Piracicaba.

Holotype ♂ (USNM): "Brazil, S.P., Piracicaba,XI.10.1965, Blacklite trap, C.A. Triplehorn, ♂". **Paratypes**: 9 ♂♂, 19 ♀♀, "BRAZIL, S.P., Piracicaba, X-7-1965, blacklite trap, C.A. Triplehorn" (CV, USNM); 9 ♂♂, 5 ♀♀, "BRAZIL, Sao Paulo, Piracicaba, 24 Oct., blacklight 1965, C.A. Triplehorn" (CV, NMW, USNM); as preceding paratypes but different date: 2 ♂♂, 2 ♀♀, "...13 nov.1965..."; 2 ♂♂, 1 ♀, "...15 nov.1965..."; 1 ♂, "...2 dec.1965..."; 2 ♂♂, 2 ♀♀, "...13 dec.1965..."; 6 ♂♂, 2 ♀♀, "...10 jan.1966..."; 2 ♂♂, 1 ♀, "...15 jan.1966..."; 1 ♂, "...12 febr.1966..." (USNM); 1 ♂, "Rio de Janeiro, Reinhardt, Gravidus Aubé, 1" (ZMUC); 1 ♂, "Minas Gerais, Betim, small shallow disturbed sand pool, 5.III.1994, leg. N. Nieser" (CV).

DIAGNOSIS: Elytral punctures very strong in basal half of fourth to eighth row. Metaventral process with two confluent impressions on each side. Elytral margin apically not serrate.

DESCRIPTION: Habitus: body oval, slightly tapering backwards (Fig. 285).

Length of body: 3.5–3.7 mm, width 2.2–2.3 mm.

Head: brown with vague darkening between eyes and at anterior edge, weakly to moderately punctured. Width between eyes 1.1 x width of one eye. Antennae yellow-brown (Fig. 286). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: brown with anterior central mark and basal marks opposite fourth elytral row. Lateral sides straight, usually only margined in posterior half. Moderately punctured (Fig. 285).

Elytra: red-brown, vague dark lines on puncture rows on especial posterior half, some vague marks on intervals and near base of third to fifth row (Fig. 285). Primary puncture rows fairly weak in first rows but very strong in strongly impressed basal part of fourth to seventh row. Secondary puncture rows moderately strong, but very dense and irregular double in basal part of first three intervals (Fig. 287). All punctures darkened. Completely margined, anteriorly serrate, posteriorly smooth.

Ventral side: red-brown to dark brown; elytral epipleura yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process slightly widened anteriorly, strong punctured grooves along the sides, moderately punctured (Figs. 289, 290). Metaventral process with two oval impressions on each side which are connected by a weaker impression; weakly punctured (Fig. 289). Metacoxal plates strongly and densely, along suture hardly punctured. Fifth and sixth sternite with dense, partly double puncture row. Last sternite only punctured in apical part.

Legs: yellow-brown darkened towards coxae; setiferous striole on dorsal face of hind tibia about 1/5 x length of tibia; longer apical spur 3/4–4/5 x length of first tarsal segment (Fig. 288).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 291–293).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the collector of one of the paratypes.

BIOLOGY: Collected at light and in a sand pool.

DISTRIBUTION (Fig. 498): Brazil.

(*Haliplus nigrolineatus* WEHNCKE)

Haliplus nigrolineatus WEHNCKE 1883: 145; ZIMMERMANN 1920a: 312; VIDAL SARMIENTO & GROSSO 1971: 153; VONDEL 1995: 82.

Lectotype ♀ (MNHN), **by present designation**: "Branden, Montevideo, Muséum Paris, coll. Wehncke, Haliplus nigrolineatus, Lectotype ♀ designated by B.J.v. Vondel 1993, Haliplus nigrolineatus Wehncke 1883, Haliplus testudo Clark det. v. Vondel 1993, mislabeled?, testudo is species from Australia".

DISCUSSION: VONDEL (1995) examined a syntype of this species and concluded that it is identical with *Haliplus testudo* CLARK from Australia. Probably this is a case of mislabeling. This species is not likely to be part of the Neotropical fauna.

33. *Haliplus oblongus* ZIMMERMANN
Figs. 294–302

Haliplus oblongus ZIMMERMANN 1921: 182; ZIMMERMANN 1924: 142; BLACKWELDER 1944: 72; VIDAL SARMIENTO & GROSSO 1971: 152.

Type locality: ARGENTINA: Province Buenos Aires.

Lectotype ♂ (ZSMC), **by present designation**: "R^{CA} ARGENTINA, Prov. Buenos Aires, 5.X.1908, C. Bruch, Type, Samml. A. Zimmermann, TYPUS, LECTOTYPE ♂, Haliplus oblongus Zimmermann des. Vondel 1992".

Material studied: ARGENTINA: 9 exs., Capital Federal, 6.XII.1953, 19.II.1955 and 5.III.1955, leg. Bachmann; 10 exs., Buenos Aires, Alsina, 27.IX.1953 and 27.III.1955, leg. Bachmann; 3 exs., Buenos Aires, El Palomar, 9.VIII.1953 and 1.X.1953, leg. Bachmann; 1 ex., Entre Rios, Gualeguay, II.1952; 6 exs., Buenos Aires, San Vicente, 12.VI.1955, leg. Bachmann; 1 ex., Delta del Paraná, 4.X.1953, leg. Bachmann (MACN); 2 exs., Buenos Aires, Las Flores, 27.II.1968, leg. O.S. Flint Jr; 3 exs., Buenos Aires, Balneario Monte Hermoso, 11–15.XII.1973, leg. O.S. Flint Jr; 8 exs., Buenos Aires, Zelaya, II,1957, leg. Daguerre (USNM); 1 ex., Buenos Aires, 15 km N San Clemente del Tuyn, roadside ditch, 12.XII.1999, leg. H. Smit; 1 ex., Rio Negro, nr. General Conesa, 9.XII.1999, leg. H. Smit; 11 exs., Buenos Aires, 2 km S of crossing ruta 76 and ruta 86, roadside pond, 10.XII.1999, leg. H. Smit (CE); 2 exs., Buenos Aires, Temperley, IV.1906, leg. R. Thaxter (MZC). URUGUAY: 1 ♂, Maldonado, leg. Darwin (MNHN).

DIAGNOSIS: Body oval to subparallel. Vague marks on elytral even intervals. Characteristic is the combination of the anteriorly strongly narrowed prosternal process and the metaventral process with an oval shallow impression on each side.

DESCRIPTION: Habitus: body oval to subparallel, widest in the middle (Fig. 294).

Length of body: 2.5–2.7 mm, width 1.4–1.5 mm.

Head: yellow-brown, weakly punctured. Width between eyes 1.5 x width of one eye. Antennae yellow, segments about twice as long as wide (Fig. 295). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow-brown, moderately densely punctured. Lateral sides straight, margined, anterior corners strongly pronounced anteriorly (Fig. 294).

Elytra: yellow-brown with long vague marks on even intervals and slight darkening on parts of puncture rows and along suture (Fig. 294). Maculation of elytra varying from distinct to almost absent. Primary puncture rows dense and moderately strong, about 32 punctures in first row. Secondary puncture rows weak and moderately dense (Fig. 296). Completely margined, margin not visible in the middle when seen from above.

Ventral side: yellow-red to red-brown; elytral epipleura yellow-brown, one row of strong and a row of weaker punctures on anterior part, row of weak punctures on posterior narrowed part, reaching to nearly the end of sixth sternite. Prosternum margined anteriorly, weakly punctured. Prosternal process strongly narrowed in anterior part, grooved on both sides, moderately strongly punctured, anterior side margined (Figs. 298, 299). Metaventral process posteriorly on each side with a large strong well defined impression, posteriorly accompanied by some strong punctures;

weakly punctured (Fig. 298). Metacoxal plates reaching to half of fifth sternite, densely and moderately strongly, near suture more weakly punctured. Fifth sternite with weak puncture row, laterally with microreticulation, sixth sternite with weak, medially interrupted, puncture row, laterally with microreticulation. Last sternite weakly punctured in posterior part, laterally densely punctured and micropunctured.

Legs: yellow-brown, coxae yellow-red; setiferous striole on dorsal face of hind tibia over total length; longer apical spur 4/5 x length of first tarsal segment (Fig. 297).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Elytra especially in posterior part weakly micropunctured. Genitalia as illustrated (Figs. 300–302).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs. Elytra micropunctured.

BIOLOGY: Collected in a ditch and a pond.

DISTRIBUTION (Fig. 498): Argentina, Uruguay.

34. *Haliplus oklahomensis* WALLIS
Figs. 303–311

Haliplus oklahomensis WALLIS 1933: 75.

Type locality: USA: Oklahoma, McClain County.

Holotype ♂ (CNCI): "McClain Co., Okl. 10.V.1932, W. Fischer, HOLOTYPE Haliplus oklahomensis, No. 6980 Wallis, Holotype Haliplus (Paraliaphlus) oklahomensis Wallis" [examined].

Material studied: MEXICO: 1 ♀, San Luis Potosi, nr Villa Hidalgo, 25.VII.1969, leg. F.N. Young; 1 ♀, Tamaulipas, 25 Mi. S Matamoros, ditch, 10.VI.1960, leg. F.N. Young (CY). USA: OKLAHOMA: 1 allotype ♀, same data as holotype; TEXAS: 6 ♂♂, 11 ♀♀, Brownsville, 11.–16.VI.1933, leg. Darlington (CY).

This species was described from the Nearctic fauna and will be fully treated in the revision of the Nearctic Haliplidae (in prep.).

DIAGNOSIS: Very close to *H. lewisii*, but elytral maculation with a more striped appearance.

BIOLOGY: Collected in a ditch.

DISTRIBUTION (Fig. 502): Mexico, USA.

35. *Haliplus ornatipennis* ZIMMERMANN
Figs. 312–320

Haliplus ornatipennis ZIMMERMANN 1921: 182: ZIMMERMANN 1924: 199; CHAPIN 1930: 10; BLACKWELDER 1944: 72; VIDAL SARMIENTO & GROSSO 1971: 154.

Type locality: ARGENTINA: Tucuman.

Lectotype ♂ (ZSMC), **by present designation**: "Rep. Argentina, Prov. Tucuman, 190[?], C. Bruch, Type, Samml. A. Zimmermann, LECTOTYPE ♂ Haliplus ornatipennis Zimmermann, des. Vondel 1992".

Material studied: ARGENTINA: 1 ♂ paralectotype, same data as lectotype (ZSMC); 2 exs., Salta, Santa Victoria E., 8.VI.1960, leg. A.O. Bachmann; 6 exs., Formosa, Ing. Juarez, 6.–10.III.1960, leg. A.O. Bachmann; 6 exs., Salta, Santa Victoria E., 15.XI.1960; 3 exs., Salta, Valle de Acambuco, 3.–4.III.1961 (MACN); 1 ex., Formosa, Presidente Irigoyen, X.1950, leg. Daguerre; 1 ex., Santa Fé, Santa Fé, I.1951, leg. J.G. Daguerre; 1 ex., Santiago del Estero, Santiago del Estero, Aeropuerto, II.1961, leg. Kohler (USNM); 1 ♀, Cordoba, Rosario, leg. H. Stempelmann (DEI); 1 ex., Argentina, leg. A. Breyer; 4 exs., Tucuman, leg. C. Bruch; 1 ex., Santiago del Estero, 190[?], leg. C. Bruch; 1 ex., La Rioja, Patquia, leg. A. Breyer; 1 ex., La Rioja, "Ilurg…" [?] (MLPA); 1 ex., Santiago del Estero, E Laprida, ponds along road Frias-Villa Martin, 28°22'55"S, 64°31'36"W, 200 m alt, 24.II.2004, leg. R. Beutel & A. Komarek;

1 ex., Córdoba, Salinas grandes, nr. Totoralejos, 29°36'60"S, 64°50'53"W, 21.II.2004, leg. R. Beutel & A. Komarek (NMW); 1 ex., Beltrán, Santiago del Estero, 28–29.III.1892, leg. L.E. Peña G. (ZMHB). BOLIVIA: 6 exs., Santa Cruz, Santa Cruz, 11.–12.II.1969, leg. P. & P. Spangler (USNM); 5 exs., Santa Cruz, Charagua, cattle pool with submerged shore vegetation, 30.–31.I.1985, leg. B. Malkin; 2 exs., Santa Cruz, San Antonio, near river Parapeti at light, 5.–14.I.1986, leg. B. Malkin; 4 exs., Santa Cruz, Puerto Izozog, La Brecha[?], at light, 1.–19.II.1986, leg. B. Malkin (NHMB). BRAZIL: 66 exs., Rio Grande do Norte, Ceará-Mirim, 6.–7.VII.1969, leg. P. & P. Spangler (USNM). PARAGUAY: 1 ♂, Asuncion, 16.II.1990, leg. U. Drechsel; 6 exs., Alto Paraguay, Madrejon, 13.–16.V.1995, leg. U. Drechsel; 1 ex., Boqueron, Teniente Martinez, 12.V.1995, leg. Drechsel; 2 exs., Boqueron, 160 km N Filadelfia, 10.V.1995, leg. Drechsel; 1 ex., Boqueron, Mariscal Estigarribia, 5.–9.V.1992, leg. Drechsel (CV); 1 ex., Puerto Vallemi, 12.VI.1952, leg. Bachmann (MACN); 2 exs., Chaco, Nanawa, X–XI.1926, leg. A. Pride (BMNH); 1 ex., Boqueron, Cruce Loma Plata, 28.II.1992, leg. Drechsel (NMW). PERU: 3 exs., Uyacali, Pucallpa, 10.IV.1969, leg. P. & P. Spangler; 1 ex., Uyacali, Pucallpa, Lago de Yarina Cocha, 11.IV.1969, leg. P. & P. Spangler (USNM).

DIAGNOSIS: Body oval and relatively short. Elytral maculation transverse. Resembles *H. drechseli* sp.n., but the latter has the prosternal process gradually narrowed anteriorly instead of narrowed near coxae.

DESCRIPTION: Habitus: body oval, widest in the middle, shoulders pronounced (Fig. 312).

Length of body: 2.4–2.8 mm, width 1.4–1.6 mm.

Head: yellow-brown, weakly punctured. Width between eyes 1.1 x width of one eye. Antennae yellow (Fig. 313). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow, anterior margin darkened, sometimes two vague marks on the middle, moderately strongly, on the disc weakly punctured, usually slightly impressed opposite second to fourth elytral puncture row. Lateral sides straight to slightly convex, margined (Fig. 312).

Elytra: yellow with extensive dark maculation along base to sixth puncture row and on posterior 3/4. Elytral maculation sometimes less distinct than usual (Fig. 312). Primary puncture rows relatively strong, about 30 punctures in first row. Secondary puncture rows strong and dense along suture, relatively strong and moderately dense on first interval, sparser on other intervals (Fig. 314). Punctures hardly or not darkened outside maculation. Completely margined, anteriorly smooth, posteriorly weakly serrate.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, just reaching to sixth sternite, two rows of strong punctures in anterior part. Prosternum margined anteriorly, weakly punctured. Prosternal process slightly wider anteriorly than posteriorly, impressed between narrow elevated margins, moderately densely punctured, anterior edge margined (Figs. 316–317). Metaventral process with long laterally well defined punctured impressions, which diverge posteriorly, otherwise weakly punctured (Fig. 316). Metacoxal plates reaching to end of fourth sternite, strongly, near suture more weakly punctured. Fifth and sixth sternite with irregular puncture row, laterally with only few punctures. Last sternite completely punctured.

Legs: yellow-brown, slightly darkened towards coxae; setiferous striole on dorsal face of hind tibia on posterior 2/3; longer apical spur 3/4–4/5 x length of first tarsal segment (Fig. 315).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 318–320).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in ponds and pools and at light.

DISTRIBUTION (Fig. 499): Argentina, Bolivia, Brazil, Paraguay, Peru.

36. *Haliplus panamanus* CHAPIN
Figs. 321–330

Haliplus panamanus CHAPIN 1930: 11; BLACKWELDER 1944: 72.
Haliplus soekhnandanae MAKHAN 1992: 85. Synonymized by VONDEL (2005: 52).

Type locality *H. panamanus*: PANAMA: Canal Zone, Tabernilla.

Type locality *H. soekhnandanae*: SURINAM: District Nickerie.

Holotype ♀ (*H. panamanus*) (USNM): "Tabernilla [disappeared with the rise of Gatun Lake], Canal Zone, Panama, July 20 [19]07, collected by August Busck, Type No. 41759 U.S.N.M., Haliplus panamanus Type Chpn." [examined].

Holotype ♂ (*H. soekhnandanae*) (HNHM): "Suriname, District Nickerie, 4.8.1984, leg. D. Makhan, Haliplus soekhnandanae det. D. Makhan 1991, Holotype" [examined].

Material studied: BOLIVIA: 2 ♂♂, Santa Cruz, Santa Cruz, 11.–12.V.1969, leg. P. & P. Spangler (USNM). COLOMBIA: 1 ♂, found in Miami in water with tropical fish imported from Colombia, 21.V.1963, leg. Jones Mills (USNM). GUYANA: 2 ♂♂, 4 ♀♀, Dubulay Ranch, 5°40,9'N, 57°51,5'W, swampy area in pasture, 9.IV.1994, leg. P.J. Spangler & R. Parris (USNM). PANAMA: 1 ♀, Canal Zone, Fort Gulick, light trap, 14.–15.V.1965 (USNM); 1 ♀, Canal Zone, 4 km NE Margarita, 23.V.1972, leg. H. Stockwell (CJ). SURINAM: 1 ♂ paratype of *H. soekhnandanae*: same data as holotype (CMU). VENEZUELA: 1 ♀, Guarico, 37 km S Calabozo, 18.III.1982, leg. G.F. & J.F. Hevel; 1 ♂, Guarico, 8 km N Corozo Pando, 11.VI.1984, leg. F.W. Eiland (USNM); 2 ♀♀, Guarico, Calabozo, Estación Biol., 15.VII.1961, leg. F.N. Young (CY).

DIAGNOSIS: Elytra distinctly maculate. Metaventral process with four round impressions of which the posterior ones are more distant from each other than the anterior ones.

DESCRIPTION: Habitus: body oval, widest in the middle (Fig. 321).

Length of body: 2.9–3.1 mm, width 1.7–1.8 mm.

Head: brown-red, vertex slightly darker, weakly punctured. Width between eyes 1.0–1.1 x width of one eye. Antennae yellow-red (Fig. 322). Palpi yellow-red. Genal lines behind eyes double.

Pronotum: yellow-red, small dark mark along anterior margin and small mark before base, weakly punctured, stronger punctures along anterior margin and along base. Lateral sides straight to slightly convex, margined (Fig. 321).

Elytra: yellow-red with clear dark marks (Fig. 321). Primary puncture rows relatively strong, third to fifth row stronger than first row, about 26 punctures in first row. Secondary puncture rows moderately strong, dense and in basal area in two irregular rows in first and second interval (Fig. 323). All punctures darkened. Completely smoothly margined.

Ventral side: yellow-red to brown; elytral epipleura yellow-red, in anterior part with strong uncoloured punctures, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process broad, widened anteriorly, strongly impressed along the sides, moderately punctured (Figs. 325, 326). Metaventral process with two more or less confluent impressions on each side; weakly punctured (Fig. 325). Metacoxal plates densely punctured, along suture weakly and sparsely punctured. Fifth and sixth sternite with row of weak punctures. Last sternite weakly and sparsely punctured.

Legs: yellow-red to brown; setiferous striole on dorsal face of hind tibia very short and weak; longer apical spur about 3/4 x length of first tarsal segment (Fig. 324).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 327–330).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a swampy area in pasture and at light.

DISTRIBUTION (Fig. 499): Bolivia, Colombia, Guyana, Panama, Surinam, Venezuela.

37. *Haliplus peruanus* ZIMMERMANN
Figs. 331–336

Haliplus peruanus ZIMMERMANN 1924: 202; BLACKWELDER 1944: 72.

Type locality: PERU: San Martin, river Tocache, tributary of river Huallaga.

Holotype ♀ (ZSMC): "Perou, Prov. Huallaga, Tocache 600 m, A. Baer, 10.11.1900, Collection Peschet, Samml. A. Zimmermann, HOLOTYPE ♀ Haliplus peruanus Zimmermann" [examined].

DIAGNOSIS: This species is only known by the female holotype. It resembles *H. gravidus*, with which it is probably conspecific although it has the prosternal process hardly grooved.

DESCRIPTION: Habitus: body oval, widest in the middle (Fig. 331).

Length of body: 3.6 mm, width 2.2 mm.

Head: red-brown, densely and moderately strongly punctured. Width between eyes 1.2 x width of one eye. Antennae yellow-brown (Fig. 332). Palpi yellow-brown.

Pronotum: red-brown, triangular dark mark on anterior margin, base narrowly darkened. Densely and moderately strongly punctured. Lateral sides about straight, margined (Fig. 331).

Elytra: red-brown, dark stripes on primary puncture rows except in basal area (Fig. 331). Primary puncture rows moderately strong, about 33 punctures in first row, fourth to ninth row grooved in anterior half. Secondary puncture rows strong irregular in basal area from suture to shoulders, otherwise moderately strong and dense (Fig. 333). All punctures darkened. Completely margined, anteriorly weakly serrate, posteriorly serrate.

Ventral side: red-brown to brown; elytral epipleura red-brown, anteriorly with two rows of strong punctures, reaching to end of fifth sternite. Prosternum margined anteriorly, moderately punctured. Prosternal process widened in anterior part, on both sides slightly grooved in posterior part, densely punctured (Figs. 335, 336). Metaventral process on both sides with two longitudinal almost completely confluent well defined impressions; weakly punctured (Fig. 335). Metacoxal plates not reaching to fifth sternite, moderately strongly and in a large sutural area weakly punctured. Fifth and sixth sternite with complete in the middle single, laterally more spread punctures. Last sternite except in the middle densely punctured.

Legs: red-brown to brown; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur 4/5 x length of first tarsal segment (Fig. 334).

Male: unknown but most likely: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs.

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known, but probably collected in a river.

DISTRIBUTION (Fig. 499): Peru.

38. *Haliplus signatus* SHARP
Figs. 337–346

Haliplus signatus SHARP 1882: 2; ZIMMERMANN 1920b: 316; 1924: 200; BLACKWELDER 1944: 72.

Type locality: GUATEMALA: San Miguel Dueñas.

Holotype ♀ (BMNH): "Holotype ♀ Haliplus signatus Sharp, Type, Haliplus signatus Type D.S., Duenas Guatemala, Champion, Duenas Guatemala, G.C. Champion, B.C.A. Col. I.2, Haliplus signatus Sharp" [examined].

Material studied: COSTA RICA: 2 ♂♂, Villa Colon, roadside ditch, 3.VII.1967, leg. P.J. Spangler (USNM). GUATEMALA: 1 ♂, Aldea Jesus Maria, 14.VIII.1965, leg. P.J. Spangler (USNM). MEXICO: 1 ♂, 3 ♀♀, Vera Cruz, 9.2 mi. W Tampico, in pools, 24.VIII.1954, leg. F.N. Young; 19 ♂♂, 11 ♀♀, Vera Cruz, 9.2 mi. SE Tampico, in pools, 24.VIII.1954, leg. F.N. Young; 2 ♂♂, 2 ♀♀, San Luis Potosi, nr Tamuin E Valles, 23.VII.1969, leg. F.N. Young (CY); 3 ♂♂, Jalisco,15 mi. N Chapala, 2.VIII.1963, leg. P.J. Spangler; 2 ♂♂, 2 ♀♀, Jalisco, 7 mi. N Magdalena, 28.VII.1963, leg. P.J. Spangler; 3 ♂♂, 1 ♀, Campeche, Haltunchén, 5.VIII.1964, leg. P.J. Spangler; 2 ♂♂, Vera Cruz, 15 mi. SE Tantoyuca, 28.VIII.1965, leg. P.J. Spangler; 2 ♂♂, Vera Cruz, Catemaco, 7.–9.VIII.1964, leg. P.J. Spangler; 2 ♂♂, 3 ♀♀, Vera Cruz, 8 mi. NE Panuco, 28.VIII.1965, leg. P.J. Spangler; 2 ♂♂, 2 ♀♀, Tabasco, 23 mi. N Villahermosa, 6.VIII.1964, leg. P.J. Spangler; 1 ♂, Sonora, Navojoa, 14.VII.1963, leg. P.J. Spangler; 2 ♂♂, Nayarit, San Blas, 26.VII.1963, leg. P.J. Spangler; 1 ♂, Campeche, 21 mi. E Campeche, weedy roadside ditch, 27.VII.1964, leg. P.J. Spangler; 3 ♂♂, Sinaloa, Culiacan, at blacklight, 16.VII.1963, leg. P.J. Spangler; 3 ♂♂, Jalisco, 10 mi. N Chapala, 31.VII.1963, leg. P.J. Spangler; 5 ♂♂, Jalisco, 13 mi. N Chapala, 1.VIII.1963, leg. P.J. Spangler; 134 ♂♂, 102 ♀♀, Sinaloa, Mazatlan, 17.–23.VII.1963, leg. P.J. Spangler; 145 ♂♂, 154 ♀♀, Nayarit, 7 mi. S Tepic, 26.VII.1963, leg. P.J. Spangler; 29 ♂♂, Campeche, 10 mi. S Campeche, 28.VII.1964, leg. P.J. Spangler; 11 ♂♂, Campeche, 19 mi. S Champoton, 26.VII.1964, leg. P.J. Spangler (USNM); 1 ♂, Tamaulipas, 5 mi. SSE Gomez Favias, 19.–20.VII.1970, leg. Hart, Marray, Phelps & Schaffner (TAMU); 1 ♂, 1 ♀, Nayarit, Ixtlan del Rio, 22.IX.1953, leg. B. Malkin (CAS); 2 ♂♂, Vera Cruz, 2 mi. S Acayucan, Rd. 185, 10.VII.1962, leg. J.M. Campbell (CNC). NICARAGUA: Masaya, Las Flores, IV.1993, leg. C. Lecoq & I. Cantamessa (MEL); 19 ♂♂, 14 ♀♀, 13 mi. N San Benito, 11.VII.1965, leg. P.J. Spangler; 2 ♀♀, 9 mi. N Esteli, 10.VII.1965, leg. P.J. Spangler; 40 ♂♂, 22 ♀♀, La Trinidad, 27.VII.1965, leg. P.J. Spangler (USNM). PANAMA: 1 ♀, Tocumen Airport, 7.VII.1967, leg. P.J. Spangler (CY).

DIAGNOSIS: This is a variable species and resembles *H. tumidus* very much. Males can be distinguished by the aedeagus, but I failed to find reliable characters to distinguish females of *H. signatus* and *H. tumidus*. Under *H. tumidus* these females are treated separately.

DESCRIPTION: Habitus: body short oval, widest behind shoulders (Fig. 337).

Length of body: 2.9–3.3 mm, width 1.7–2.0 mm.

Head: brown, moderately punctured. Width between eyes 1.3–1.5 x width of eye. Antennae yellow to yellow-red (Fig. 338). Palpi yellow-red. Genal lines behind eyes double.

Pronotum: yellow-brown to brown, vague markings at base opposite fourth elytral row, strongly (especially along base) and densely punctured. Lateral sides weakly margined. Anterior margin weakly hooked in the middle (Fig. 337).

Elytra: yellow to yellow-brown with extensive light-brown to brown markings along base and suture and on intervals (Fig. 337). Primary puncture rows dense and relatively small on inner rows and stronger on lateral rows, basal punctures of fifth row strong and confluent, eighth and ninth row strong and impressed in the middle. Secondary puncture rows strong and dense near base and suture, getting weaker and sparser laterally and apically (Fig. 339). All punctures darkened, except lateral ones. Completely margined, anteriorly serrate, posteriorly very weakly serrate.

Ventral side: yellow-brown; elytral epipleura yellow-brown, reaching to end of sixth sternite and with strong uncoloured punctures in anterior part and dense row of smaller uncoloured punctures in posterior part. Prosternum margined anteriorly. Prosternal process clearly narrowed in posterior part, grooved on both sides, moderately strongly punctured (Figs. 341, 342). Metaventral process with a large pit on both sides; sparsely punctured. Metacoxal plates moderately strongly and densely punctured, just reaching fifth sternite. Fifth and sixth sternite with dense puncture row. Last sternite moderately punctured.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia about 1/2 x length of tibia; longer apical spur 4/5 x length of first tarsal segment (Fig. 340).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 343–346).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in pools, ditches and at light. The following aquatic Coleoptera were found in association with *H. signatus* in Mexico, Campeche: Dytiscidae: *Bidessus*, *Hydrovatus*, *Laccophilus*, *Neoclypeodytes*, *Thermonectus*, Haliplidae: *Haliplus gravidoides*, Hydrophilidae: *Berosus*, *Hydrophilus*, *Tropisternus*. Noteridae: *Hydrocanthus*, *Suphis.* In Costa Rica (Villa Colon) it was found in association with Hydrophilidae: *Derallus*.

DISTRIBUTION (Fig. 503): Costa Rica, Guatemala, Mexico, Nicaragua, Panama.

39. *Haliplus solitarius* SHARP
Figs. 347–355

Haliplus solitarius SHARP 1882: 2; ZIMMERMANN 1920b: 316; 1924: 200; BLACKWELDER 1944: 72.

Type locality: GUATEMALA: Guatemala City.

Holotype ♂ (BMNH): "Holotype ♂, Haliplus solitarius Sharp, Type, Haliplus solitarius Type D.S., Guatemala City, 5.000 ft., Champion, Sp. figured, B.C.A. Col. I.2, Haliplus solitarius Sharp" [examined].

Material studied: EL SALVADOR: 1 ex., La Union, W Santa Rosa, 23.VII.1957, leg. D. Lauck; 1 ex., La Union, nr. Sirama, 24.VII.1957, leg. D. Lauck; 5 exs., La Union, 23.–24.VII.1957, leg. D. Lauck (USNM). GUATEMALA: 2 exs., Aldea Jesus Maria, 14.VIII.1965, leg. P.J. Spangler (USNM). HONDURAS: 2 exs., San Marcus Colon, 28.VII.1965, leg. P.J. Spangler (USNM). MEXICO: 97 exs., Sinaloa, Mazatlan, 17.–23.VII.1963, leg. P.J. Spangler; 2 exs., Sinaloa, Culiacan, 16.VII.1963, leg. P.J. Spangler; 1 ex., Jalisco, 25 mi. S. Guadalajara, temporary grassy roadside ditch, 6.VII.1964, leg. P.J. Spangler; 2 exs., Jalisco, 13 mi. N Chapala, 1.VIII.1963, leg. P.J. Spangler; 42 exs., Nayarit, 7 mi. S Tepic, 26.VII.1963, leg. P.J. Spangler; 1 ex., Jalisco, Magdalena, 4.VII.1964, leg. P.J. Spangler; 11 exs., Jalisco, 7 mi. N Magdalena, 28.VII.1963, leg. P.J. Spangler; 6 exs., Campeche, 10 mi. S Campeche, roadside ditch, 28.VII.1964; 29 exs., Nayarit, San Blas, 26.VII.1963, leg. P.J. Spangler; 1 ex., Campeche, 21 mi. E Campeche, 27.VII.1964, leg. P.J. Spangler (USNM); 3 exs., México, Progreso, 13.VI.1948, leg. A.C. Smith; 1 ex., Sinaloa, Culiacan, 3 km N Camino Real Tres Rios on Hwy 15, 8.IX.1980, leg. S.W. Nichols (CUIC); 1 ex., Sinaloa, 26 mi. N Pericos, 13.VIII.1960, leg. P.H. Arnaud Jr., E.S. Ross & D.C. Rentz; 2 exs., Nayarit, Tepic, 21.–24.IX.1953, leg. B. Malkin (CAS); 1 ex., Tamaulipas, 8 mi. W El Limon, at light, 20.VI.1970, leg. Murray, Phelps, Hart & Schaffner (TAMU). NICARAGUA: 1 ex., La Trinidad, 27.VII.1965, leg. P.J. Spangler; 2 exs., 13 mi. N San Benito, 11.VII.1965, leg. P.J. Spangler; 1 ex., 10 mi. N Rivas, 11.VII.1965, leg. P.J. Spangler; 1 ex., 9 mi. N Esteli, 10.VII.1965, leg. P.J. Spangler; 1 ex., Belen Rivas, 18.VII.1957, leg. D.R. Lauck; 1 ex., Madriz, 8.VII.1957, leg. D.R. Lauck; 2 exs., Somoto, 28.VII.1965, leg. P.J. Spangler (USNM).

DIAGNOSIS: This species is characterized by the combination of a medially maculate pronotum and a metaventrite with a wide central impression.

DESCRIPTION: Habitus: body oval, shoulders pronounced, widest in the middle (Fig. 347).

Length of body: 2.9–3.2 mm, width 1.7–1.9 mm.

Head: red-brown, moderately punctured. Width between eyes 1.3–1.4 x width of one eye. Antennae yellow-red (Fig. 348). Palpi yellow-red. Genal lines behind eyes double.

Pronotum: red-brown with dark central band from anterior to posterior margin, this band wider anteriorly. Strongly punctured. In the middle in front of base small impression. Lateral sides straight to slightly convex, weakly margined (Fig. 347).

Elytra: yellow-red to red-brown with extensive dark markings along base and suture and on intervals (Fig. 347). Near base and suture slightly impressed. Primary puncture rows moderately strong on disc and stronger laterally, eigtht and ninth row impressed in the middle (Fig. 349). Secondary puncture rows strong. All punctures darkened. Completely margined, anteriorly and posteriorly serrate.

Ventral side: red-brown to brown; elytral epipleura red-brown, with strong uncoloured punctures in anterior part and one row of smaller punctures in posterior part, reaching to end of sixth sterni-

te. Prosternum margined anteriorly. Prosternal process nearly parallel, weakly narrowed in posterior part, slightly impressed on both sides in posterior half, strongly punctured, anterior side margined (Figs. 351, 352). Metaventral process widely impressed in the middle; strongly punctured in impression (Fig. 351). Metacoxal plates strongly and densely punctured, reaching fifth sternite. Fifth and sixth sternite strongly punctured. Last sternite moderately strongly but sparsely punctured.

Legs: yellow-red to red-brown; setiferous striole on dorsal face of hind tibia about 1/3 x length of tibia; longer apical spur 3/4 x length of first tarsal segment (Fig. 350).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 353–355).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a roadside temporary grassy ditch and at light. The following aquatic Coleoptera were found in association with *H. solitarius* in Mexico, Guadalajara: Dytiscidae: *Bidessus*, *Hydaticus*, *Hydrovatus*, *Hygrotus*, *Laccophilus*, *Megadytes*, *Rhantus*, *Stictotarsus*, *Thermonectus*, Hydrophilidae: *Berosus, Enochrus*, *Helophorus, Hydrophilus, Paracymus, Tropisternus*, Noteridae: *Suphis*.

DISTRIBUTION (Fig. 501): El Salvador, Guatemala, Honduras, Mexico, Nicaragua.

40. *Haliplus subseriatus* ZIMMERMANN
Fig. 356–364

Haliplus subseriatus ZIMMERMANN 1921: 181; ZIMMERMANN 1924: 70; BLACKWELDER 1944: 72; VIDAL SARMIENTO & GROSSO 1971: 153; MORONI 1973: 193; 1980: 30; GROSSO 1977: 215; VONDEL 2001: 14 (description of larva).

Type locality: ARGENTINA: Isla Grande de Tierra del Fuego.

Holotype ♀ (ZSMC): "Rep. Argentina, Geb. Tr. d. Fuego, 190[?], Type, Samml. A. Zimmermann, HOLOTYPE ♀, Haliplus subseriatus Zimmermann 1921" [examined].

Material studied: ARGENTINA: 6 exs., Tierra del Fuego, Rio Grande, 13.IX.1981, leg. F.A. Crespo (MACN); 5 exs., Santa Cruz, Meseta de las Viscaches, alt. 700 m, 26.XI.1981, leg. J. Fjeldså (ZMUC); 1 ex., Patagonia, Santa Cruz, Christina, Lago Argentino, 1959, leg. P.W. James; 1 ex., Patagonia, Santa Cruz, Lago Argentino, Onelli Glacier S. side, 31.XII.1958, leg. P.W. James (BMNH); 11 exs., Santa Cruz, Rio Coyle at crossing with ruta 3, 23.XI.1999, leg. H. Smit (CE, CV). FALKLAND ISLANDS: 7 exs., Surf Bay, 5 km E Stanley, pond, 24.XII.1990, leg. H. Smit; 1 ex., Bertha's Beach, small pond, 27.XII.1990, leg. H. Smit; 3 exs., Pebble Island, Bett's Pond, 30.XII.1990, leg. H. Smit; 1 ex., Pebble Island, small pond nr Bett's Pond, 30.XII.1990, leg. H. Smit (MOG).

DIAGNOSIS: This species is characterized by a narrow and parallel body, while the body is almost completely covered with a distinct micropunctation.

DESCRIPTION: Habitus: body long, parallel, widest behind the middle (Fig. 356).

Length of body: 3.0–3.6 mm, width 1.5–1.8 mm.

Head: yellow-brown with brown vertex, moderately strongly punctured. Width between eyes 2.1–2.2 x width of one eye. Antennae yellow (Fig. 357). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow with vague yellow-brown in the middle and a brown mark on each side, posterior margin brown. Lateral sides margined, in anterior half curved inwards. Sparsely punctured, along base with a row of slightly larger punctures. Weakly impressed before base (Fig. 356).

Elytra: yellow, suture darkened. Primary puncture rows relatively weak, not getting weaker posteriorly, about 40 punctures in first row. Secondary puncture rows strong, except in basal area as strong as primary punctures. All punctures darkened and surrounded by a dark shade, which can be so large that punctures get connected and create vague marks (Fig. 356). Completely micropunctured (males and females). Completely margined, anteriorly smooth, posteriorly finely serrate.

Ventral side: brown to dark brown with yellow prosternum and metacoxal plates; elytral epipleura yellow with weak uncoloured punctures, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process narrow, narrowed in anterior part, flat, not margined in anterior 1/5, anterior edge margined, sparsely punctured (Figs. 360, 361). Metaventral process flat; weakly punctured (Fig. 360). Metacoxal plates weakly and sparsely punctured. Fifth and sixth sternite with dense band of punctures and micropunctured. Last sternite moderately strongly and densely punctured and micropunctured.

Legs: yellow to yellow-brown; no setiferous striole on dorsal face of hind tibia; longer apical spur nearly as long as first tarsal segment (Fig. 359).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 362–364).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in ponds. The third stage larva was described by VONDEL (2001).

DISTRIBUTION (Fig. 496): Argentina, Falkland Islands.

41. *Haliplus tantoyucanus* sp.n.
Fig. 365–373

Type locality: MEXICO: Vera Cruz, 15 miles southeast of Tantoyuca.

Holotype ♂ (USNM): "Mexico, Ver., 15 Mi. SE. Tantoyuca, VIII-28-1965, Paul J. Spangler". **Paratypes**: GUATEMALA: 1 ♂, "Guatemala, Quirigua, VIII.14.1965, P.J. Spangler"; 3 ♀♀, "Guatemala, 1 Mi. N Morales, VIII.16–18.1965, 2m239[?], Atlantic Hwy, P.J. Spangler" (USNM). MEXICO: 1 ♂, 1 ♀, same data as holotype; 2 ♂♂, 2 ♀♀, "Mexico, Ver., Cuitlahuac, VIII.10–12.1964, Paul J. Spangler"; 2 ♂♂, 2 ♀♀, "Mexico, Tab., 23 Mi. N Villahermosa, VIII.6.1964, Paul J. Spangler" (USNM); 8 ♂♂, 9 ♀♀, "Mexico, Vera Cruz, Los Tuxtlas area, 'Las Cabanas' (2 km W), 4 may 1981, Paul J. Spangler, pond in pasture" (CV, NMW, USNM); 1 ♂, "El Salto, S.L.P. Mex., VI-19-53, Univ. Kans. Mex. Expedition" (CY); 1 ♂, "5 miles SSE. of Gomez Farias, Tamaulipas, Mexico, July 19–20, 1970, Marray, Phelps, Hart, Schaffner" (TAMU).

DIAGNOSIS: Basal elytral punctures in a transverse impression, preapical punctures of seventh and eighth row stronger.

DESCRIPTION: Habitus: body oval, tapering backwards, widest before the middle (Fig. 365).

Length of body: 3.0–3.2 mm, width 1.7–1.8 mm.

Head: yellow-brown, moderately punctured. Width between eyes 1.0 x width of one eye. Antennae yellow (Fig. 366). Palpi yellow to yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, moderately punctured. Lateral sides not margined or at most in posterior corner. Base opposite fourth and fifth elytral row slightly impressed (Fig. 365).

Elytra: yellow to yellow-brown with well developed distinct maculation (Fig. 365). Primary puncture rows fairly weak, about 35 punctures in first row, basal punctures of first five rows connected by a transverse impression, preapical punctures of seventh and eighth row stronger than surrounding punctures (Fig. 367). Secondary puncture rows fairly weak. Punctures outside

maculation not or hardly darkened. Completely margined, anteriorly serrate, posteriorly weakly serrate.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to seventh sternite. Prosternum margined anteriorly. Prosternal process slightly widened anteriorly, with two strongly punctured grooves; sparsely punctured (Figs. 369, 370). Metaventral process strongly impressed anteriorly, with large deep pit on each side followed by some strong punctures, otherwise sparsely punctured (Fig. 369). Metacoxal plates moderately strong, towards suture weakly and sparsely punctured. Fifth and sixth sternite with strong and dense puncture row. Last sternite strongly but sparsely punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia very short, about 1/10 x length of tibia; longer apical spur about as long as first tarsal segment (Fig. 368).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 371–373).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the type locality.

BIOLOGY: Collected in a pond in pasture.

DISTRIBUTION (Fig. 502): Guatemala, Mexico.

42. *Haliplus testaceus* ZIMMERMANN
Figs. 374–382

Haliplus testaceus ZIMMERMANN 1924: 202; BLACKWELDER 1944: 72; VIDAL SARMIENTO & GROSSO 1971: 154.

Type locality: ARGENTINA: Buenos Aires, La Plata. [Zimmermann gives "Brasilien, La Plata", but he obviously meant la Plata in Argentina].

Lectotype ♂ (ZSMC), **by present designation**: "La Plata, Spegazini [?], Type, Samml. A. Zimmermann, Lectotype ♂ Haliplus testaceus Zimmermann des. Vondel 1992".

Material studied: ARGENTINA: 1 ♂, Prov. Buenos Aires, 12.X.1905, leg. C. Bruch (MLPA); 1 ♂, Santa Fé, Rosario; 1 ♂, Buenos Aires, Palomas, 11.I.1953, leg. Bachmann (MACN). URUGUAY: 7 ♂♂, 6 ♀♀, Rocha, Ruta 10, Valizas, Aguas Dulces, 9–11.X.1970, leg. M. Monné, G. Wibmer & M. Moratorio (CW).

DIAGNOSIS: Body not maculate. Elytral punctures not darkened.

DESCRIPTION: Habitus: body with narrow pronotum, shoulders well pronounced, elytra subparallel (Fig. 374).

Length of body: 3.5–3.7 mm, width 2.1 mm.

Head: yellow-brown to brown, densely and between antennae coarsely punctured. Width between eyes 1.5 x width of one eye. Antennae yellow (Fig. 375). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow-brown to brown, moderately strongly and densely punctured, slightly impressed along base. Lateral sides convex in anterior part, margined (Fig. 374).

Elytra: yellow to yellow-brown without maculation except the slightly darkened suture (Fig. 374). Primary puncture rows strong and dense, about 35 punctures in first row (Fig. 376). Secondary puncture rows moderately strong but very dense. All punctures uncoloured. Completely margined, anteriorly weakly serrate, posteriorly smooth.

Ventral side: yellow to red-brown; elytral epipleura yellow, strongly punctured in anterior and also in posterior narrowed part, almost reaching to end of sixth sternite. Prosternum margined

anteriorly, moderately punctured. Prosternal process nearly parallel, slightly narrowed in anterior part, clear grooves on both sides, moderately strongly punctured (Figs. 378, 379). Metaventral process on both sides with a strong longitudinal punctured posteriorly diverging impression, in which sometimes two separate round impressions may be recognized; weakly punctured (Fig. 378). Metacoxal plates just reaching fifth sternite, strongly and densely, near suture slightly more weakly punctured. Fifth and sixth sternite with irregular, more or less double row of punctures, laterally densely punctured. Last sternite completely, laterally densely punctured.

Legs: yellow to red-brown with darkened coxae; setiferous striole on dorsal face of hind tibia about 1/4 x length of tibia; longer apical spur 4/5 x length of first tarsal segment (Fig. 377).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 380–382).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 499): Argentina, Uruguay. The record of ZIMMERMANN (1924) for Brazil needs confirmation.

43. *Haliplus thoracicus* ZIMMERMANN
Figs. 383–391

Haliplus thoracicus ZIMMERMANN 1923: 31; ZIMMERMANN 1924: 204; BLACKWELDER 1944: 72.

Type locality: BRAZIL: São Paulo, Cantareira.

Lectotype ♂ (ZSMC), **by present designation**: "Brasilien, S. Paulo, Cantareira, XI.1901, Type, Samml. A. Zimmermann, LECTOTYPE ♂, Haliplus thoracicus Zimmermann des. Vondel 1992".

Material studied: BRAZIL: 1 ex., Santa Catarina, Teresópolis, 1888, leg. Fruhstorfer; 2 ♂♂, 1 ♀, [Santa Catarina], Lages, leg. Fruhstorfer (DEI); 1 ex., São Paulo, Cipo[Serra do Cipó?], 5.XII.1965, leg. V.N. Alin (USNM); 1 ex., [Santa Catarina], Nova Teutônia, leg. F. Planman (MACN).

DIAGNOSIS: This species is characterized by the combination of the medially strongly maculate pronotum and the anteriorly distinctly narrowed prosternal process.

DESCRIPTION: Habitus: body oval, subparallel, widest in the middle, shoulders slightly pronounced (Fig. 383).

Length of body: 3.7–3.8 mm, width 2.3–2.4 mm.

Head: yellow-brown, strongly and densely punctured, vague darkening near antennae and between eyes. Width between eyes 1.3 x width of one eye. Antennae yellow (Fig. 384). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow-brown, large dark mark in the middle narrowed in anterior part and longitudinal light line in the middle. Strongly and densely punctured, narrowly impressed along base. Lateral sides convex, margined (Fig. 383).

Elytra: red-brown, dark marks along suture, on disc just behind middle and on even intervals, base vaguely darkened to fifth puncture row (Fig. 383). Primary puncture rows strong, especially in anterior part, base of fifth row weakly impressed, about 35 punctures in first row. Secondary puncture rows dense and moderately strong, along suture strong, in anterior part often in two irregular rows (Fig. 385). All punctures darkened, except on shoulders. Completely margined, anteriorly weakly serrate, posteriorly weakly serrate.

Ventral side: red-brown to brown, darkened towards coxae; elytral epipleura yellow-brown, with double row of strong punctures in anterior part and single row of weaker punctures in posterior

narrowed part, reaching to middle of sixth sternite. Prosternum margined anteriorly, strongly punctured. Prosternal process narrowed in anterior part, laterally grooved, moderately strongly and densely punctured, anterior edge margined (Figs. 387, 388). Metaventral process laterally with posteriorly diverging strongly punctured grooves over its total length; in the middle of the groove a deeper impression; weakly punctured, lateral parts densely punctured. Metacoxal plates reaching to end of fourth sternite, densely punctured. Fifth and sixth sternite densely punctured. Last sternite laterally densely, in the middle more sparsely punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 386).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 389–391).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 499): Brazil.

44. *Haliplus tocumenus* sp.n.
Figs. 392–401

Type locality: PANAMA: Tocumen Airport.

Holotype ♂ (USNM): "Panama, Tocumen airport, 7.VII.1967, P.J. Spangler". **Paratypes**: TRINIDAD: 4 ♂♂, "Trinidad, Debe, VII.17.1969, P. & P. Spangler" (CV, USNM). VENEZUELA: 25 ♂♂, 58 ♀♀, "Venezuela, Bar. Barinas, II.23.1969, P. & P. Spangler" (CV, NMW, USNM); 1 ♂, 2 ♀♀, "Est. UNELLEZ, cr. Mantecal, Venezuela Apure, 15.VIII.1983, Col. J. Lattke" (MBUC); 2 ♂♂, "Haliplus sp., Los Trincheras, Venezuela, Meinert 1891, Haliplus brasiliensis Zimm. À comparer au type, R. Peschet det." (ZMUC).

DIAGNOSIS: Pronotum and elytra with basal impression. Resembles *H. camposi* very much but can be distinguished by the pronotum not being margined.

DESCRIPTION: Habitus: body oval, widest in the middle (Fig. 392).

Length of body: 2.9–3.1 mm, width 1.6–1.8 mm.

Head: brown, moderately punctured. Width between eyes 1.2 x width of one eye. Antennae yellow-brown (Fig. 393). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown, dark mark at anterior edge. Basally impressed opposite fourth elytral row, moderately, along base somewhat stronger punctured. Lateral sides slightly concave, not margined (Fig. 392).

Elytra: yellow-brown with extensive maculation (Fig. 392). Primary puncture rows moderately to fairly strong in anterior part, basal part of fifth row impressed, about 30 punctures in first row. Secondary puncture rows moderately strong but in basal area on first intervals not much weaker than primary punctures, sutural row anteriorly double (Fig. 394). Punctures outside maculation not darkened. Completely margined, anteriorly and posteriorly serrate.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to seventh sternite. Prosternum weakly margined anteriorly. Prosternal process nearly parallel or slightly widening anteriorly, two longitudinal grooves with strong punctures in it, sparsely punctured (Figs. 396, 397). Metaventral process with long diverging impression on each side, sparsely punctured (Fig. 396). Metacoxal plates strongly, near suture weakly punctured. Fifth and sixth sternite with complete puncture row. Last sternite fairly strongly punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia about 1/4 x length of tibia; longer apical spur 3/4 x length of first tarsal segment (Fig. 395).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 398–401).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the type locality.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 499): Panama, Trinidad, Venezuela.

45. *Haliplus triplehorni* sp.n.
Figs. 402–411

Type locality: BRAZIL: São Paulo, Piracicaba.

Holotype ♂ (USNM): "BRAZIL, Sao Paulo, Piracicaba, 10 Jan. blacklight 1966, C.A. Triplehorn". **Paratypes**: BRAZIL: 1 ♀, "BRAZIL, S.P., Piracicaba, X-7-1965, blacklite trap, C.A. Triplehorn"; 1 ♀, "BRAZIL, Sao Paulo, Piracicaba, 2 Dec. blacklight, 1965, C. A. Triplehorn"; 1 ♀, "BRAZIL, Sao Paulo, Piracicaba, 12 Feb. blacklight, 1966, C.A. Triplehorn" (USNM); 2 ♀♀, "[Minas Gerais] Lagoa Santa, Wanming 66 St.S" (CV, ZMUC).

DIAGNOSIS: Elytra basally with dense and in more than one row standing secondary punctures. Prosternal process also impressed between the two longitudinal grooves.

DESCRIPTION: Habitus: body oval to subparallel, widest in the middle (Fig. 402).

Length of body: 3.2–3.3 mm, width 1.9 mm.

Head: yellow-brown to brown, densely punctured. Width between eyes 1.2 x width of one eye. Antennae yellow-brown to brown (Fig. 403). Palpi yellow-brown to brown. Genal lines behind eyes double.

Pronotum: yellow-brown, densely punctured. Weakly impressed along base. Lateral sides concave, margined (Fig. 402).

Elytra: yellow-brown, vague marks on intervals and along suture (Fig. 402). Primary puncture rows moderately to fairly strong in basal part third to sixth row, about 30 punctures in first row. Secondary puncture rows dense and moderately strong, irregular double in basal part of intervals (Fig. 404). All punctures darkened. Completely margined, anteriorly weakly serrate, posteriorly smooth.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process about parallel, slightly narrowed before the middle, strongly impressed in the middle, moderately punctured (Figs. 406, 407). Metaventral process with two oval impressions in a common diverging impression on each side; hardly punctured (Fig. 406). Metacoxal plates moderately punctured. Fifth and sixth sternite with dense double row of punctures. Last sternite densely punctured.

Legs: yellow-brown to brown; setiferous striole on dorsal face of hind tibia 1/5 x length of tibia; longer apical spur 3/4 x length of first tarsal segment (Fig. 405).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 408–411).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after the collector of the holotype.

BIOLOGY: Collected at light.

DISTRIBUTION (Fig. 499): Brazil.

46. *Haliplus tumidus* LECONTE
Figs. 412–420

Haliplus tumidus LECONTE 1880: 166: MATHESON 1912: 171; ROBERTS, 1913: 104; ZIMMERMANN 1920b: 317; 1924: 200; GUIGNOT 1936: 117; BLACKWELDER 1944: 72; SPANGLER 1981a: 146, 167.

Haliplus curtulus SHARP 1887: 748; GUIGNOT 1936: 115; BLACKWELDER 1944: 72. Synonymized by VONDEL (2005: 55).

Type locality *H. tumidus*: USA: Texas, Bosque County.

Type locality *H. curtulus*: MEXICO: Vera Cruz.

Lectotype *H. tumidus* ♀ (MCZC), **by present designation**: "Tex., (34), Type 5432, H. tumidus Lec., Lectotype ♀ designated by B.J. v. Vondel 1993".

Lectotype *H. curtulus* ♂ (BMNH), **by present designation**: "Cotype, Vera Cruz, Mexico, Höge, B.C.A. Col. I.2, Haliplus curtulus, Lectotype ♂, Haliplus curtulus Sharp, des. Vondel 1992".

Material studied: GUATEMALA: 1 ♂, 20 mi. S Guatemala City, 7.VII.1965, leg. P.J. Spangler; 1 ♂, Amatitlan, 30.VI.1974, leg. W.E. Steiner (USNM). MEXICO: 2 paralectotypes ♀♀, "Haliplus curtulus Type D.S., Vera Cruz, Mexico, Höge, Type, Vera Cruz, Mexico, Hoege, Sharp Coll 1905-313, B.C.A. Col. I.2, Haliplus curtulus Sharp"; 1 ♂, Lower California, 1907, 156.10[?], Haliplus tumidus n. subsp. FN Young (BMNH); 4 ♂♂, 6 ♀♀, Oaxaca, 17 mi. E Juchitan, 5.VII.1965, leg. P.J. Spangler; 3 ♂♂, 6 ♀♀, Oaxaca, 8 mi. N Oaxaca, from stream, 14.VII.1964, leg. P.J. Spangler; 3 ♂♂, 3 ♀♀, Yucatan, Progresso, mangrove swamp, 3.VIII.1964, leg. P.J. Spangler; 33 ♂♂, 23 ♀♀, Durango, Cerro Gordo, 28.VI.1964, leg. P.J. Spangler; 1 ♂, Durango, San Juan del Rio, 27.VI.1964, leg. P.J. Spangler; 7 ♂♂, Jalisco, 10 mi. N Chapala, 31.VII.1963, leg. P.J. Spangler; 8 ♂♂, 13 mi. N Chapala, 1.VIII.1963, leg. P.J. Spangler; 4 ♂♂, Jalisco, 15 mi. N Chapala, 2.VIII.1963, leg. P.J. Spangler; 2 ♂♂, 2 ♀♀, Jalisco, San Juan de Lagos, 3.VIII.1963, leg. P.J. Spangler; 1 ♂, 3 ♀♀, Jalisco, 25 mi. S Guadelajara, 6.VII.1964, leg. P.J. Spangler; 1 ♂, Jalisco, Guadelajara, 30.VII.1963, leg. P.J. Spangler; 6 ♂♂, 7 ♀♀, Aguascalientes, Aguascalientes, 3.–5.VIII.1963, leg. P.J. Spangler; 1 ♂, Tamaulipas, San Jose, IV.1910, leg. J.D. Sherman; 1 ♂, Tamaulipas, Nuevo Morelos, 28.VII.1965, leg. P.J. Spangler; 1 ♂, Tamaulipas, 4 mi. N Ciudad Monte, at light, 3.IX.1964, leg. D.H. Whitehead; 2 ♂♂, Tamaulipas, Ciudad Monte, 22.VIII.1964, leg. P.J. Spangler; 4 ♂♂, Campeche, Haltunchén, 5.VIII.1964, leg. P.J. Spangler; 61 ♂♂, Campeche, 10 mi. S Campeche, 28.VII.1964, leg. P.J. Spangler; 30 ♂♂, Campeche, 19 mi S Champoton, 26.VII.1964, leg. P.J. Spangler; 409 ♂♂, 423 ♀♀, Chiapas, San Christobal de las Casas, 17.–21.VII.1964, leg. P.J. Spangler; 5 ♂♂, 7 ♀♀, Chiapas, 32.5 mi E Comitan, Rte 190, alt. 2200 feet, black light, 3.IX.1965, leg. G.E. Ball & D.R. Whitehead; 4 ♂♂, Vera Cruz, 15 mi. SE Tantoyuca, 28.VIII.1965, leg. P.J. Spangler (USNM); 1 ♂, Oaxaca, Tehuantepec, 1.IX.1959; 1 ♂, Nuevo Leon, river at Atongo [de Abajo or de Arriba?], 26.VII.1969, leg. F.N. Young (CY); 1 ♂, Tamaulipas, 5 mi SSE Gomez Farias, 19–20.VII.1970, leg. Murray, Phelps, Hart & Schaffner (TAMU); 2 ♂♂, 1 ♀, Chiapas, San Christobal de las Casas, Reservoir, Rancho Nuevo, road to Huistan Municipio, 25.I.1966, leg. P.H. Raven & D.E. Breedlove; 2 ♂♂, 2 ♀♀, San Luis Potosi, 15 mi E Ciudad del Maiz, 19.XI.1948, leg. H.B. Leech; 2 ♂♂, 1 ♀, Nayarit, San Blas, 17.–21.IX.1953, leg. B. Malkin (CAS). USA: not further specified material from Arizona and Texas.

DIAGNOSIS: Body oval. Elytra maculate, shoulders raspy. Pronotum usually not distinctly maculate. Elytral maculation varying from only along the suture to covering most of the elytra. Pronotum usually immaculate, but sometimes with central mark which may be present from anterior to posterior margin. This species can easily be confused with *H. signatus* from which the males can be separated by comparison of the tip of the penis. I failed to find reliable characters to separate females of *H. signatus* and *H. tumidus*. Females of which we could not decide to which species they belong are recorded after the treatment of this species.

DESCRIPTION: Habitus: body oval, widest just behind shoulders (Fig. 412).

Length of body: 3.0–3.2 mm, width 1.9–2.0 mm.

Head: yellow-red, moderately strongly, between eyes slightly coarsely punctured. Distance between eyes 1.3–1.5 x width of one eye. Antennae yellow-red (Fig. 413), palpi yellow-red,

maxillary palpi with last segment about half the length of penultimate segment. Genal lines behind eyes double.

Pronotum: yellow-red. Lateral borders nearly straight, finely margined, hind corner clearly pronounced, anterior edge protruding in the middle, fairly strongly, basally strongly punctured (Fig. 412).

Elytra: yellow-red, weak maculation along suture and on even intervals (Fig. 412). Primary punctures moderately strong on inner rows, getting clearly stronger towards fifth to seventh row; basal parts of marginal rows almost faded by numerous denticles on shoulders (Fig. 414). About 34 punctures in first row. Secondary punctures moderately strong to weak and fairly dense. All punctures darkened. Completely margined, shoulders clearly, apex weakly serrate.

Ventral side: body yellow-red to brown; elytral epipleura yellow-red, reaching sixth sternite, strongly punctured in anterior and weakly in posterior part. Prosternal process irregularly parallel-sided, slightly wider anteriorly, strongly impressed in anterior half, strong punctured grooves on both sides of posterior 2/3, moderately strongly punctured, clearly margined on anterior edge (Figs. 416, 417). Metaventral process with longitudinal impression on both sides, densely punctured on marginal parts, otherwise weakly punctured (Fig. 416). Metacoxal plates moderately strongly, towards suture weakly punctured. Punctures on fifth and sixth sternites forming a clear row, dense in marginal parts, last sternite marginally densely punctured.

Legs: yellow-red to brown; hind tibia with setiferous striole on about 1/3 of its length; longer tibial spur nearly as long as first tarsal segment (Fig. 415).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 418–420).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in rivers, a mangrove swamp and at light. The following aquatic and semi aquatic Coleoptera were found in association with *H. tumidus* in Mexico, Oaxaca: Dryopidae: *Helichus*, Dytiscidae: *Bidessus*, *Deronectes*, *Thermonectus marmoratus*, Hydrophilidae: *Tropisternus ellipticus*, *T. lateralis*. In the mangrove swamp in Yucatan it was found in association with Hydraenidae: *Ochthebius*, Hydrophilidae: *Enochrus*, *Paracymus*, *Tropisternus quadristriatus*.

DISTRIBUTION (Fig. 503): Guatemala, Mexico, USA (Arizona, Texas).

Females of *Haliplus signatus* or *Haliplus tumidus*

In a number of cases we could not decide to which species single collected females should be assigned. This material is reported below.

Material studied: MEXICO: 1 ♀, Pueblo, 8 mi. SW Vera Cruz, 22.VII.1969, leg. F.N. Young; 1 ♀, San Luis Potosi, El Salto, 19.VI.1953, leg. ?, 3 ♀♀, Nuevo Leon, Rio Ramos nr. Allende, 18.–26.VIII.1954, leg. F.N. Young; 1 ♀, Yucatan, 3 km S Progreso, 3.VIII.1932, leg. E.P. Creaser (CY); 14 ♀♀, Campeche, Haltunchén, 5.VIII.1964, leg. P.J. Spangler; 3 ♀♀, Jalisco, 10 mi. W Chapala, 31.VII.1963, leg. P.J. Spangler; 1 ♀, Jalisco, Guadelajara, 30.VII.1963, leg. P.J. Spangler; 104 ♀♀, Campeche, 10 mi. S Campeche, 28.VII.1964, leg. P.J. Spangler; 71 ♀♀, Campeche, 19 mi. S Champoton, 26.VII.1964, leg. P.J. Spangler; 5 ♀♀, Campeche, 21 mi. E Campeche, weedy roadside ditch, 27.VII.1964, leg. P.J. Spangler; 24 ♀♀, Jalisco, 13 mi. N Chapala, 1.VIII.1963, leg. P.J. Spangler; 3 ♀♀, Jalisco, 15 mi. N Chapala, 2.VIII.1963, leg. P.J. Spangler; 9 ♀♀, Chiapas, San Cristobal de las Casas, 17.–21.VII.1964, leg. P.J. Spangler; 12 ♀♀, Durango, Cerro Gordo, 28.VI.1964, leg. P.J. Spangler; 2 ♀♀, Oaxaca, 25.VIII.1965, leg. P.J. Spangler; 1 ♀, Oaxaca, black light, 14.VII.1964, leg. P.J. Spangler; 1 ♀, Oaxaca, 9 mi. SE El Tule, 24.VIII.1965, leg. P.J. Spangler; 1 ♀, Vera Cruz, 9 mi. W Poza Rica, 27.VIII.1965, leg. P.J. Spangler; 6 ♀♀, Vera Cruz, 15 mi. SE Tantoyuca, 28.VIII.1956, leg. P.J. Spangler; 1 ♀, Tamaulipas, 25 mi. S Matamoros, 24.VIII.1965, leg. P.J. Spangler; 1 ♀, Tamaulipas, W Tampico, in cotton boll, 25.IX.1962, leg. Ayers (USNM); 1 ♀,

Jalisco, Barra de Navidad, 22.I.1961, leg. C.O. Morse; 1 ♀, Chiapas, 4 mi. NW Ocozocoautla, 11.IX.1965, leg. Breedlove; 1 ♀, Jalisco, 8 mi. S Guadelajara, IX.1954, leg. F.X. Williams (CAS); 1 ♀, Tamaulipas, 8 mi. W El Limon, at light, 20.VII.1970, leg. Marray, Phelps, Hart & Schaffner.

BIOLOGY: Collected in a weedy roadside ditch, at light and even in a cotton boll.

DISTRIBUTION (Fig. 503): Mexico.

47. *Haliplus unicarinatus* sp.n.
Figs. 421–429

Type locality: MEXICO: Campeche, Haltunchén.

Holotype ♂ (USNM): "MEXICO, Camp. Haltunchén, VIII-5-1964, Paul J. Spangler". **Paratype**: 1 ♂, "MEXICO, Camp., 21 Mi. E. Campeche, VII-27-1964, Paul J. Spangler" (USNM).

DIAGNOSIS: Resembles *H. carinatus* very much, but has the seventh elytral puncture row apically not impressed.

DESCRIPTION: Habitus: body oval, widest just before the middle (Fig. 421).

Length of body: 2.9 mm, width 1.7 mm.

Head: yellow-brown to yellow-red, fairly densely punctured on frons and less dense on vertex. Width between eyes 0.9 x width of one eye. Antennae yellow to yellow-brown (Fig. 422). Palpi yellow to yellow-brown. Genal lines behind eyes double.

Pronotum: yellow-brown to yellow-red with small mark anteriorly, fairly densely punctured. Basally weakly impressed opposite fifth elytral row. Lateral sides concave, slightly serrate, not margined (Fig. 421).

Elytra: yellow-brown to yellow-red, with extensive maculation (Fig. 421). Primary puncture rows moderately strong, about 32 punctures in first row, base of fifth row impressed, preapical punctures of eighth row in a sharp groove. Secondary puncture rows nearly as strong as primary ones (Fig. 423). Punctures outside maculation not darkened. Completely margined, anteriorly and posteriorly serrate. Shoulders slightly raspy.

Ventral side: yellow-brown to brown; elytral epipleura yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process narrowed in posterior part, with two weak grooves, strongly punctured (Figs. 425, 426). Metaventral process with strong pit followed by a sharp groove on each side; sparsely punctured (Fig. 426). Metacoxal plates strongly and densely, near suture more weakly and more sparsely punctured. Fifth and sixth sternite with moderate to sparse puncture row. Last sternite sparsely punctured in apical part.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur 3/4 x length of first tarsal segment (Fig. 424).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 427–429).

Female: unknown, but most likely: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Name refers to the fact that this species only has a carina on preapical part of eighth puncture row, while *H. carinatus* also has a carina on apical part of seventh puncture row.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 502): Mexico.

48. *Haliplus valdiviensis* MORONI
Figs. 430–437

Haliplus valdiviensis MORONI 1980: 29; MORONI 1989: 89 (description of larva).

Type locality: CHILE: Prov. Valdivia, Fundo Los Piños,13 km north of Valdivia.

Holotype ♂ (MNNC): "♂, Valdivia, Fdo Los Piños, 13 km N. Valdivia, 23.XII.1971, J. Moroni coll., Holotipo, Haliplus (Liaphlus) valdiviensis nov. sp. Det. J. Moroni 1975, CHILE, M.N.H.N. Tipo No.3582" [examined].

DIAGNOSIS: Large subparallel species. Elytra with weak maculation. Looks like *H. fuscipennis*, which is smaller and has no maculate elytra.

DESCRIPTION: Habitus: body long, subparallel, widest behind shoulders (Fig. 430).

Length of body: 4.6 mm, width 2.4 mm.

Head: yellow-brown with brown vertex, densely punctured. Width between eyes 2.0 x width of one eye. Antennae yellow (Fig. 431). Palpi yellow. Genal lines behind eyes double.

Pronotum: yellow-brown, slightly darkened along anterior margin, densely punctured. Lateral sides margined, strongly curved inwards in anterior part (Fig. 430).

Elytra: yellow-brown with vague marks (Fig. 430). Primary puncture rows relatively strong, but especially in first rows very dense. Secondary puncture rows strong and dense, in basal part of intervals in two irregular rows (Fig.432). All punctures darkened, except in basal part of eighth to tenth row. Completely margined, anteriorly smooth to very slightly serrate, posteriorly serrate.

Ventral side: yellow to yellow-brown; elytral epipleura yellow, with uncoloured punctures, reaching to sixth sternite. Prosternum margined anteriorly, strongly and densely punctured. Prosternal process anteriorly as wide as posteriorly, sharply grooved on both sides, strongly punctured especially in anterior part, anterior edge margined (Figs. 434, 435). Metaventral process on both sides with clear impression, which is slightly extended towards anterior edge (Fig. 434). Metacoxal plates not reaching fifth sternite, strongly, near suture more weakly punctured. Fifth and sixth sternite densely, in the middle sparser punctured. Last sternite on both side of the middle slightly impressed, moderately punctured.

Legs: yellow to yellow-brown; setiferous striole on dorsal face of hind tibia 1/4–1/5 x length of tibia; longer apical spur 2/3–3/4 x length of first tarsal segment (Fig. 433).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 436, 437).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a roadside pond. The third stage larva was described by MORONI (1989).

DISTRIBUTION (Fig. 496): Chile. Only known from the type locality.

49. *Haliplus youngi* sp.n.
Figs. 438–447

Type locality: PUERTO RICO: Laguna Rinçon, Valle de Lajas.

Holotype ♂ (ZMAN): "Puerto Rico, Laguna Rinçon, Valle de Lajas, St.705, 18-IX-1963, P. Wagenaar Hummelinck". **Paratypes**: BAHAMAS: 1 ♂, "Bahamas, Andros, Andros Town, 7–13 Mch 1966, O.L. Cartwright, Smithsonian Andros I. Bahamas Expd. 1966" (USNM). CUBA: 1 ♀, "Cuba, Arroyo, Jarahueca at Mayari Ariba, 25 March 1973, V. Decu, Haliplus tumidus Leconte det. P.J. Spangler" (USNM). DOMINICAN REPUBLIC: 3 ♂♂, 1 ♀, "Dominican Rep., M.C. Copey, VII.21.1969, P. & P. Spangler" (USNM); 1 ♂, 1 ♀, "Puerto Plata, Do. Rep., Aug.19–Sept.2.38, Darlington, Museum of Comparative Zoology, Haliplus n.sp. 'Det'61 F.N. Young"; 2 ♀♀, "Sánchez, Dom. Rep. July '38, Darlington, Museum of Comparative Zoology" (CY). HAITI: 3 ♀♀, "Miragoane, Haiti, Oct. 30–Nov.2.'34, Darlington, Museum of Comparative Zoology"; 2 ♂♂, 3 ♀♀, "Etang Lachaux, SW

peninsula under 1000 ft., Oct.26–27, Haiti 1934, Darlington, Museum of Comparative Zoology (CY). JAMAICA: 3 ♂♂, 3 ♀♀, "Jamaica, coll. L.G. Perkins, Stuart T. Danforth Collection, Museum of Comparative Zoology"; 1 ♂, 3 ♀♀, "Jamaica B.W.I., St. Andrew, Swallowfield, 18.X.1950, C.B. Lewis, R.P.Bengry"; 1 ♂♂, "Jamaica B.W.I., St. Andrew, Swallowfield, Oct. 1950, C.B. Lewis, R.P.Bengry"; 1 ♂, "B.W.I. Jamaica, St. Andrew, Ferry, 8.XI.46, G.B. Thomson"; 1 ♂, "B.W.I. Jamaica, St. Andrew, Fetty R. Ferry, 22.XI.1946, G.B. Thomson"; 1 ♂, "B.W.I. Jamaica, St. Catharine, Bushy Park, Amity Hall, 9.II.1947, G.B. Thomson, ex small pool in narrow gully"; 1 ♀,"Jamaica, St. Catherine Par., Spanish Town, Jam. Sch. of Agric., 14.IV.70, BLT. E.G. Farnsworth"; 1 ♀, "Jamaica, St. Cath. Parish-Spanish Town, BLT., 10.VII.70, E.G. Farnsworth"; 1 ♂, 1 ♀, "Maggoty, Jam., IV-17-37, Roys, Museum of Comparative Zoology" (CY); 2 ♂♂, 6 ♀♀, "Jamaica, May Pen, Feb.'26, Sta. 424, Chapin and Blackwelder"; 1 ♀, "Jamaica, Morant, P., July 1961, J. Maldonado C."; 1 ♂, "Jamaica, St. Cath. Par. Ferry, Fresh River, 22 May 1975, Paul J. Spangler, collected in river along bank" (USNM); 1 ♀, "Jamaica, Slype Pond, Black River, 5.ix.1939, Colman & Crisp., Cambridge University Jamaica Expedition, B.M. 1947-345" (BMNH). PUERTO RICO: 1 ♂, same data as holotype (ZMAN); 1 ♂, "Cabo Rojo, P.R., XI.17.1914, Coll. S. Danforth, Stuart T. Danforth Collection, Museum of Comparative Zoology" (CY)"; 6 ♂♂, 3 ♀♀, "Puerto Rico, nr. La Cueva del Indio, Jan.17.1963, Paul J. Spangler; 1 ♀, "Puerto Rico, Laguna Cartagena, XII.20.62, Paul & Phyllis Spangler"; 1 ♂, "Puerto Rico, #3389, Esperanza, 29 Oct.66, Marcano" (USNM). ST. CROIX: 2 ♀♀, "St. Croix, VI.H.A. Beatty, No745/1937 (USNM). ST. THOMAS: 1 ♂, "Haliplus, St. Thomas, coll. R.H. Stamm" (ZMUC).

DIAGNOSIS: Resembles *H. cubensis*, but is larger and has the shoulders distinctly serrate.

Description: Habitus: body short oval, tapering backwards, widest before the middle (Fig. 438).

Length of body: 2.8–3.3 mm, width 1.8–2.1 mm.

Head: brown to dark brown, moderately punctured, on frons with weak transverse grooves. Width between eyes 1.5 x width of one eye. Antennae yellow-brown (Fig.439). Palpi yellow-brown. Genal lines behind eyes double.

Pronotum: dark brown, towards sides slightly lighter. Strongly punctured, stronger punctures in a narrow impression along base. Lateral sides straight and serrate in anterior part, not margined (Fig. 438).

Elytra: yellow-brown with extensive vague dark brown maculation (Fig. 438). Primary puncture rows relatively strong, about 30 punctures in first row. Secondary puncture rows moderately strong (Fig. 440). All punctures darkened. Shoulders raspy. Completely margined, anteriorly and posteriorly serrate.

Ventral side: brown to dark brown; elytral epipleura yellow-brown, reaching to sixth sternite. Prosternum margined anteriorly. Prosternal process slightly widening anteriorly, with two grooves, sparsely punctured (Figs. 442, 443). Metaventral process with round impression on each side; sparsely punctured (Fig. 442). Metacoxal plates moderately punctured. Fifth and sixth sternite with sparse puncture row. Last sternite sparsely punctured in apical part.

Legs: yellow-brown; setiferous striole on dorsal face of hind tibia 1/6 x length of tibia; longer apical spur about as long as first tarsal segment (Fig. 441).

Male: first three tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 444–447).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

ETYMOLOGY: Named after Dr. F.N. Young, who recognized this species as new, according to the labels of one of the paratypes.

BIOLOGY: Collected in pools and rivers. The following aquatic Coleoptera were found in association with *H. youngi* in Puerto Rico, Cueva del Indio: Dytiscidae: *Laccophilus*, *Pachydrus*, *Rhantus calidus*, *Thermonectus*, Hydraenidae: *Hydraena*, Hydrochidae: *Hydrochus*, Hydrophilidae: *Enochrus*, *Hydrobiomorpha*.

DISTRIBUTION (Fig. 503): Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, St. Croix, St. Thomas.

Problematic specimens of *Haliplus*

Two species belonging to the Palaearctic fauna were found among the material examined. The specimens are probably mislabeled.

Haliplus ruficollis (DE GEER): 1 ex., "R. De Argentina, Prov. Mendoza 190, C. Bruch" (MLPA).

Haliplus lineatocollis (MARSHAM): 1 ex., "Guaymas, Mexico, Dr. H. ten Kate" (RMNH).

Peltodytes RÉGIMBART, 1878

Peltodytes RÉGIMBART 1878: 450 [type species: *Dytiscus caesus* DUFTSCHMID, 1805 (=*Peltodytes caesus* (DUFTSCHMID, 1805), see discussion by HOLMEN (1987)].

DIAGNOSIS: Yellow to brown, usually with some markings on dorsal side. Body widely oval, subparallel- or even parallel-sided; pronotum tapering anteriorly; elytra widest in the middle. Head with or without two marks between eyes; eyes relatively close to each other; apical segments of maxillary and labial palpi longer than penultimate segments. Pronotum with strong basal punctures and usually with basal marks opposite of third elytral puncture row. Elytra with strong, occasionally interrupted primary puncture rows; usually with some markings on intervals; sutural stria at least on posterior half; sutural interval darkened. Ventral side yellow with darkened areas. Prosternal process widened posteriorly. Metaventral process with lateral, posteriorly diverging striae. Hind coxal plates with or without posterior tooth; reaching beyond sixth or seventh sternite. Legs rather short, male with first two tarsal segments widened on fore- and midlegs; claws well developed.

In total about 35 species have been described worldwide. Four species are present in the most northern part of the region treated in this revision. They all seem to originate from the Nearctic fauna.

The species in this genus live in stagnant and slowly running water.

Some of the species treated in this revision are possibly synonymous with Nearctic species. Definite judgment is postponed till the revision of the Nearctic species is completed.

Key to the species of *Peltodytes* of the Neotropical Region including Mexico

1 Posterior femora light brown. Large confluent mark on elytral disk and sutural interval completely darkened in basal part. ..... *darlingtoni*

– Posterior femora dark brown or black. Elytral maculation usually consisting of separate spots. 2

2 Metacoxal plates angulate. Metaventral process flat to bulbous in the middle, lateral striae usually absent in anterior part..... *ovalis*

– Metacoxal plates rounded. Metaventral process, with or without lateral striae; if with lateral striae, then impressed in the middle or about flat between the lateral striae 3

3 Metaventral process without lateral striae, with wide strong oval impression on each side. Preapical elytral tooth strong and sharp..... *tamaulipensis*

– Metaventral process with clear lateral striae, usually impressed in the middle and strongly punctured ..... *mexicanus*

50. *Peltodytes darlingtoni* YOUNG
Figs. 448–459

Peltodytes darlingtoni YOUNG 1961: 221; SPANGLER 1981a: 167.

Type locality: CUBA: Candelaria (Pinar del Rio).

Holotype ♂ (MCZC): "Candelaria, P. de R., Aug.25.1936; Cuba, 1936, Darlington Collector; MCZ Holotype 33492" [not yet examined].

DIAGNOSIS: Very similar to the Nearctic *Peltodytes dietrichi* with which it is probably conspecific. Definite judgment is postponed till the revision of the Nearctic species is completed.

DESCRIPTION: Habitus: body oval, widest before the middle (Fig. 448).

Length of body: 3.7–3.8 mm, width 2.1–2.3 mm.

Head: yellow to yellow-brown, densely punctured. Distance between eyes 0.8 x width of one eye. Antennae yellow (Fig. 449). Palpi yellow. Genal lines behind eyes single.

Pronotum: yellow to yellow-brown, basal dark marks opposite first to third elytral puncture row. Moderately punctured, strong punctures in basal dark mark, plicae opposite fourth elytral puncture row. Lateral borders straight and margined (Fig. 448).

Elytra: yellow-brown, strong maculation along base and along suture to first puncture row in anterior part, large separated dark spots and post-medial spot confluent with sutural mark (Fig. 448), no subhumeral spot (Fig. 450). Primary puncture rows strong in anterior half, fourth row interrupted in the middle (Fig. 452). All punctures darkened except the marginal row. Completely margined, preapical tooth very blunt (Fig. 451).

Ventral side: yellow to yellow-brown; elytral epipleura yellow, reaching to last sternite. Prosternal process narrowed before coxae, margined along lateral and anterior sides, moderately punctured (Figs. 454, 455). Metaventral process flat with plicae on each side; a few strong punctures in the middle (Fig. 454). Metacoxal plates slightly angulate posteriorly, moderately punctured (Fig. 456).

Legs: yellow to yellow-brown; hind femur yellow-brown; setiferous striole on dorsal face of hind tibia about 1/3 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 453).

Male: first two tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as in Figs. 457–459.

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: No details known.

DISTRIBUTION (Fig. 504): Cuba.

51. *Peltodytes mexicanus* (WEHNCKE)
Figs. 460–471

Cnemidotus mexicanus WEHNCKE 1883:145.
Peltodytes mexicanus ZIMMERMANN 1920b: 300; 1924: 12; BLACKWELDER 1944: 72.

Type locality: MEXICO.

Lectotype ♂ (MNHN), **by present designation**: "Diuhla [?], Mexico".

Material studied: MEXICO: 2 exs., Sinaloa, Los Mochis, 13.VI.1922, leg. C.T. Dodds; 3 exs., Jalisco, 12 mi. W Ojuelos de Jalisco, 21.XI.1948, leg. H.B. Leech; 1 ex., Sonora, San Javier, 3.IV.1929; 1 ex., Sonora, Alamos, 21.II.1963, leg. P.H. Arnoud Jr. (CAS); 16 exs., Michoacan, Patzcuaro, roadside ditch with Jussiea, algae and buttercup, 7.VII.1964, leg. P.J. Spangler; 1 ex., Durango, 11 mi. W El Salto, 29.–30.VI.1964, leg. P.J. Spangler; 1

ex., Sonora, Imuris, 13.VII.1963, leg. P.J. Spangler; 2 exs., Baja California Sur, Comondu Vieja, 4–5.IV.1980, leg. D. Davis (USNM); 1 ♀, Jalisco, near Guadalajara, 1903, leg. L. Diguet (MNHN); 3 exs., Chapultepek [?], X.1871, leg. Bilimek; 2 exs., Baja California Sur, 3 mi N. Miraflores, Boca de la Sierra, 22.VI.1997, leg. W.D. Shepard; 5 exs., Baja California Norte, San Vicente, in unnamed stream, 1.VI.1997, leg. W.D. Shepard (NMW); 1 ex., Agotla [?], 14.XI.1898; 2 exs., Peñon [Peñon Blanco, Durango?], 19.VI.1932. leg. E. Ward (MCZC). USA: 3 ♀♀, Arizona, Stargo, 7.VIII.1990, leg. B.F. & J.L. Carr; 1 ♂, Arizona, Safford, 6.VIII.1990, leg. B.F. & J.L. Carr (ZMAN); 1 ex., Texas, leg. Gärtner (DEI).

DIAGNOSIS: Very similar to the Nearctic *P. simplex* and *P. dispersus.* Probably these three species belong to the same species complex.

DESCRIPTION: Body oval to subparallel, widest in the middle (Fig. 460).

Length of body: 3.5–3.9 mm, width 2.0–2.3 mm.

Head: yellow to yellow-brown with vague darkening between eyes, moderately punctured. Width between eyes 1.1 x width of one eye. Antennae yellow-brown (Fig. 461). Palpi yellow-brown. Genal lines behind eyes single.

Pronotum: yellow to yellow-brown, dark basal mark opposite third to fifth elytral puncture row with about 9 strong punctures, moderately punctured. Lateral sides straight to slightly convex anteriorly, margined (Fig. 460).

Elytra*:* yellow to yellow-brown, darkened between suture and sutural stria, base with narrow darkening, six marks on intervals, no subhumeral spot (Fig. 462), first puncture row darkened above discal mark (Fig. 460). Sutural line on posterior 2/3 accompanied by some weak punctures. Primary puncture rows moderately strong, first rows not distinctly weaker than marginal rows, fourth row interrupted over about seven punctures (Fig. 464). All punctures darkened. Completely margined, anteriorly serrate, posteriorly with weak preapical tooth (Fig. 463).

Ventral side: yellow to yellow-brown; elytral epipleura yellow, reaching to seventh sternite. Proternum margined anteriorly. Prosternal process strongly narrowed near coxae, margined in posterior half, strongly but sparsely punctured, distinct medial ridge in anterior part (Figs. 466, 467). Metaventral process flat with sharp margins; sparse punctures in weak transverse impressions (Fig. 466). Metacoxal plates moderately punctured, rounded posteriorly, finely margined in lateral part (Fig. 468). Last sternite hardly punctured.

Legs: legs yellow to brown, hind femur dark brown; setiferous striole on dorsal face of hind tibia 1/4 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 465).

Male: first two tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 469–471).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a stream and in a roadside ditch with algae, *Jussiea* and *Ranunculus*. The following aquatic Coleoptera were found in association with *P. mexicanus* in Mexico, Patzcuaro: Dytiscidae: *Hydroporus*, *Thermonectus*, Haliplidae: *Haliplus elsaltous*, Hydrochidae: *Hydrochus*, Noteridae: *Suphisellus*.

DISTRIBUTION (Fig. 504): Mexico, USA (Arizona, Texas).

52. *Peltodytes ovalis* ZIMMERMANN
Figs. 472–483

Peltodytes ovalis ZIMMERMANN 1924: 11; BLACKWELDER 1944: 72.

Type locality: MEXICO, Oaxaca.

Lectotype ♂ (ZSMC), **by present designation**: "Mexico, Oaxaca, Type, Samml. A. Zimmermann, Holotypus Peltodytes ovalis Zimm., Staatssamml. München". Aedeagus on a separate pin. ZIMMERMANN (1924) did not designate a holotype. Thus, although the type bears a holotype-label, we here designate a lectotype.

Material studied: MEXICO: 5 exs., Oaxaca, leg. Hoege (DEI, MCZC, NMW); 1 ♂, Oaxaca, Villa Diaz Ordaz [?], 11.VIII.1998, leg. S. Gottwald (CH); 2 exs., Oaxaca, 8 mi. N Oaxaca, 24.VII.1964, leg. P.J. Spangler; 1 ex., Oaxaca, 9 mi. SE El Tule, 24.VIII.1965, leg. P.J. Spangler; 1 ex., Oaxaca, El Tule, 21.VII.1955, leg. R.B. & J.M. Selander; 1 ♀, Puebla, Acatlan, 25.VIII.1965, leg. P.J. Spangler (USNM); 1 ♂, 2 exs., Zacatecas, 6 mi. W Fresnillo, alt. 2700 m, pool stream bed, 25.VI.1954, leg. R.H. Brewer; 1 ex., Zacatecas, 25 mi. W Fresnillo, Laguna Balderama, alt. 2600 m, 21.VI.1954, leg. R.H. Brewer; 1 ex., Oaxaca, 8 mi. N Oaxaca, 12.XII.1948, leg. H.B. Leech (CAS).

DIAGNOSIS: The angulate hind coxal plate in combination with the metaventral process not having lateral plicae in anterior part distinguishes this species from the other Mexican species.

DESCRIPTION: Habitus: body oval, widest before the middle, maculation not strongly developed, elytral punctures weak (Fig. 472).

Length of body: 3.1–3.4 mm, width 1.9–2.0 mm.

Head: yellow-brown with darker frons, rather weakly punctured. Width between eyes 1.0–1.1 x width of one eye. Antennae yellow-brown (Fig. 473). Palpi yellow-brown. Genal lines behind eyes single.

Pronotum: yellow-brown with at base two dark marks opposite third elytral puncture row, containing about seven strong punctures. Lateral sides margined, curved inwards in anterior half. Sparsely punctured (Fig. 472).

Elytra: yellow-brown, sutural line on posterior 3/4, darkened between suture and sutural line, small marks on intervals and on apex (Fig. 472), no subhumeral spot (Fig. 474). Primary puncture rows moderately strong, short extra (secondary?) row on apex on second interval, fourth row only present near base (Fig. 476), fifth row irregular and interrupted in the middle, about 27 punctures in first row. Completely margined, before apex with an usually strong tooth (Fig. 475).

Ventral side: yellow-brown to dark brown; elytral epipleura yellow to yellow-brown, moderately strongly punctured, reaching to seventh (last) sternite. Prosternum anteriorly not clearly margined. Prosternal process wide, narrowed in anterior half, on both sides with narrow rim, caused by a longitudinal impression, in anterior part, where the process turns to the body a transverse row of about five strong punctures; between that puncture row and the anterior edge a longitudinal weakly rooflike elevation, strongly, but sparsely punctured (Figs. 478, 479). Metaventral process flat with a longitudinal narrow impression on each side containing a row of strong punctures, otherwise sparsely punctured; from the depression to anterior edge a hardly recognizable scratch (Fig. 478). Metacoxal plates with a blunt tooth on posterior side, sparsely punctured (Fig. 480). Last sternite unpunctured, only with fine micropunctation.

Legs: legs yellow-brown, darkened towards coxae, hind femur dark brown, hind tibia darkened in proximal half and on distal end; setiferous striole on dorsal face of hind tibia about 1/3 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 477).

Male: first two tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 481–483).

Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in pool in stream bed.

DISTRIBUTION (Fig. 504): Mexico.

53. *Peltodytes tamaulipensis* YOUNG
Figs. 484–495

Peltodytes tamaulipensis YOUNG 1964: 112.

Type locality: MEXICO: Tamaulipas, near Limon, in Rio Frio.

Holotype ♂ (UMMZ): "MEX., Tamaulipas, Rio Frio near Limon, xii.18.40, FNYoung" [not examined].

Material studied: MEXICO: 1 paratype (♂) with same label as holotype (UMMZ); 1 ♂, 2 ♀♀, Tamaulipas, Est. Biol. Los Cedros, Gomez Farias, alt. 300 m, pools of stream, 27.VII.1993, leg. S.K. Jasper (CJ, CV).

DIAGNOSIS: Metaventral process with strong wide impression on each side, which character should distinguish this species from other Mexican species.

DESCRIPTION: Habitus: body oval, widest just behind the shoulders (Fig. 484).

Length of body: 3.3–3.4 mm, width 1.9–2.0 mm.

Head: yellow to yellow-brown, weakly punctured. Distance between the eyes 1.0 x width of one eye. Antennae yellow to yellow-brown (Fig. 485). Palpi yellow-brown. Genal lines behind eyes single.

Pronotum: yellow to yellow-brown, dark spots on base opposite second to fourth elytral puncture row. About seven stronger punctures in basal dark spot, otherwise weakly punctured. Lateral sides straight to slightly convex anteriorly, finely margined (Fig. 484).

Elytra: yellow to yellow-brown, narrowly darkened along base and suture, small dark spots on intervals (Fig. 484). Primary puncture rows in shoulder area strong, otherwise weak although the punctures in basal/sutural area look strong because of dark ring around the punctures; no subhumeral spot (Fig. 486). Completely margined, preapical tooth on margin strong and sharp (Fig. 487).

Ventral side: yellow-brown; elytral epipleura yellow, hardly punctured, reaching to last sternite. Prosternum margined anteriorly. Prosternal process narrowed before coxae, margined laterally and anteriorly, strongly impressed in the middle, strongly punctured (Figs. 490, 491). Metaventral process with strong large impression on each side, hardly punctured (Fig. 490). Metacoxal plates rounded to slightly angulate posteriorly, weakly punctured (Fig. 492). Last sternite with very fine sparse punctures.

Legs: yellow-brown to brown, hind femur dark brown, hind tibia darkened in proximal half and near apex; setiferous striole on dorsal face of hind tibia about 1/4 x length of tibia; longer apical spur 2/3 x length of first tarsal segment (Fig. 489).

Male: first two tarsal segments of fore- and midlegs widened and ventrally with a tuft of sucker hairs. Genitalia as illustrated (Figs. 493–495).

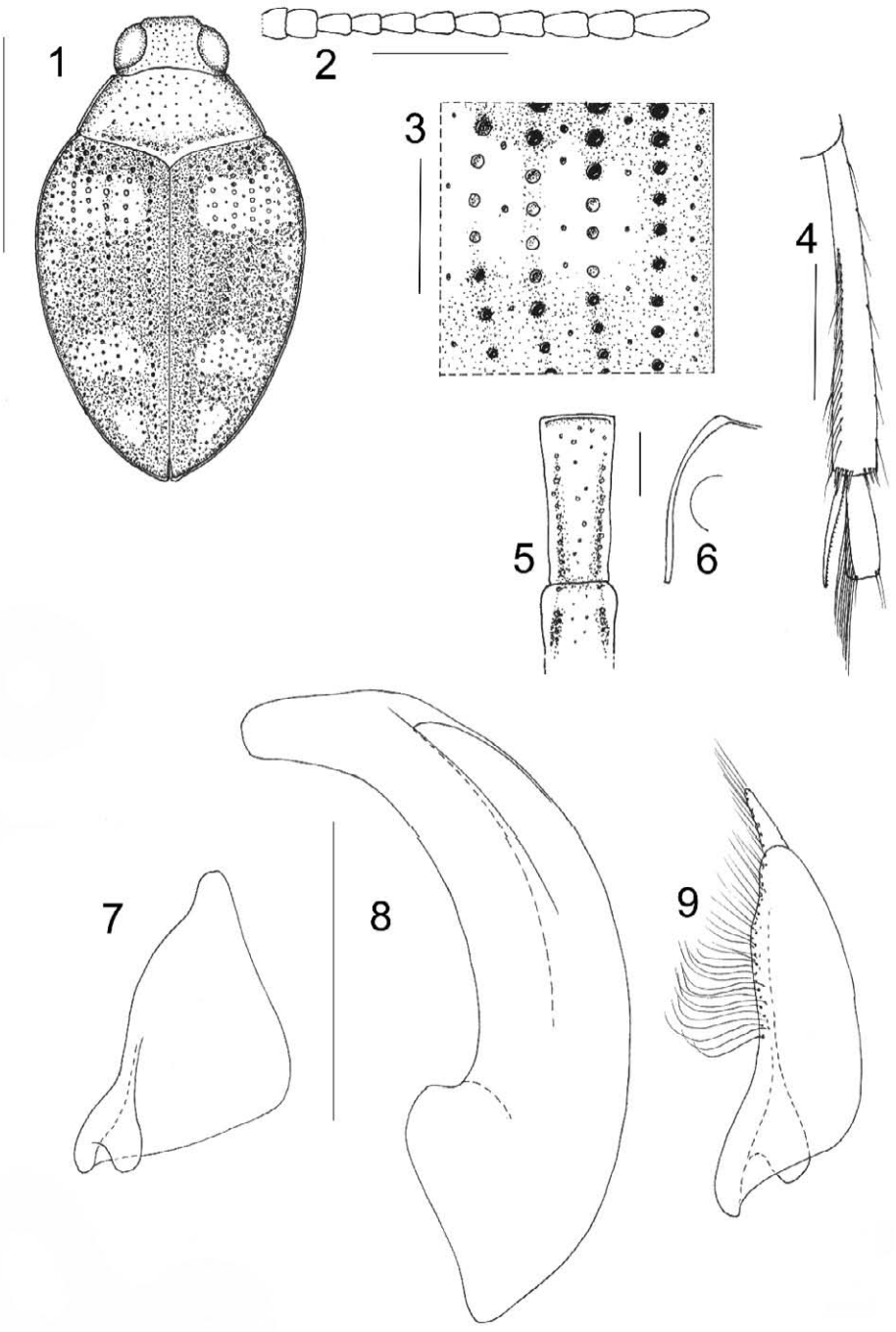
Female: tarsal segments simple, ventrally only with a longitudinal row of stiff hairs.

BIOLOGY: Collected in a stream in gallery forest and in pools in stream bed.

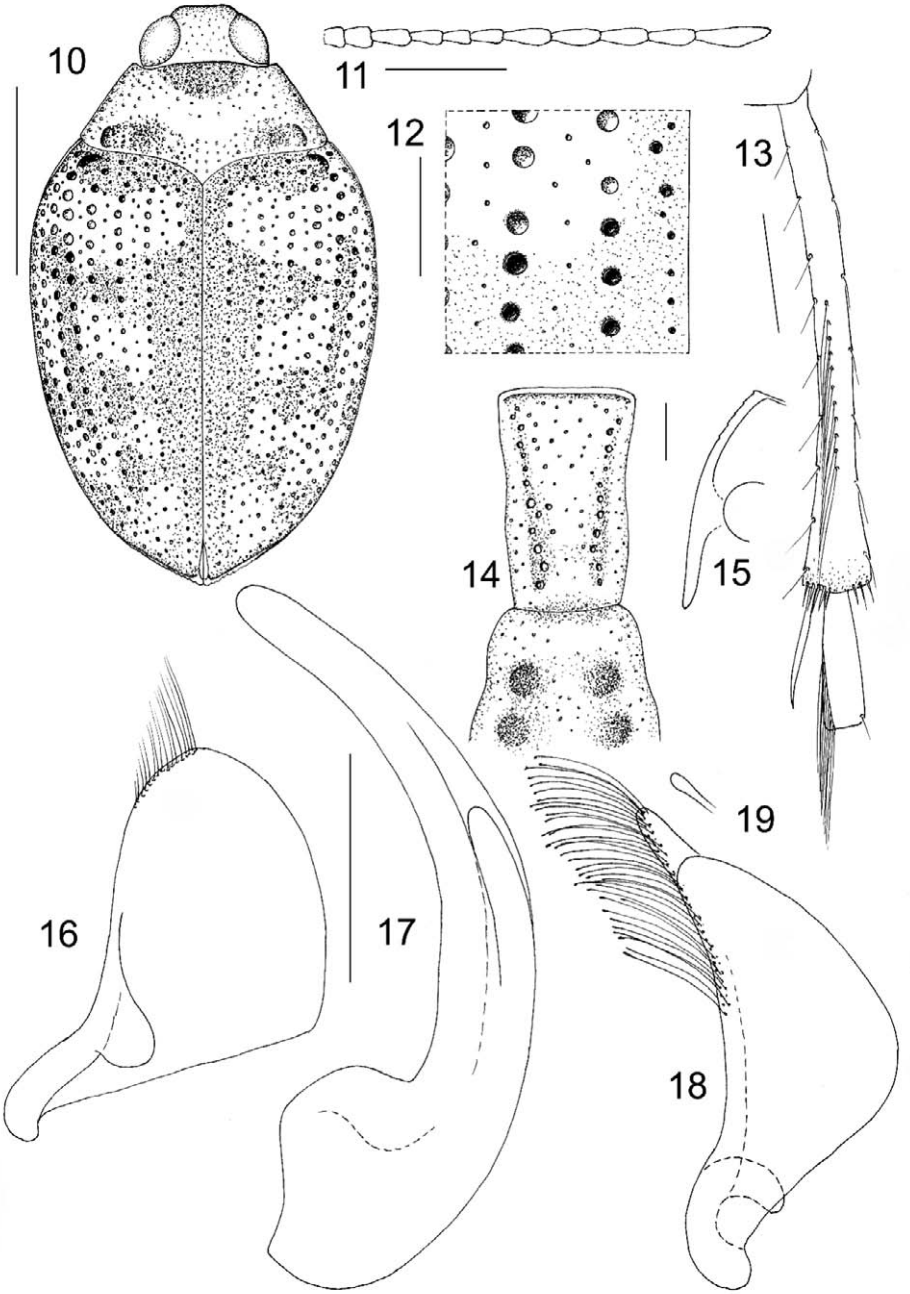
DISTRIBUTION (Fig. 504): Mexico.

Acknowledgements

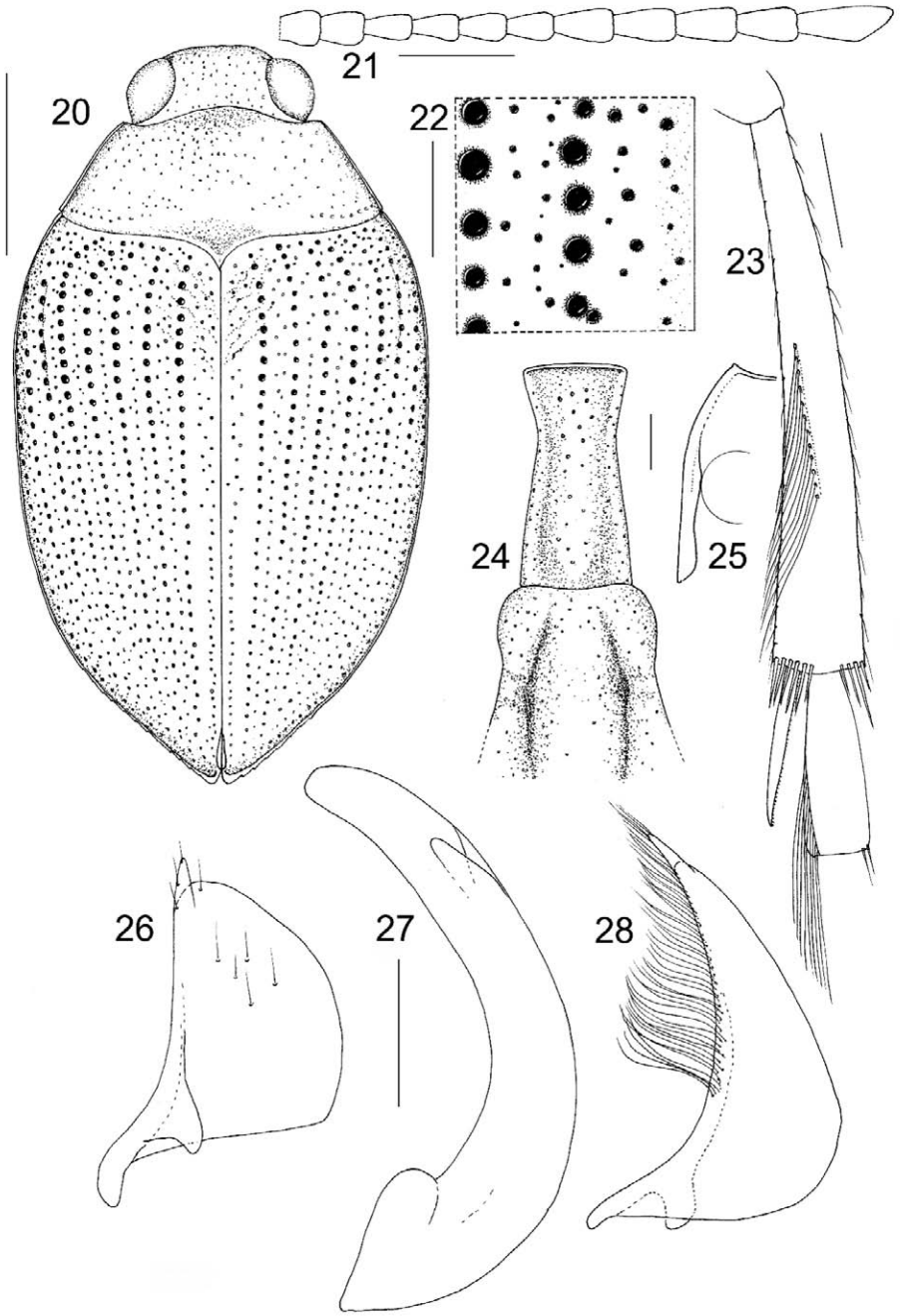
We wish to express our sincere thanks to all the persons who placed material at our disposal (mentioned under material). The Uyttenbogaart-Eliasen Foundation is acknowledged for financial support of the senior author.



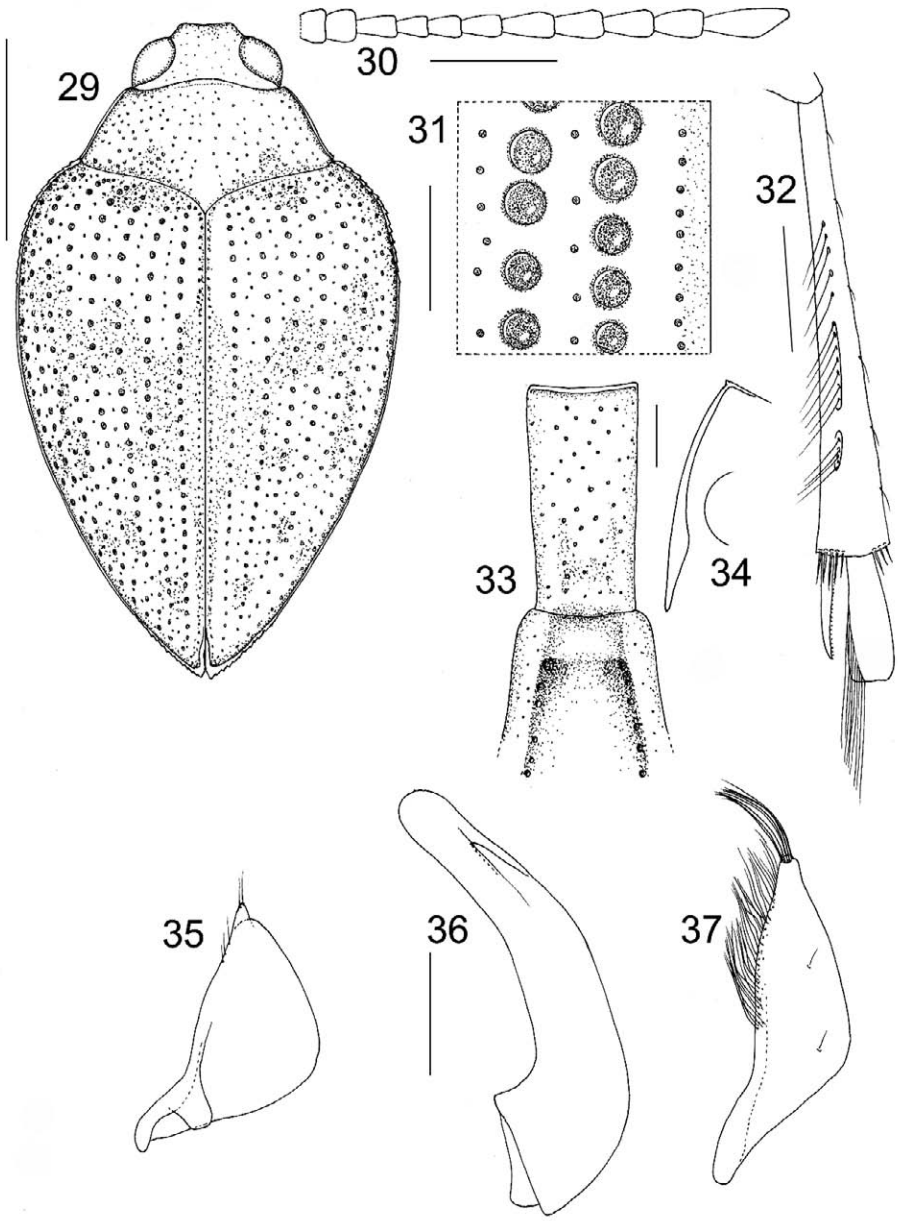
Figs. 1–9: *Haliplus annulatus* ♂, 1) habitus; 2) antenna; 3) punctures near elytral base and suture; 4) hind leg in dorsal view; 5) prosternal and metaventral process; 6) prosternal process in lateral view; 7) left paramere; 8) penis; 9) right paramere.



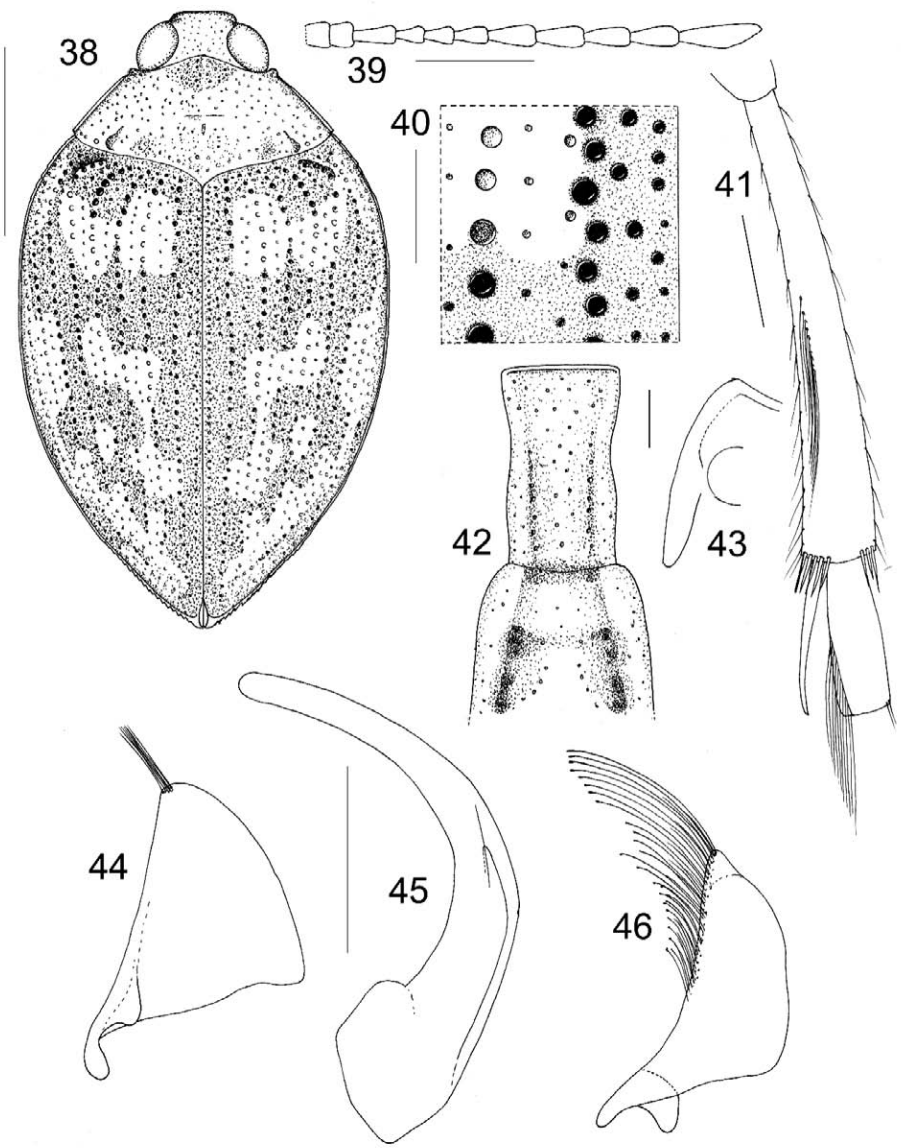
Figs. 10–19: *Haliplus bachmanni* ♂, 10) habitus; 11) antenna; 12) punctures near elytral base and suture; 13) hind leg in dorsal view; 14) prosternal and metaventral process; 15) prosternal process in lateral view; 16) left paramere; 17) penis; 18) right paramere; 19) top of bristle of right paramere.



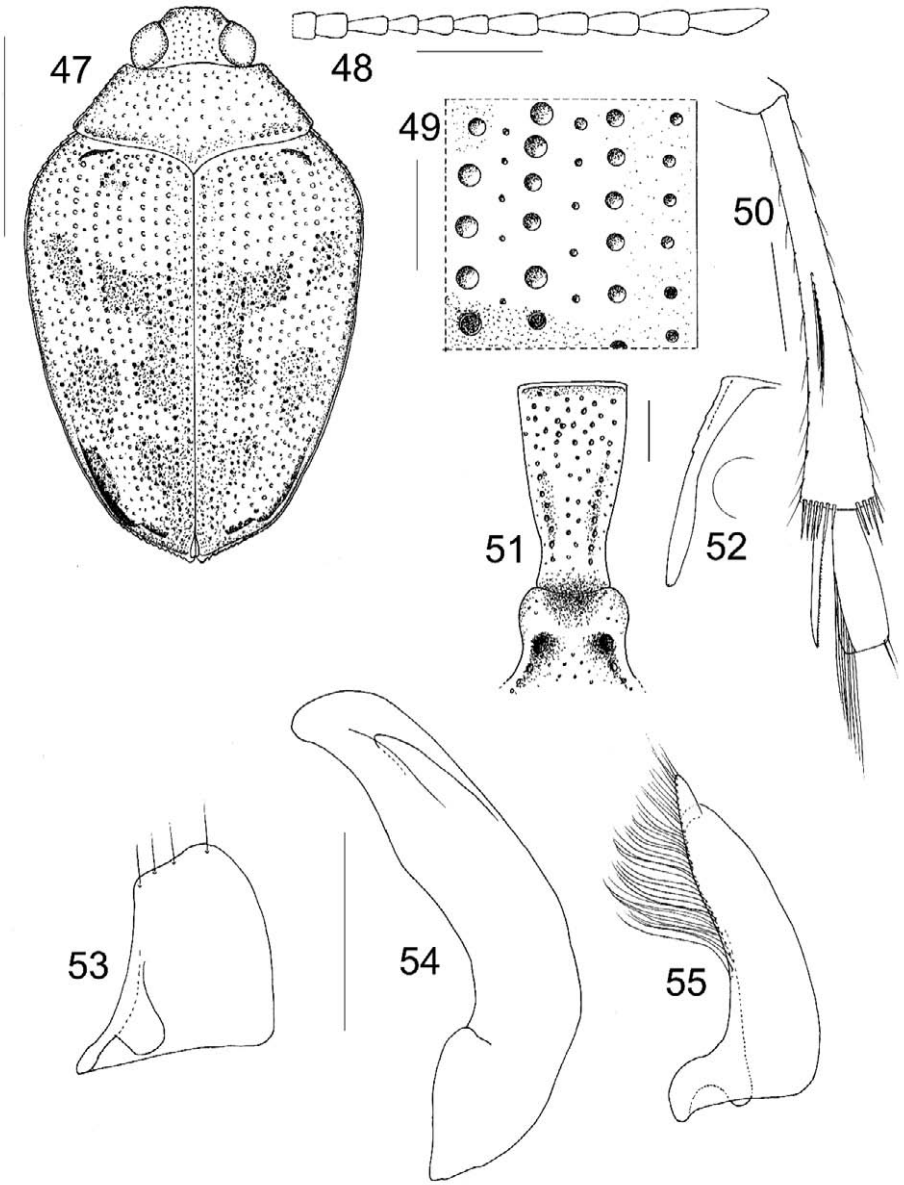
Figs. 20–28: *Haliplus bonariensis* ♂, 20) habitus; 21) antenna; 22) punctures near elytral base and suture; 23) hind leg in dorsal view; 24) prosternal and metaventral process; 25) prosternal process in lateral view; 26) left paramere; 27) penis; 28) right paramere.



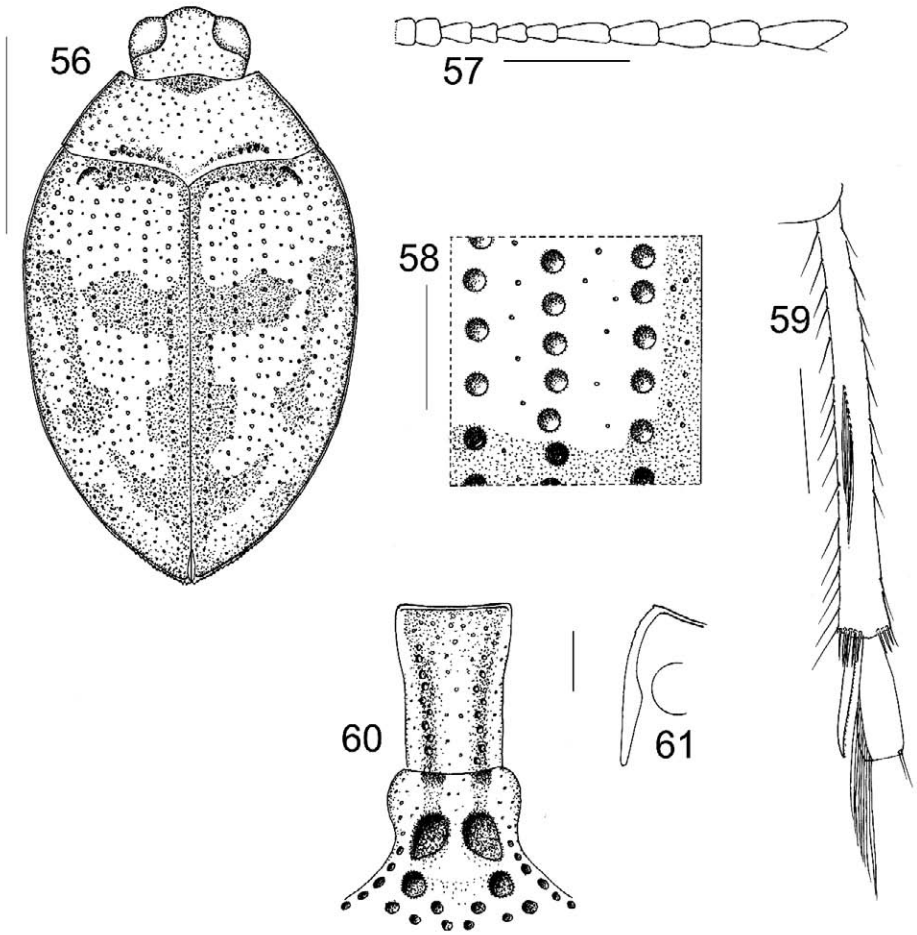
Figs. 29–37: *Haliplus brasiliensis* ♂, 29) habitus; 30) antenna; 31) punctures near elytral base and suture; 32) hind leg in dorsal view; 33) prosternal and metaventral process; 34) prosternal process in lateral view; 35) left paramere; 36) penis; 37) right paramere.



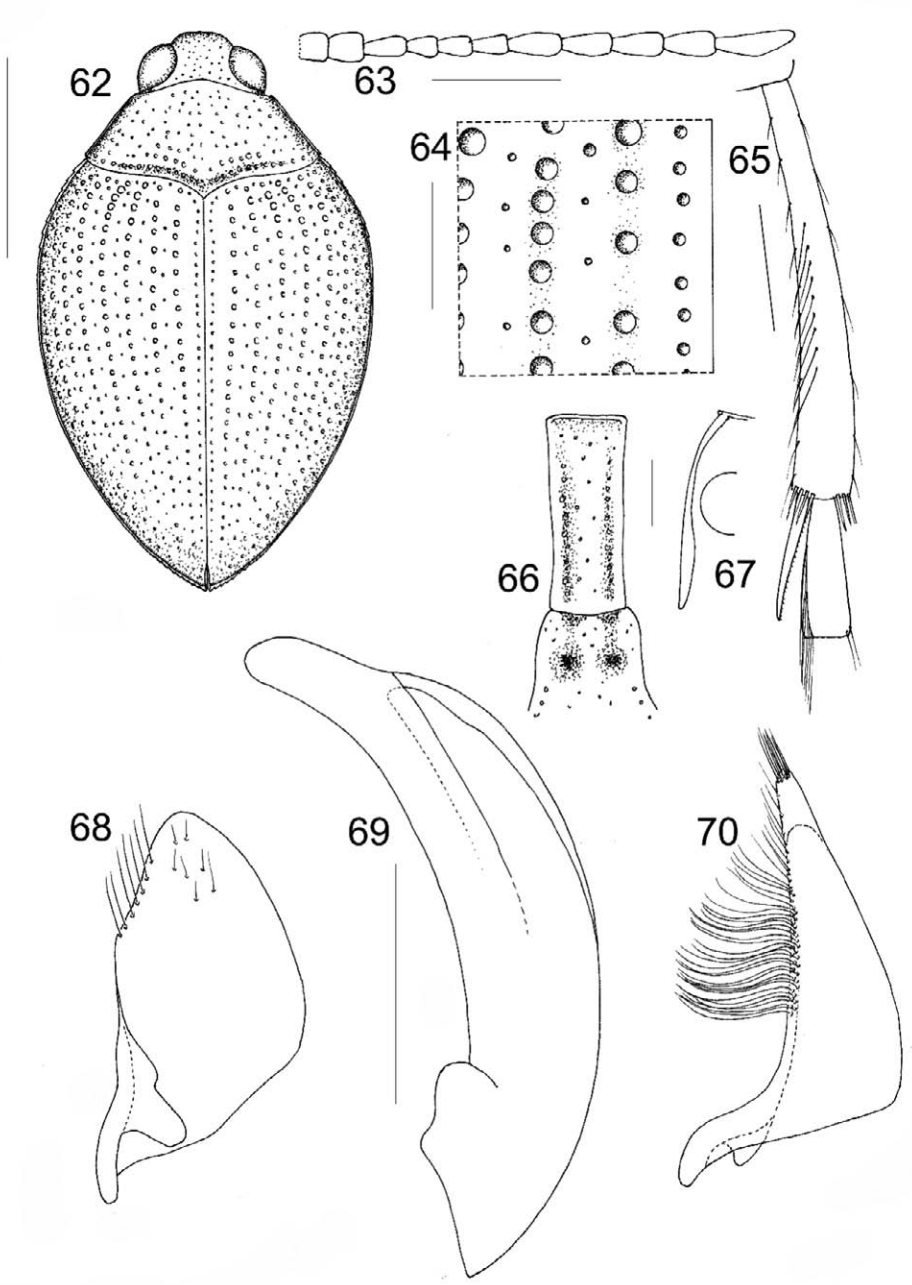
Figs. 38–46: *Haliplus camposi* ♂, 38) habitus; 39) antenna; 40) punctures near elytral base and suture; 41) hind leg in dorsal view; 42) prosternal and metaventral process; 43) prosternal process in lateral view; 44) left paramere; 45) penis; 46) right paramere.



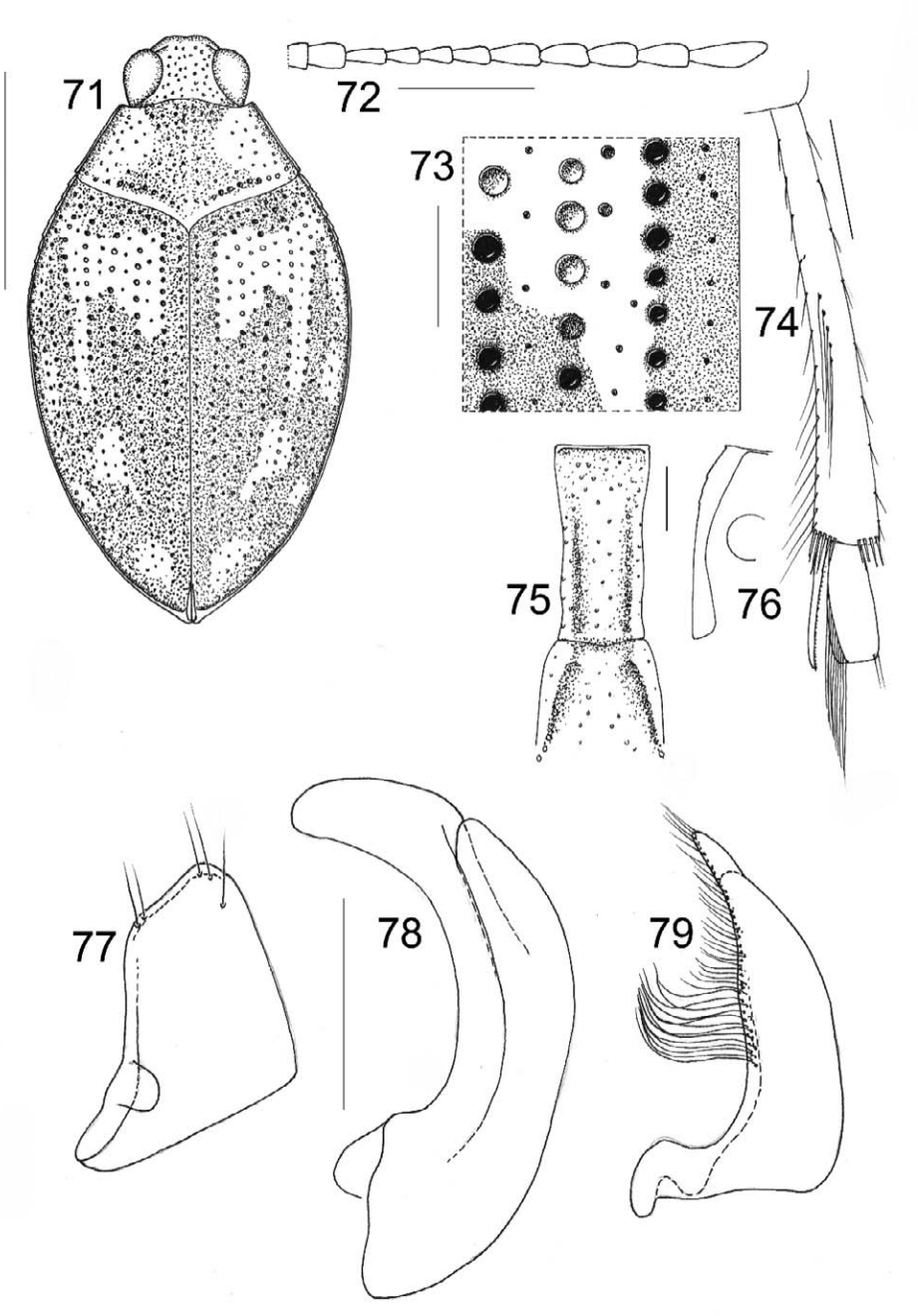
Figs. 47–55: *Haliplus carinatus* ♂, 47) habitus; 48) antenna; 49) punctures near elytral base and suture; 50) hind leg in dorsal view; 51) prosternal and metaventral process; 52) prosternal process in lateral view; 53) left paramere; 54) penis; 55) right paramere.



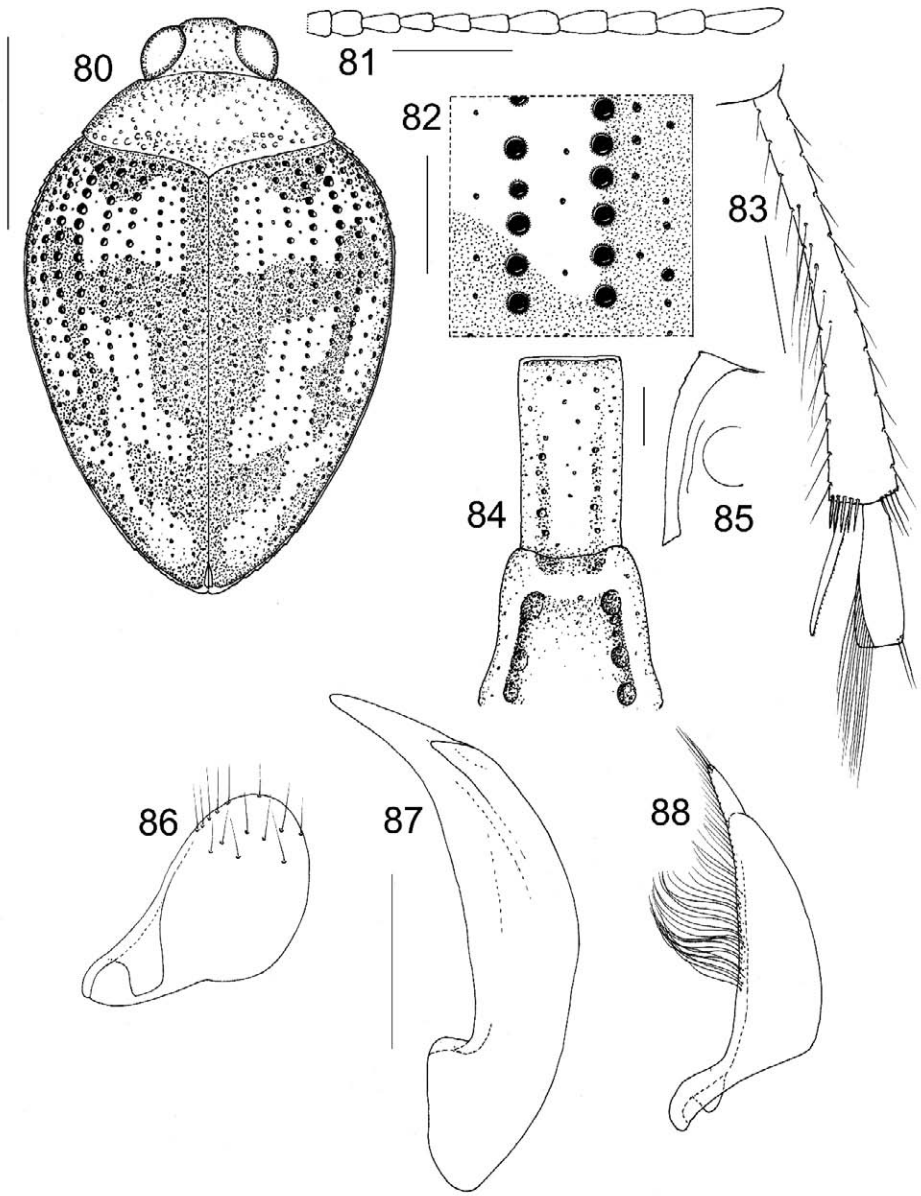
Figs. 56–61: *Haliplus colombiensis* ♀, 56) habitus; 57) antenna; 58) punctures near elytral base and suture; 59) hind leg in dorsal view; 60) prosternal and metaventral process; 61) prosternal process in lateral view.



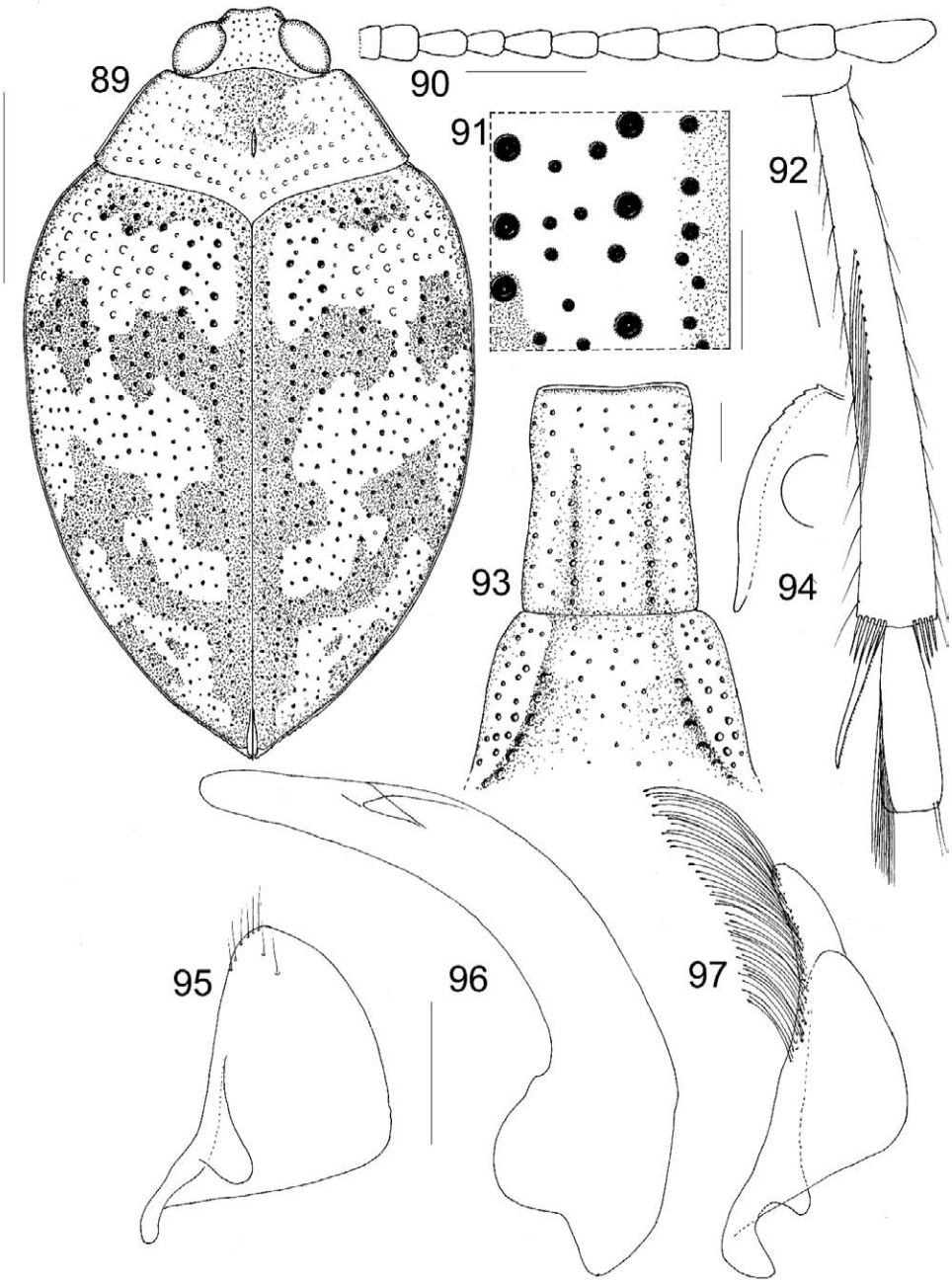
Figs. 62–70: *Haliplus concolor* ♂, 62) habitus; 63) antenna; 64) punctures near elytral base and suture; 65) hind leg in dorsal view; 66) prosternal and metaventral process; 67) prosternal process in lateral view; 68) left paramere; 69) penis; 70) right paramere.



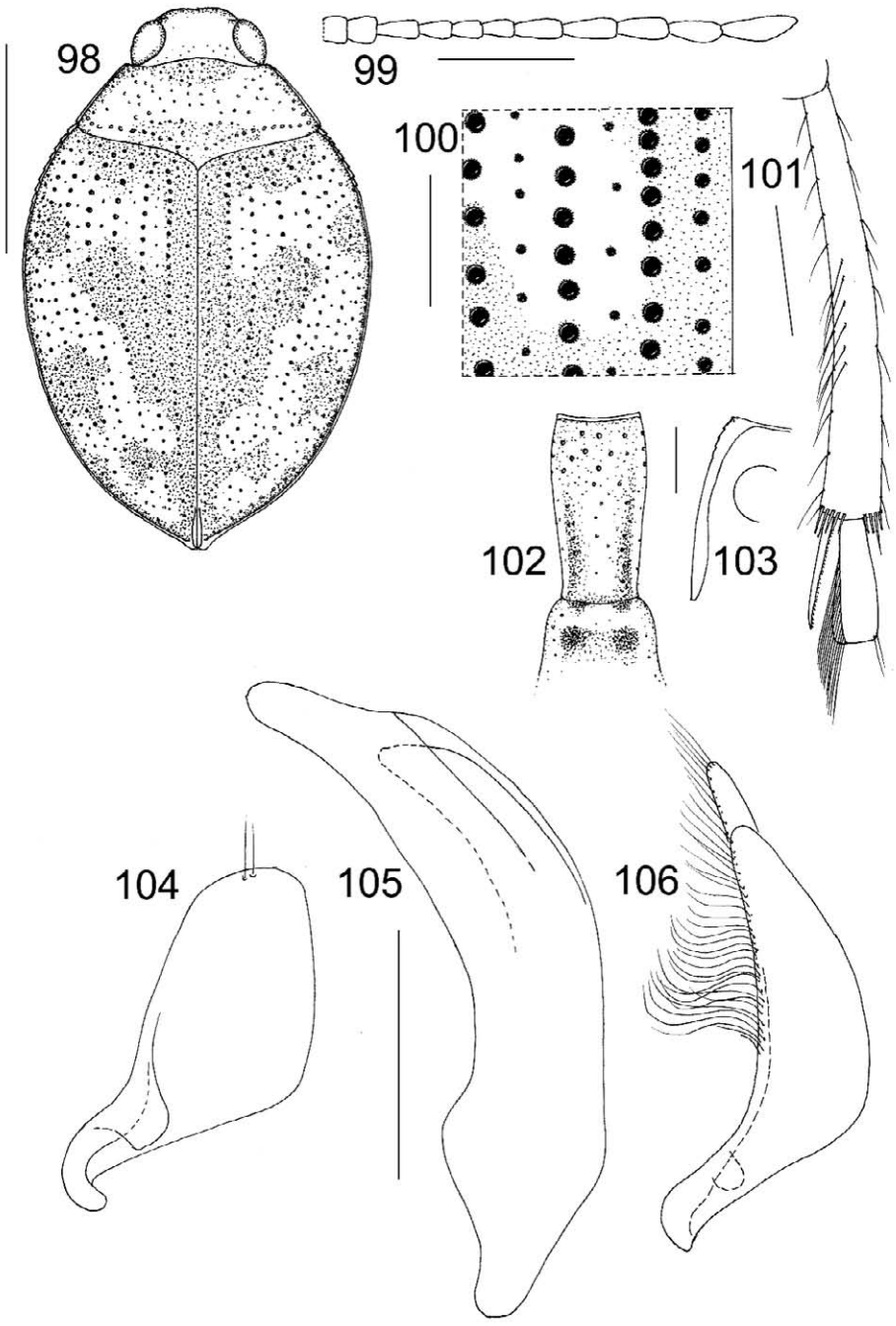
Figs. 71–79: *Haliplus confluentus* ♂, 71) habitus; 72) antenna; 73) punctures near elytral base and suture; 74) hind leg in dorsal view; 75) prosternal and metaventral process; 76) prosternal process in lateral view; 77) left paramere; 78) penis; 79) right paramere.



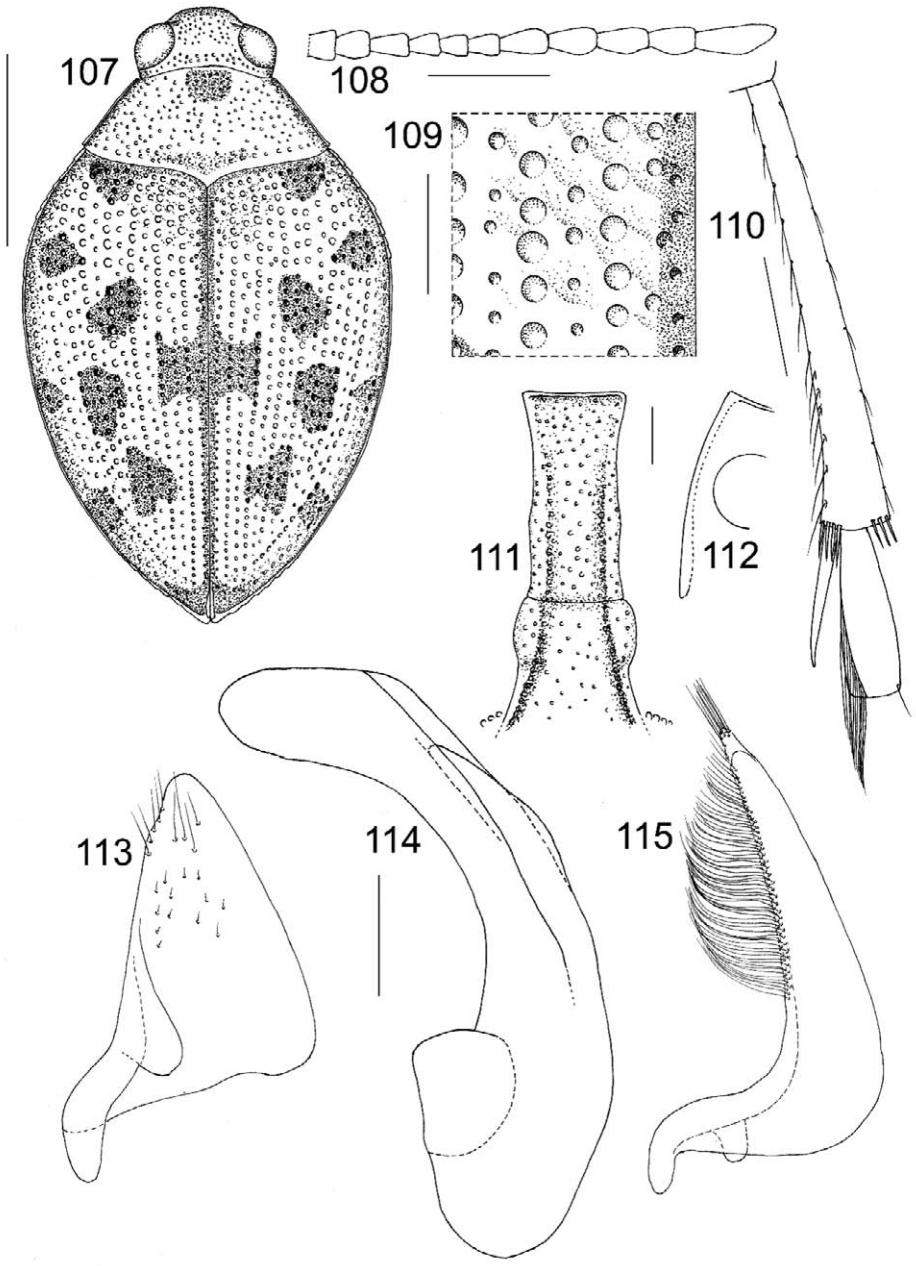
Figs. 80–88: *Haliplus costaricanus* ♂, 80) habitus; 81) antenna; 82) punctures near elytral base and suture; 83) hind leg in dorsal view; 84) prosternal and metaventral process; 85) prosternal process in lateral view; 86) left paramere; 87) penis; 88) right paramere.



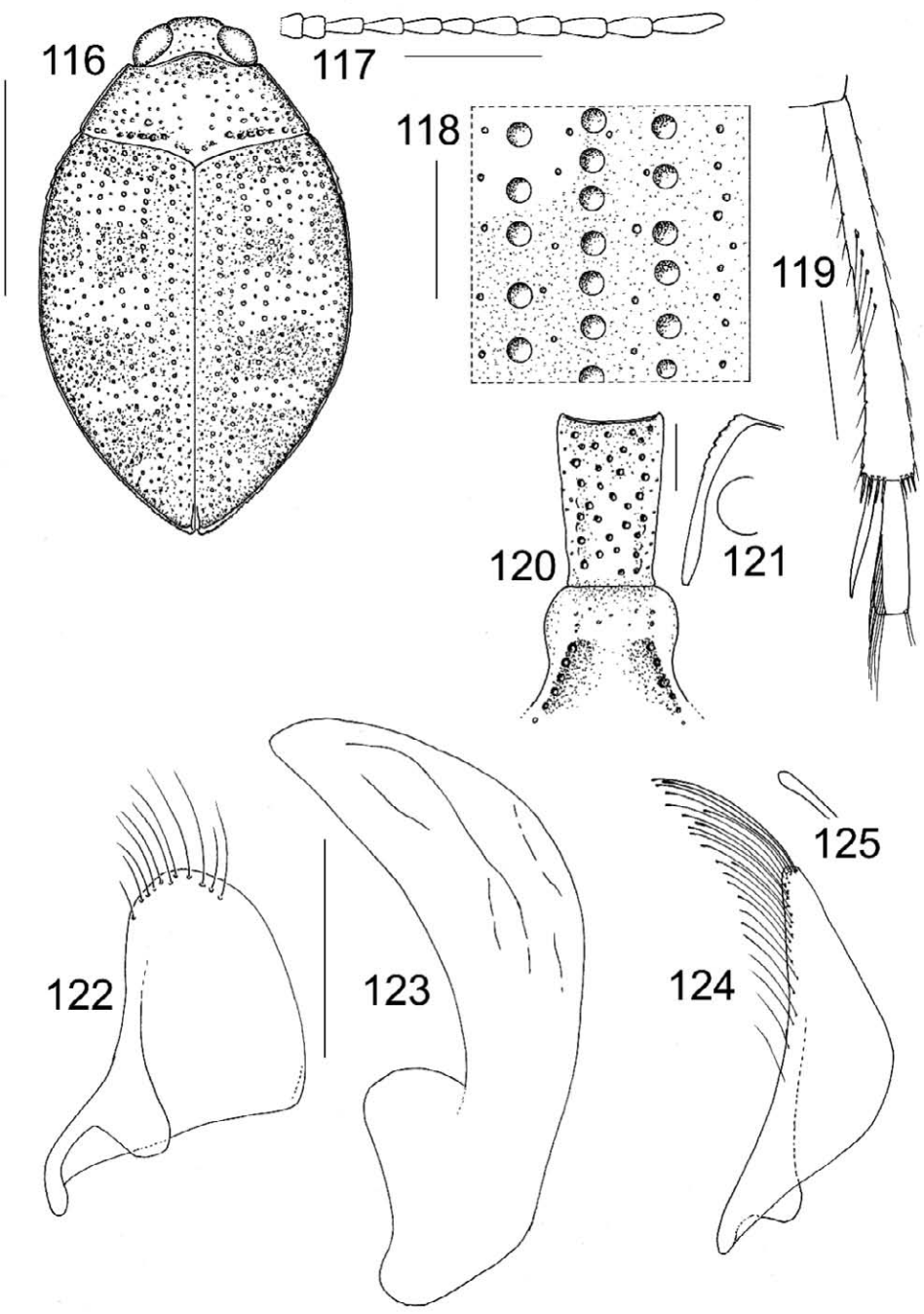
Figs. 89–97: *Haliplus crassus* ♂, 89) habitus; 90) antenna; 91) punctures near elytral base and suture; 92) hind leg in dorsal view; 93) prosternal and metaventral process; 94) prosternal process in lateral view; 95) left paramere; 96) penis; 97) right paramere.



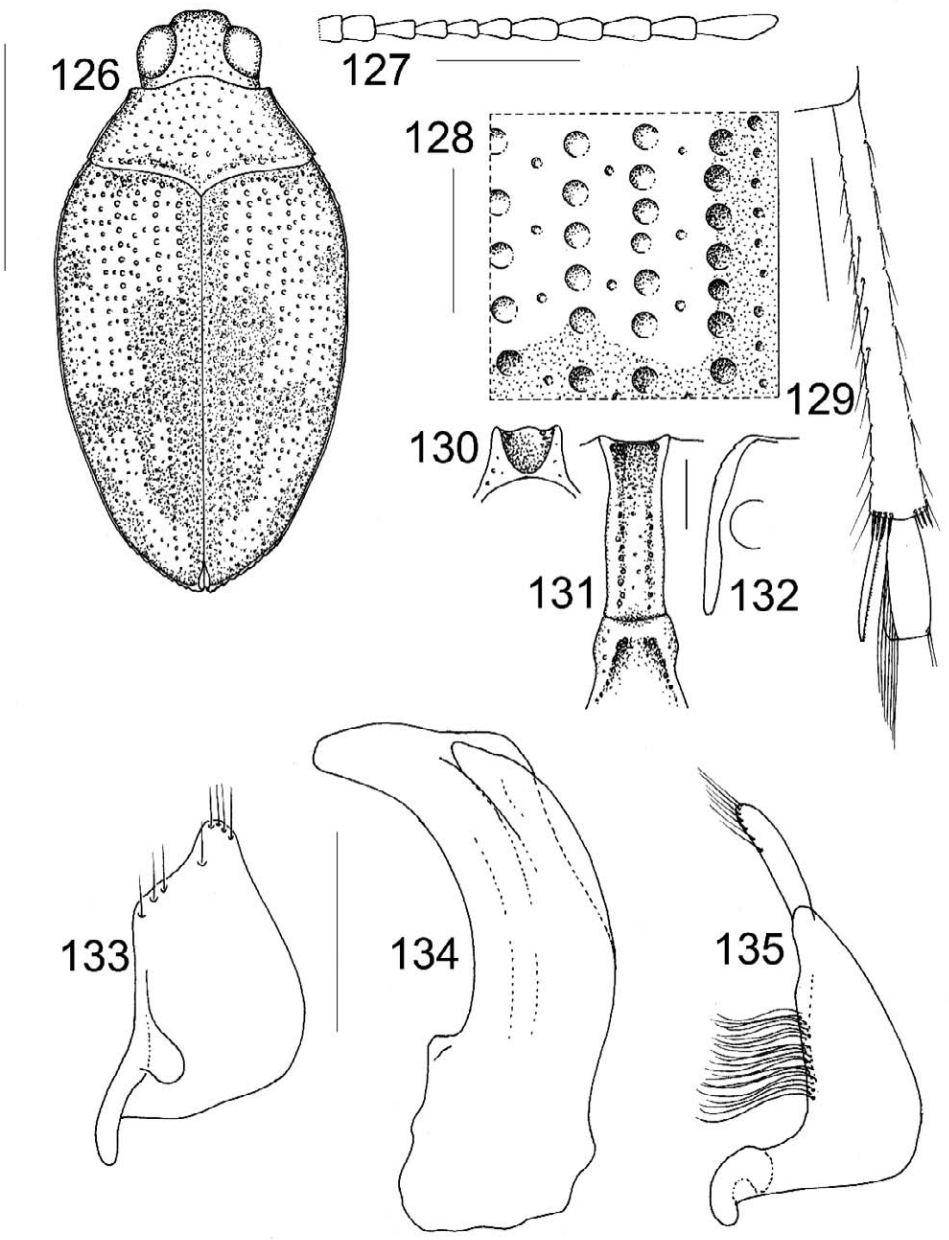
Figs. 98–106: *Haliplus cubensis* ♂, 98) habitus; 99) antenna; 100) punctures near elytral base and suture; 101) hind leg in dorsal view; 102) prosternal and metaventral process; 103) prosternal process in lateral view; 104) left paramere; 105) penis; 106) right paramere.



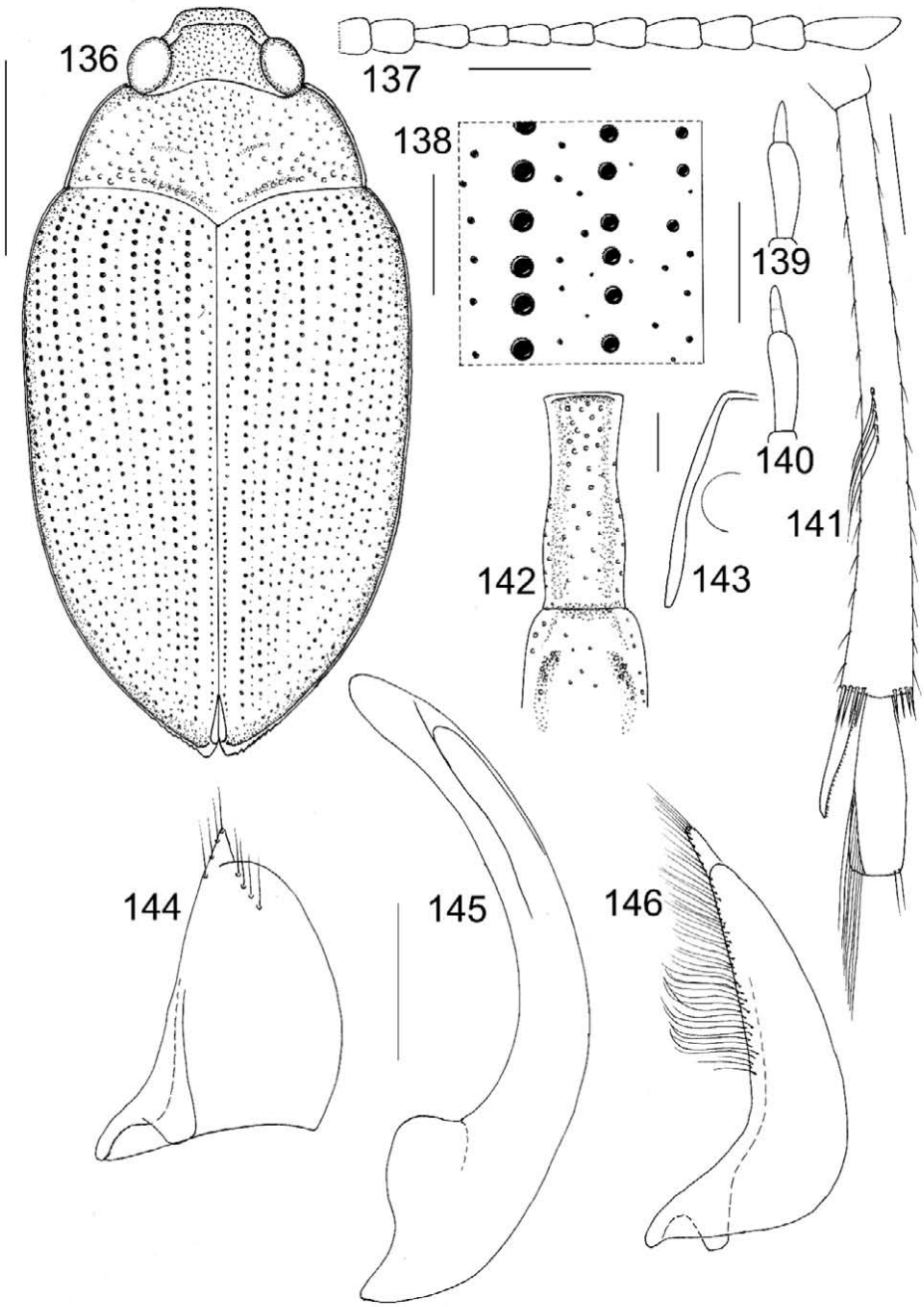
Figs. 107–115: *Haliplus deceptus* ♂, 107) habitus; 108) antenna; 109) punctures near elytral base and suture; 110) hind leg in dorsal view; 111) prosternal and metaventral process; 112) prosternal process in lateral view; 113) left paramere; 114) penis; 115) right paramere.



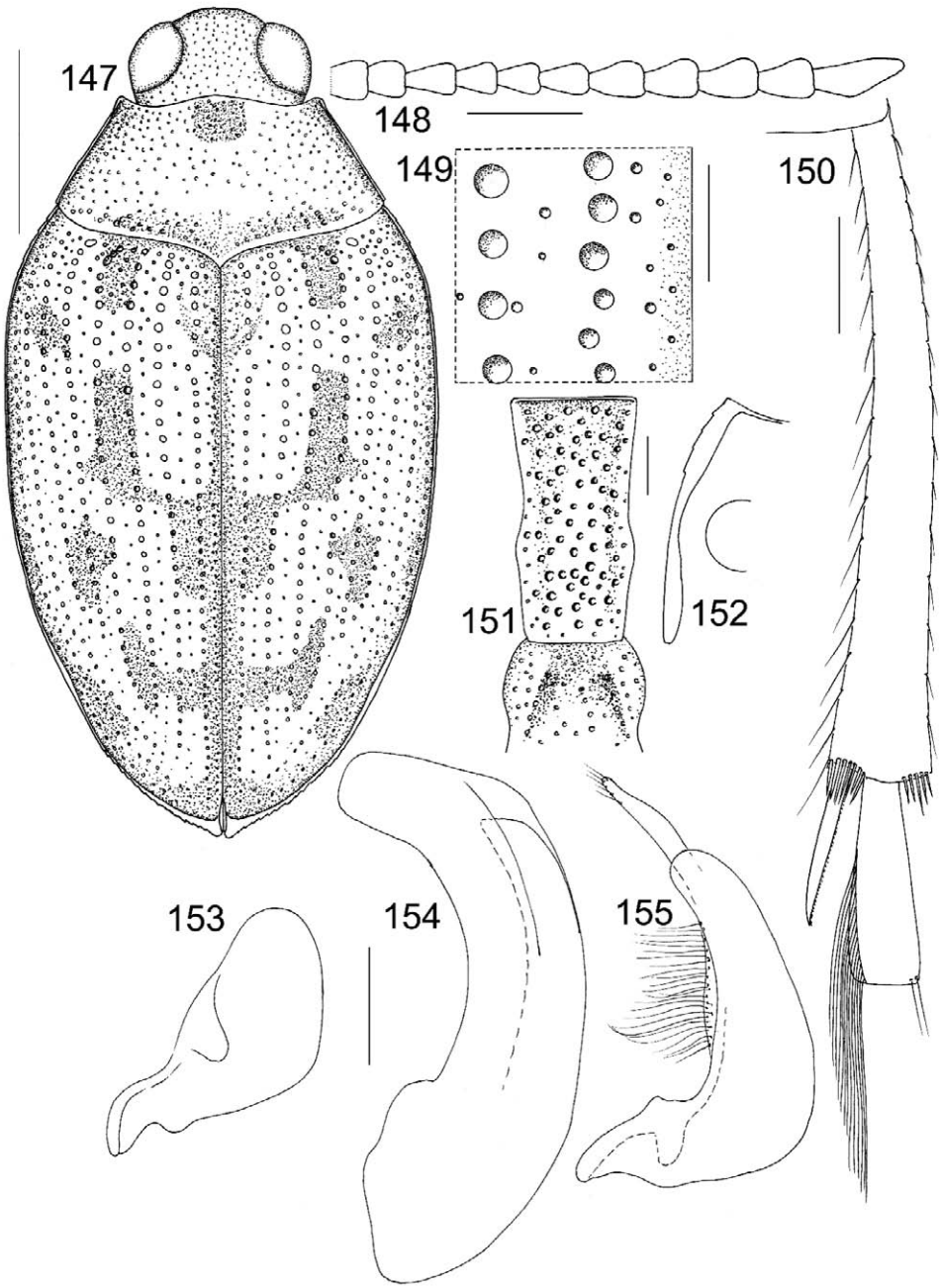
Figs. 116–125: *Haliplus drechseli* ♂, 116) habitus; 117) antenna; 118) punctures near elytral base and suture; 119) hind leg in dorsal view; 120) prosternal and metaventral process; 121) prosternal process in lateral view; 122) left paramere; 123) penis; 124) right paramere; 125) top of bristle of right paramere.



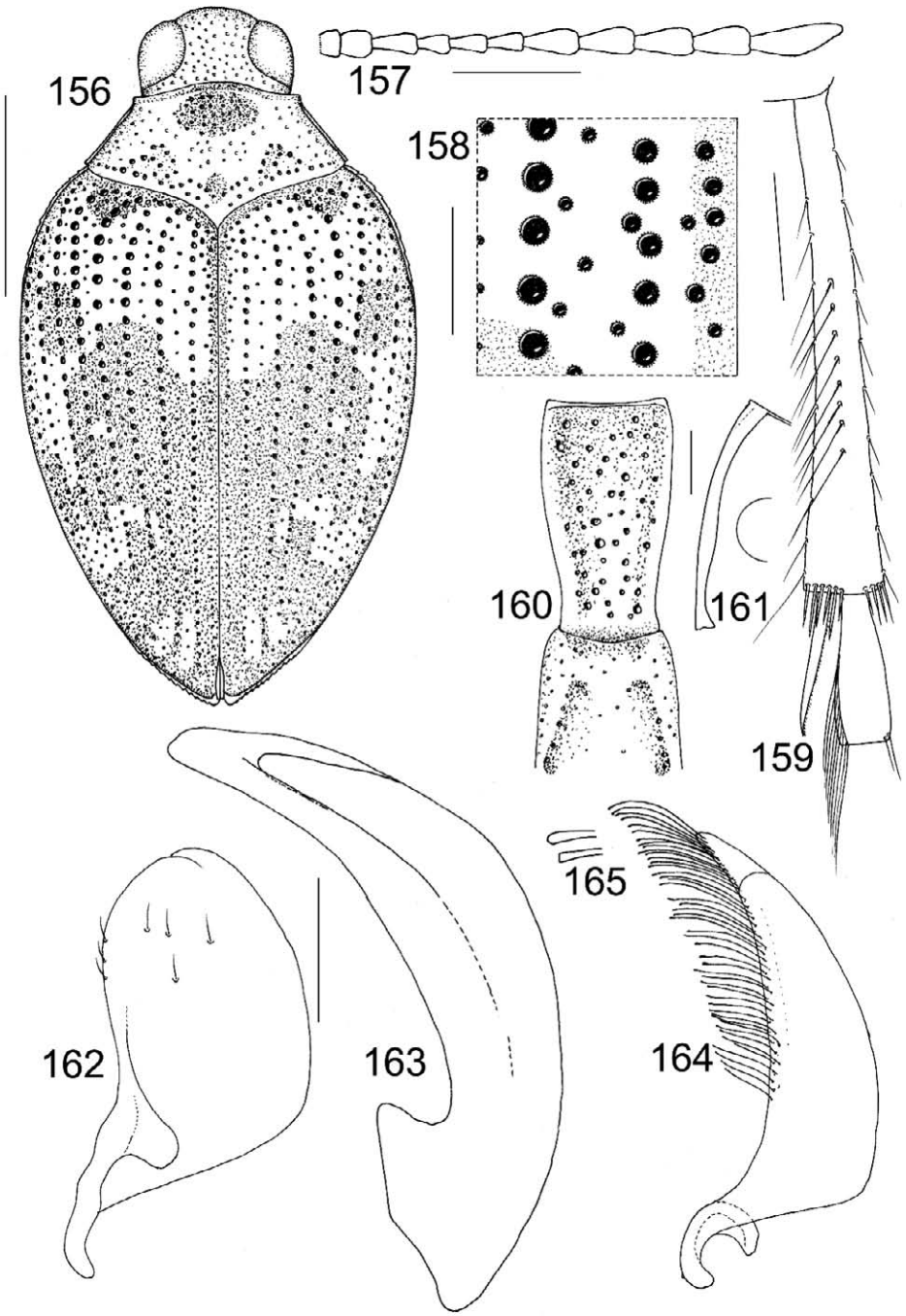
Figs. 126–135: *Haliplus elsaltous* ♂, 126) habitus; 127) antenna; 128) punctures near elytral base and suture; 129) hind leg in dorsal view; 130) prosternal process in frontal view; 131) prosternal and metaventral process; 132) prosternal process in lateral view; 133) left paramere; 134) penis; 135) right paramere.



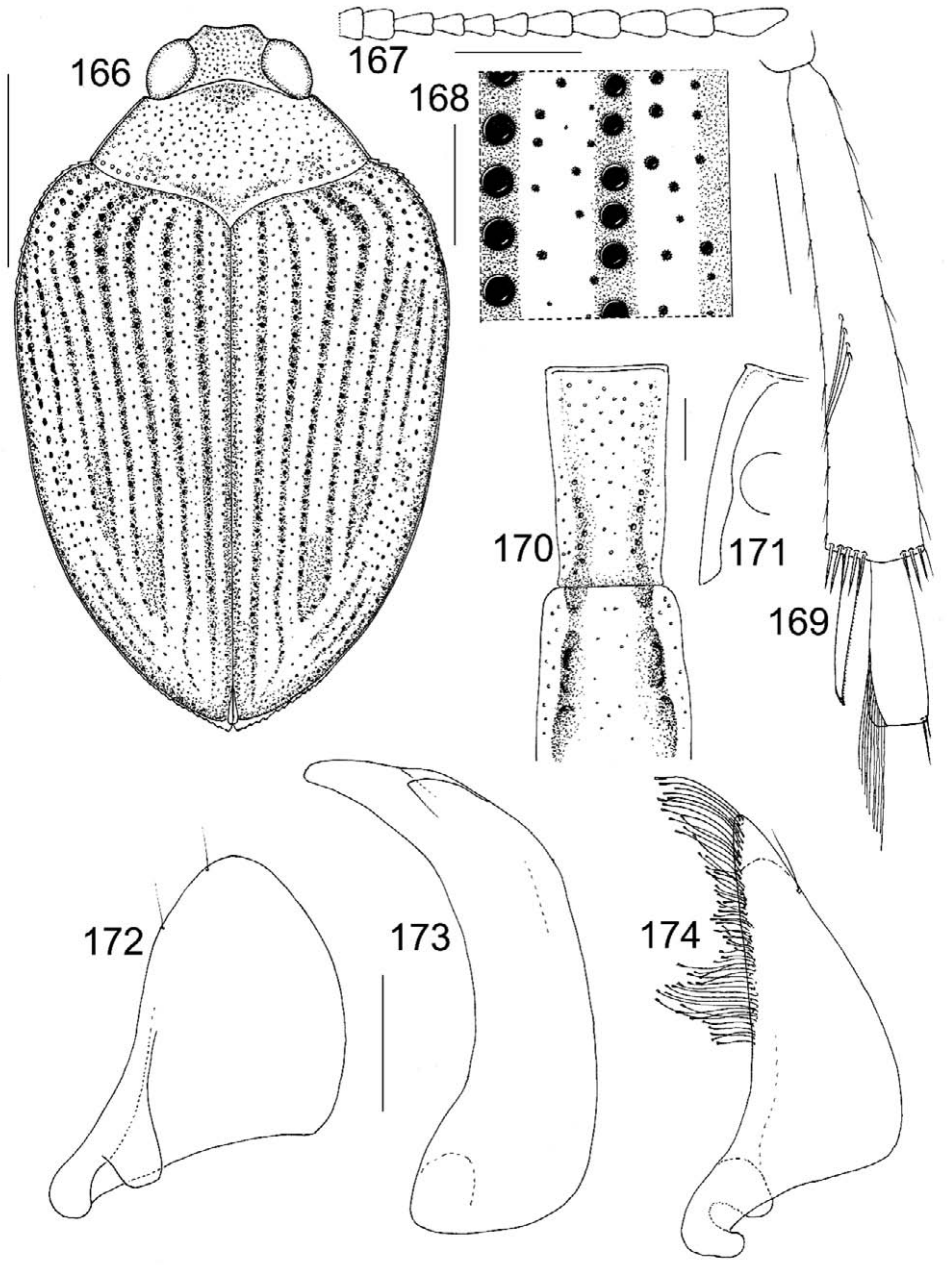
Figs. 136–146: *Haliplus fuscipennis* ♂, 136) habitus; 137) antenna; 138) punctures near elytral base and suture; 139) labial palpus; 140) maxillary palpus; 141) hind leg in dorsal view; 142) prosternal and metaventral process; 143) prosternal process in lateral view; 144) left paramere; 145) penis; 146) right paramere.



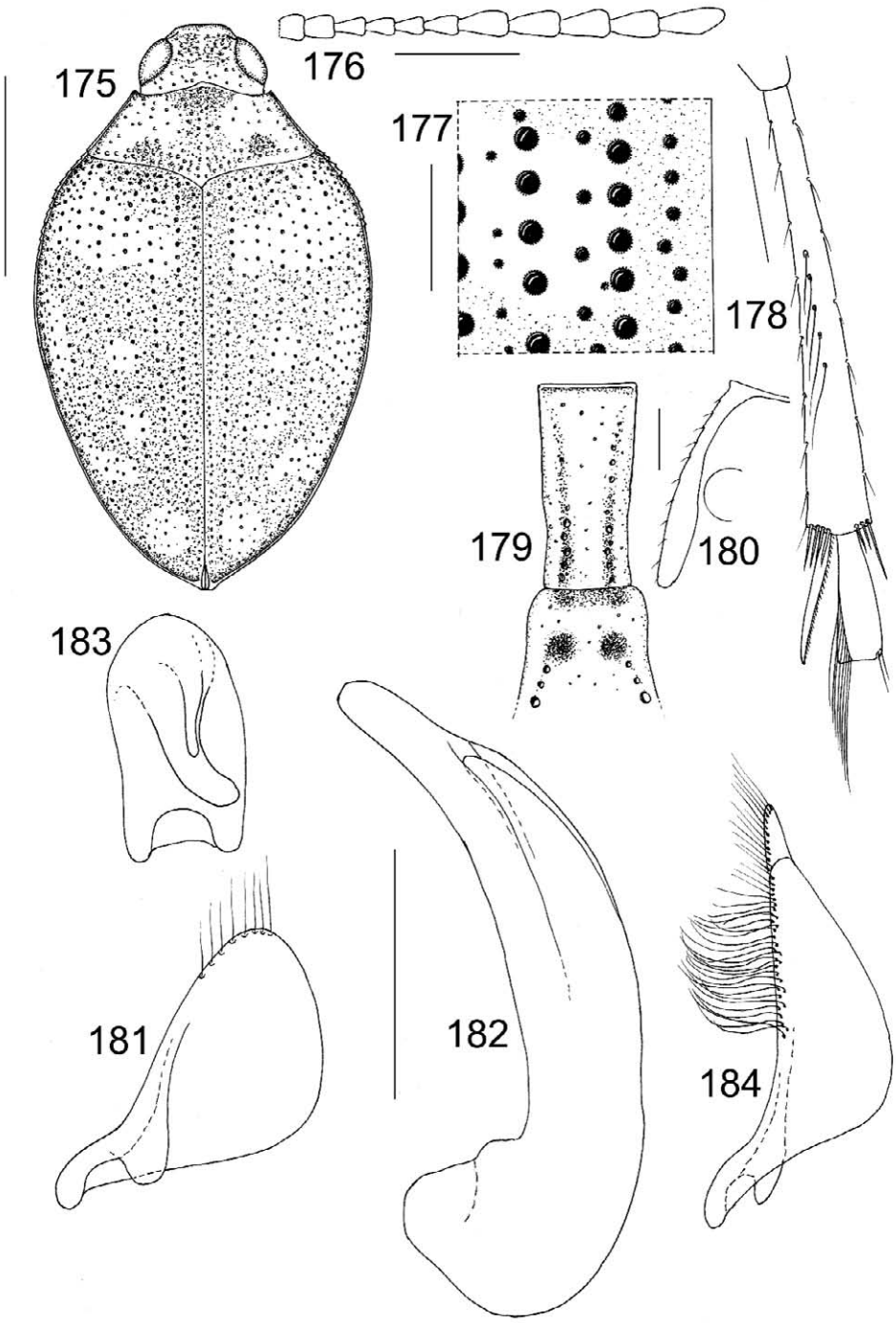
Figs. 147–155: *Haliplus grandis* ♂, 147) habitus; 148) antenna; 149) punctures near elytral base and suture; 150) hind leg in dorsal view; 151) prosternal and metaventral process; 152) prosternal process in lateral view; 153) left paramere; 154) penis; 155) right paramere.



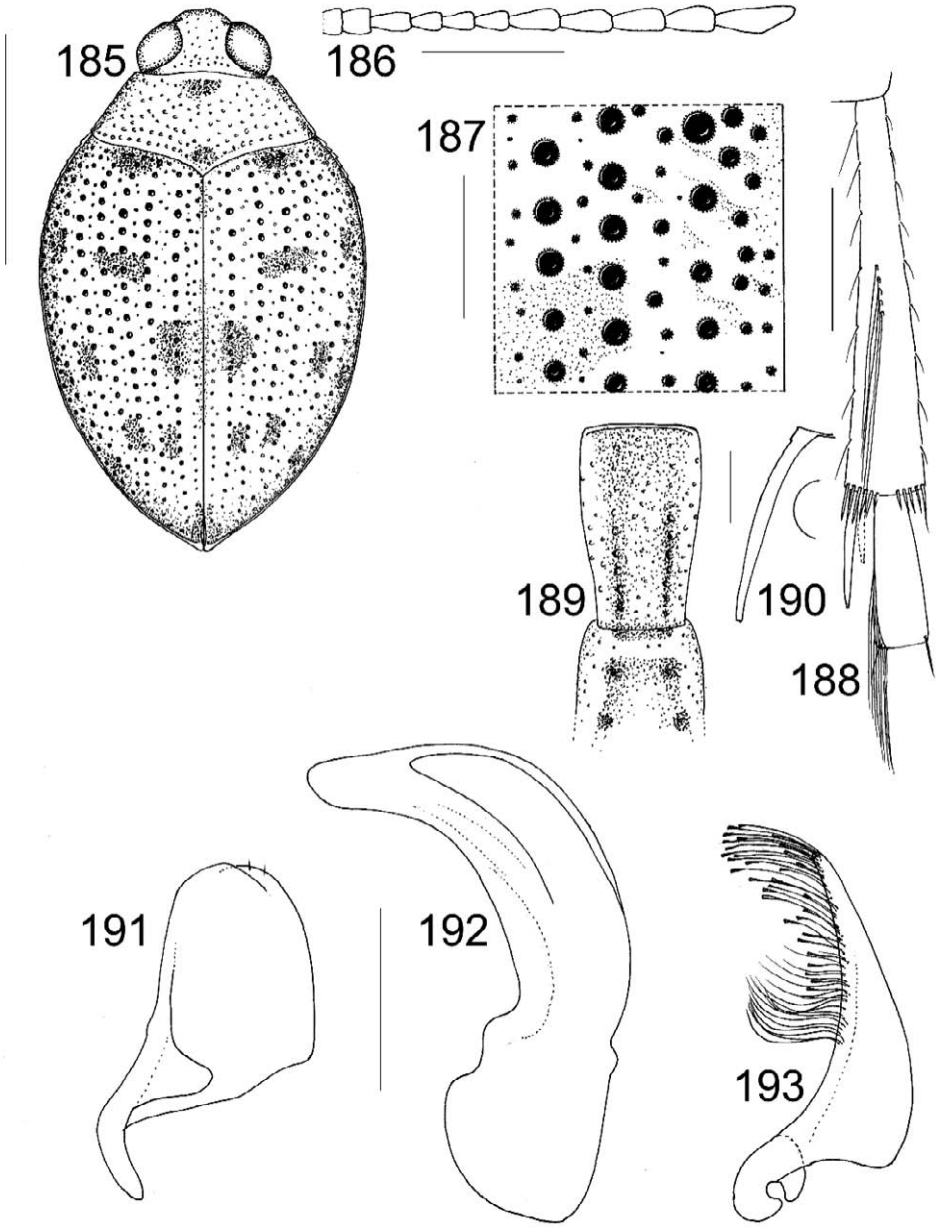
Figs. 156–165: *Haliplus gravidoides* ♂, 156) habitus; 157) antenna; 158) punctures near elytral base and suture; 159) hind leg in dorsal view; 160) prosternal and metaventral process; 161) prosternal process in lateral view; 162) left paramere; 163) penis; 164) right paramere; 165) top of bristles of right paramere.



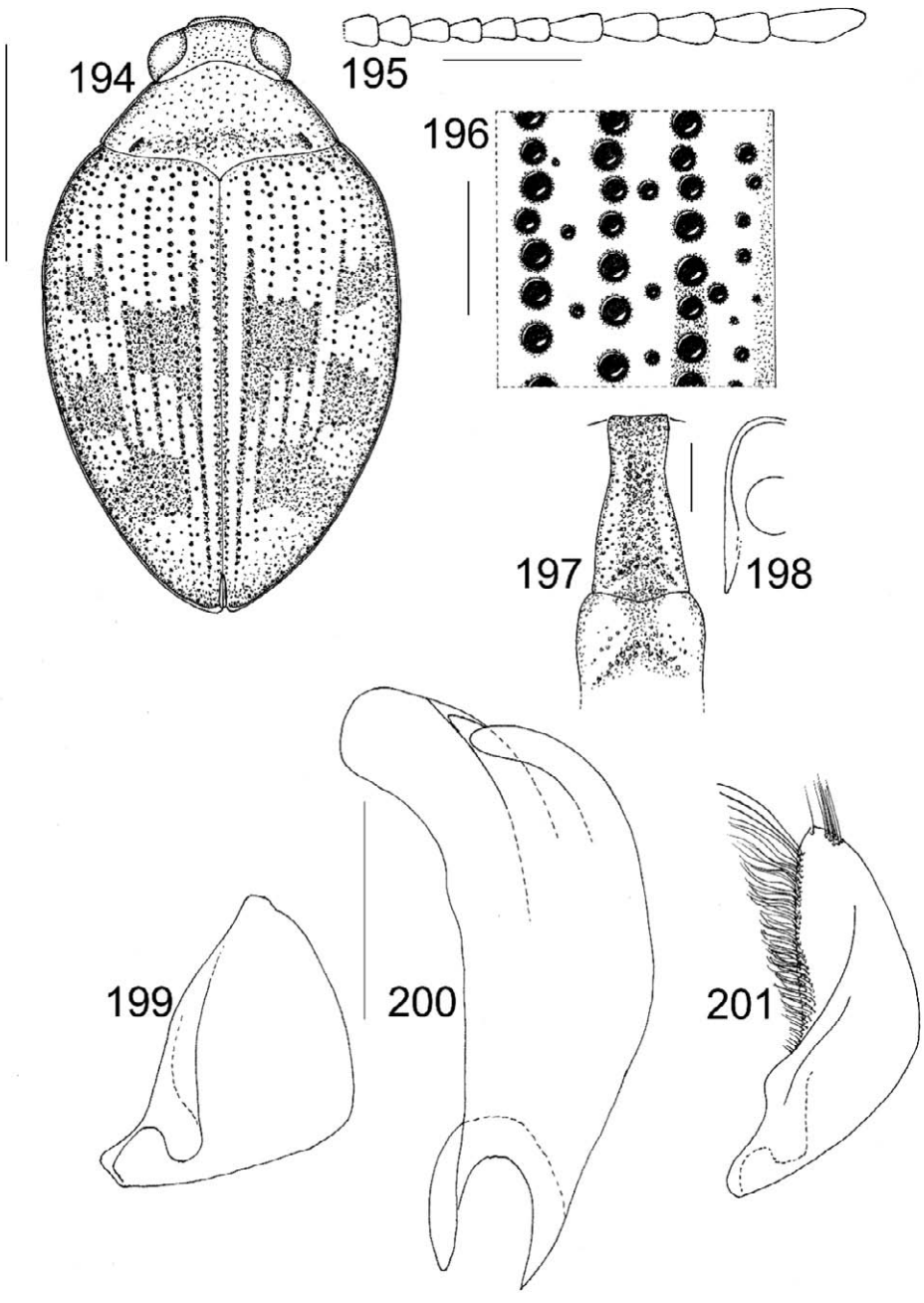
Figs. 166–174: *Haliplus gravidus* ♂, 166) habitus; 167) antenna; 168) punctures near elytral base and suture; 169) hind leg in dorsal view; 170) prosternal and metaventral process; 171) prosternal process in lateral view; 172) left paramere; 173) penis; 174) right paramere.



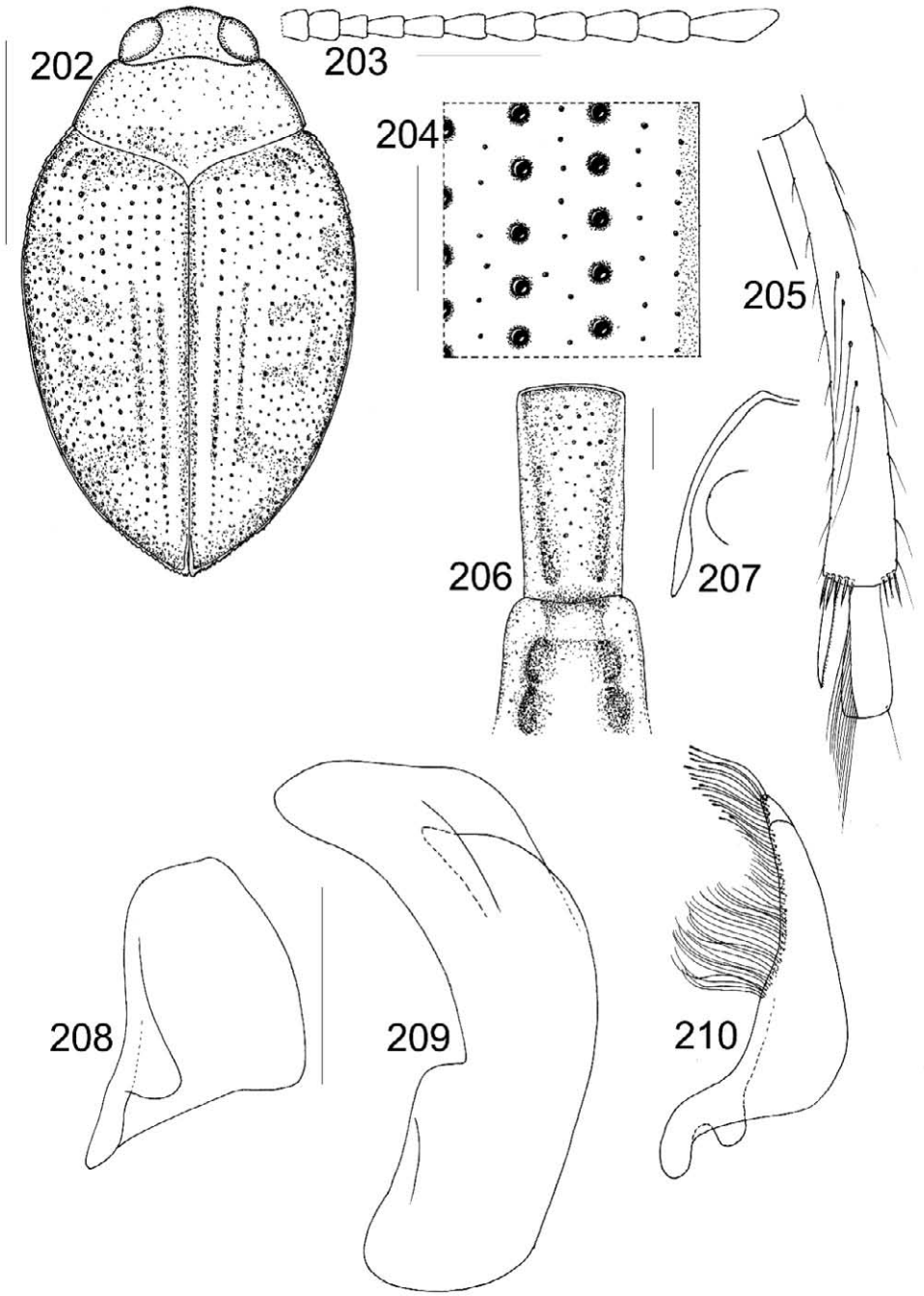
Figs. 175–184: *Haliplus havaniensis* ♂, 175) habitus; 176) antenna; 177) punctures near elytral base and suture; 178) hind leg in dorsal view; 179) prosternal and metaventral process; 180) prosternal process in lateral view; 181) left paramere; 182) penis; 183) penis in apical view; 184) right paramere.



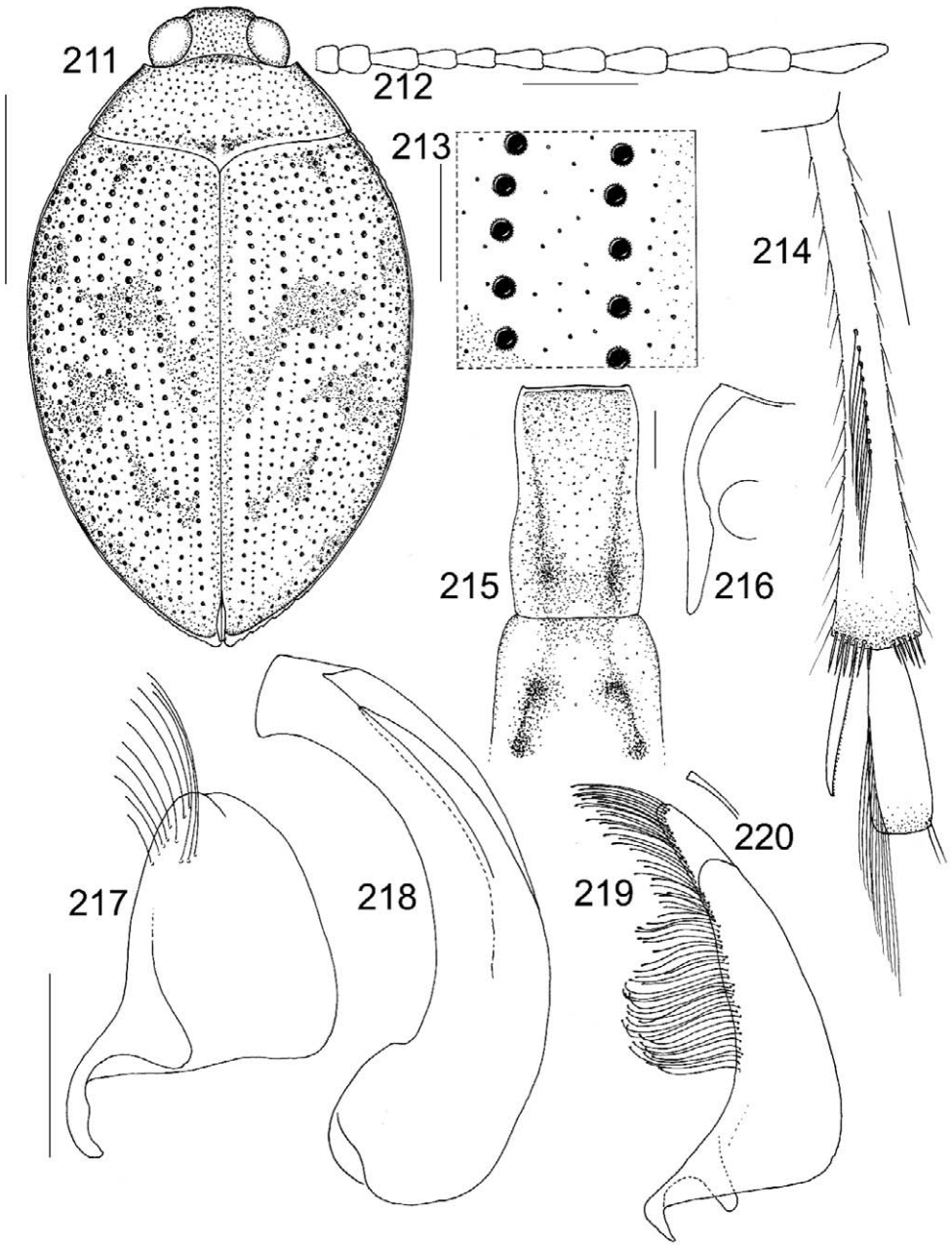
Figs. 185–193: *Haliplus heppneri* ♂, 185) habitus; 186) antenna; 187) punctures near elytral base and suture; 188 hind leg in dorsal view; 189) prosternal and metaventral process; 190) prosternal process in lateral view; 191) left paramere; 192) penis; 193) right paramere.



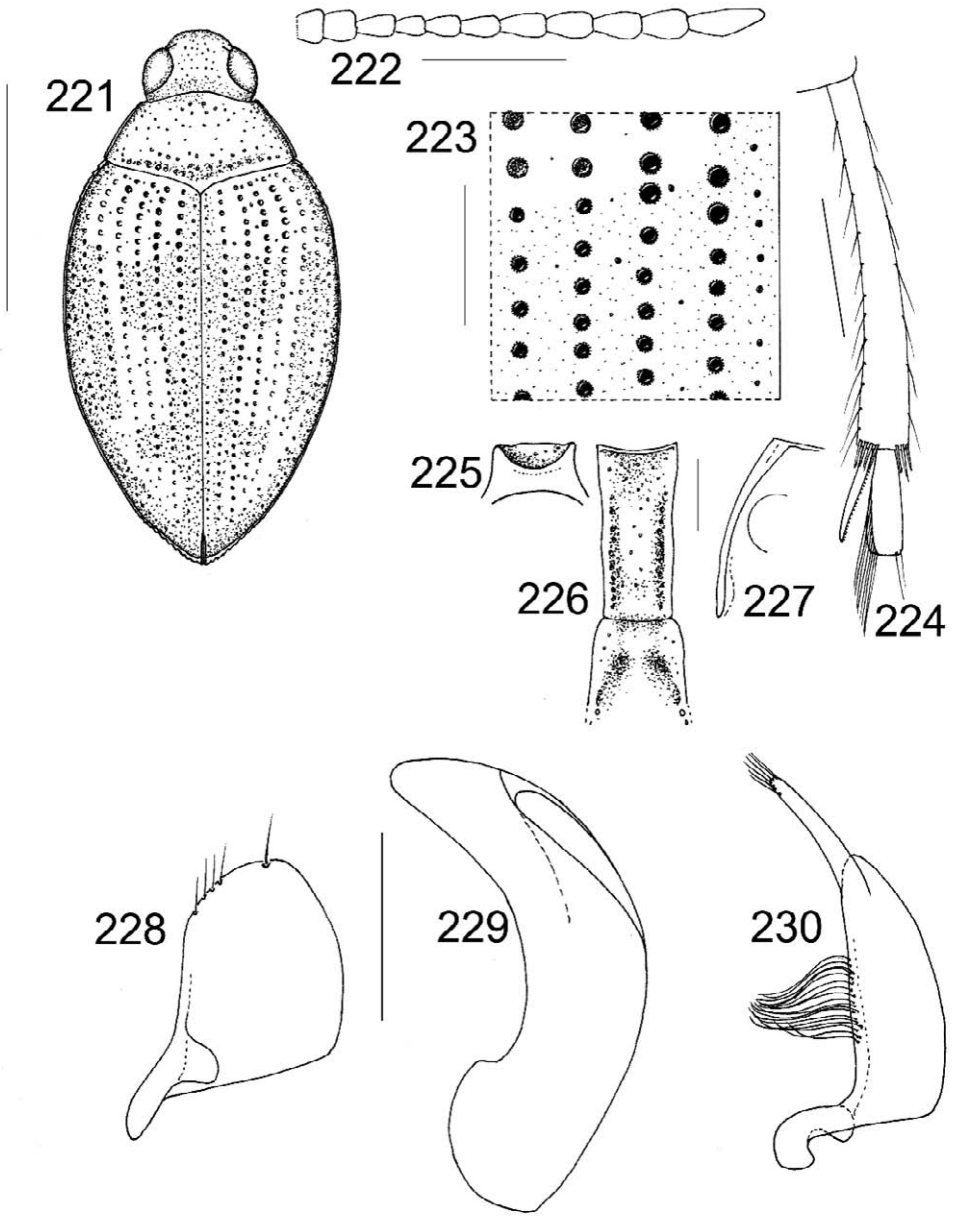
Figs. 194–201: *Haliplus immaculicollis* ♂, 194) habitus; 195) antenna; 196) punctures near elytral base and suture; 197) prosternal and metaventral process; 198) prosternal process in lateral view; 199) left paramere; 200) penis; 201) right paramere.



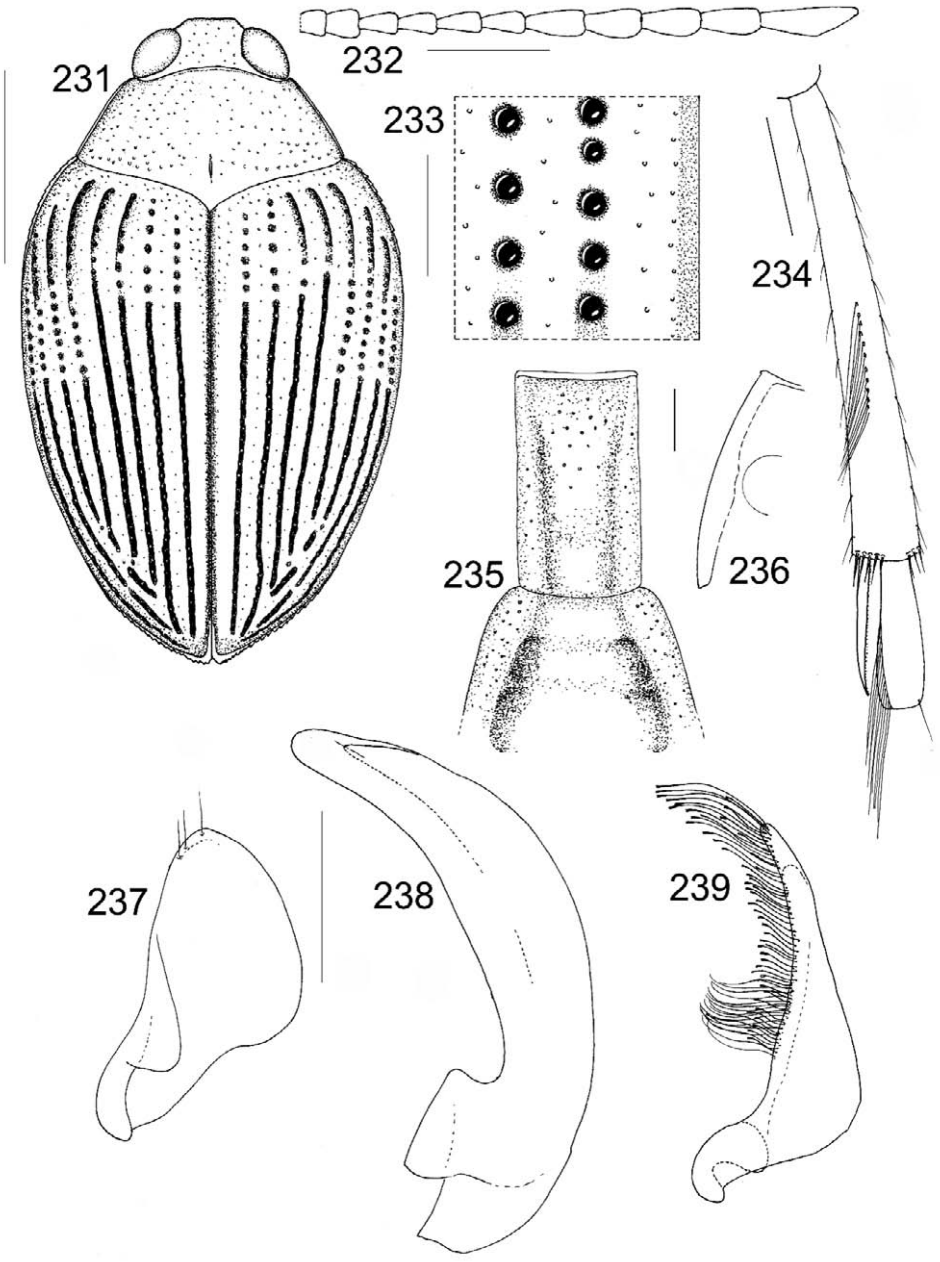
Figs. 202–210: *Haliplus indistinctus* ♂, 202) habitus; 203) antenna; 204) punctures near elytral base and suture; 205) hind leg in dorsal view; 206) prosternal and metaventral process; 207) prosternal process in lateral view; 208) left paramere; 209) penis; 210) right paramere.



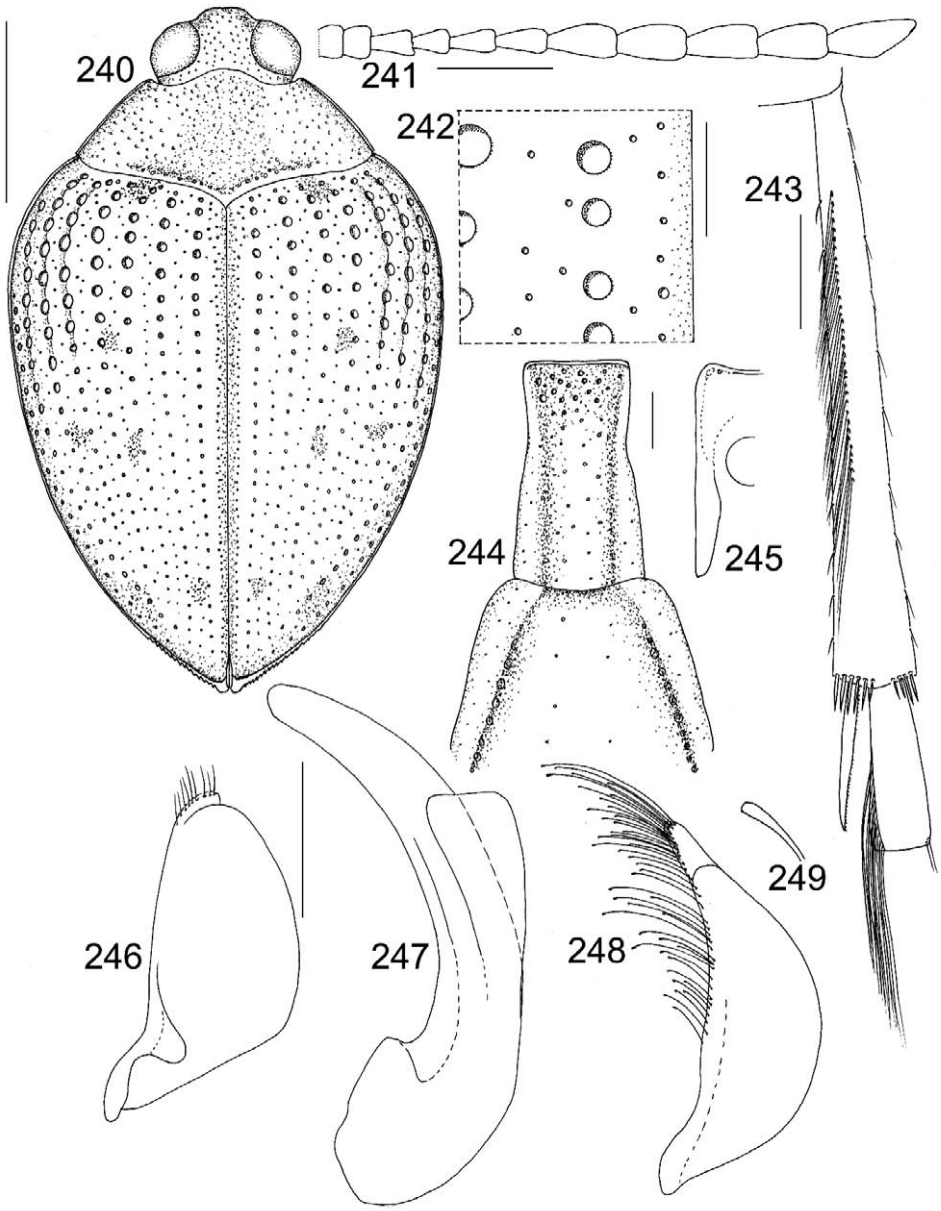
Figs. 211–220: *Haliplus langleyi* ♂, 211) habitus; 212) antenna; 213) punctures near elytral base and suture; 214) hind leg in dorsal view; 215) prosternal and metaventral process; 216) prosternal process in lateral view; 217) left paramere; 218) penis; 219) right paramere; 220) top of bristle of right paramere.



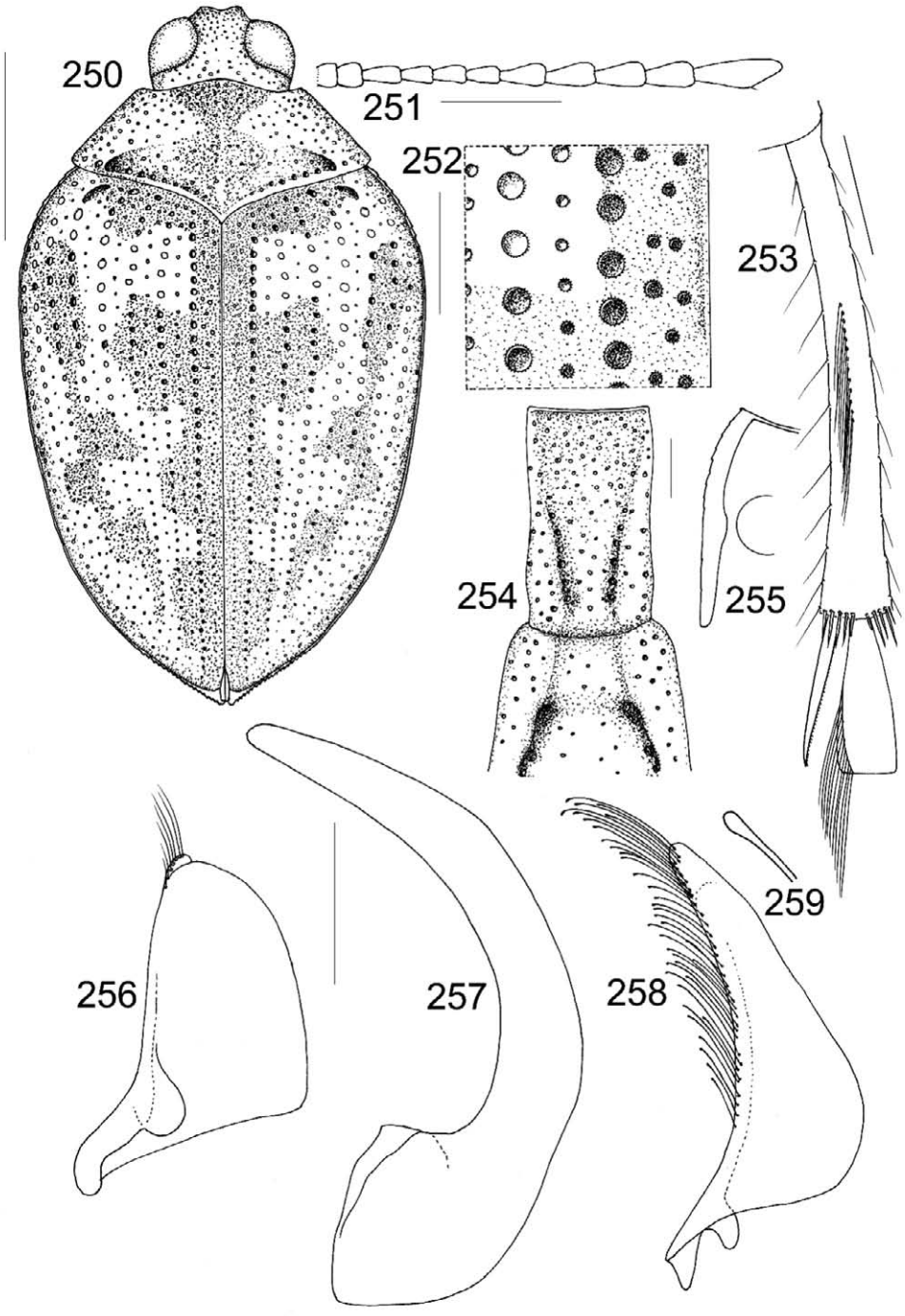
Figs. 221–230: *Haliplus lewisii* ♂, 221) habitus; 222) antenna; 223) punctures near elytral base and suture; 224) hind leg in dorsal view; 225) prosternal process in frontal view; 226) prosternal and metaventral process; 227) prosternal process in lateral view; 228) left paramere; 229) penis; 230) right paramere.



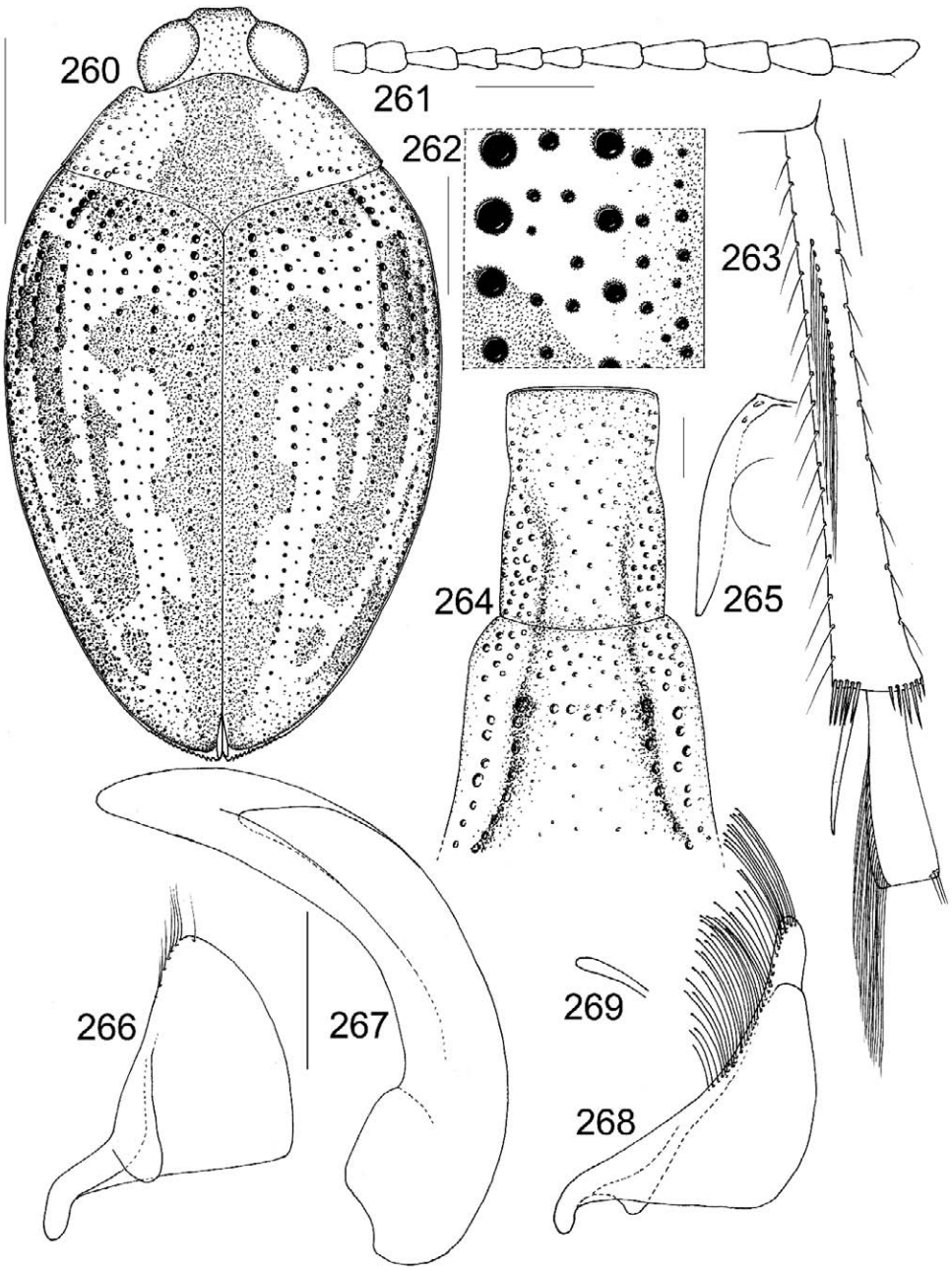
Figs. 231–239: *Haliplus maculicollis* ♂, 231) habitus; 232) antenna; 233) punctures near elytral base and suture; 234) hind leg in dorsal view; 235) prosternal and metaventral process; 236) prosternal process in lateral view; 237) left paramere; 238) penis; 239) right paramere.



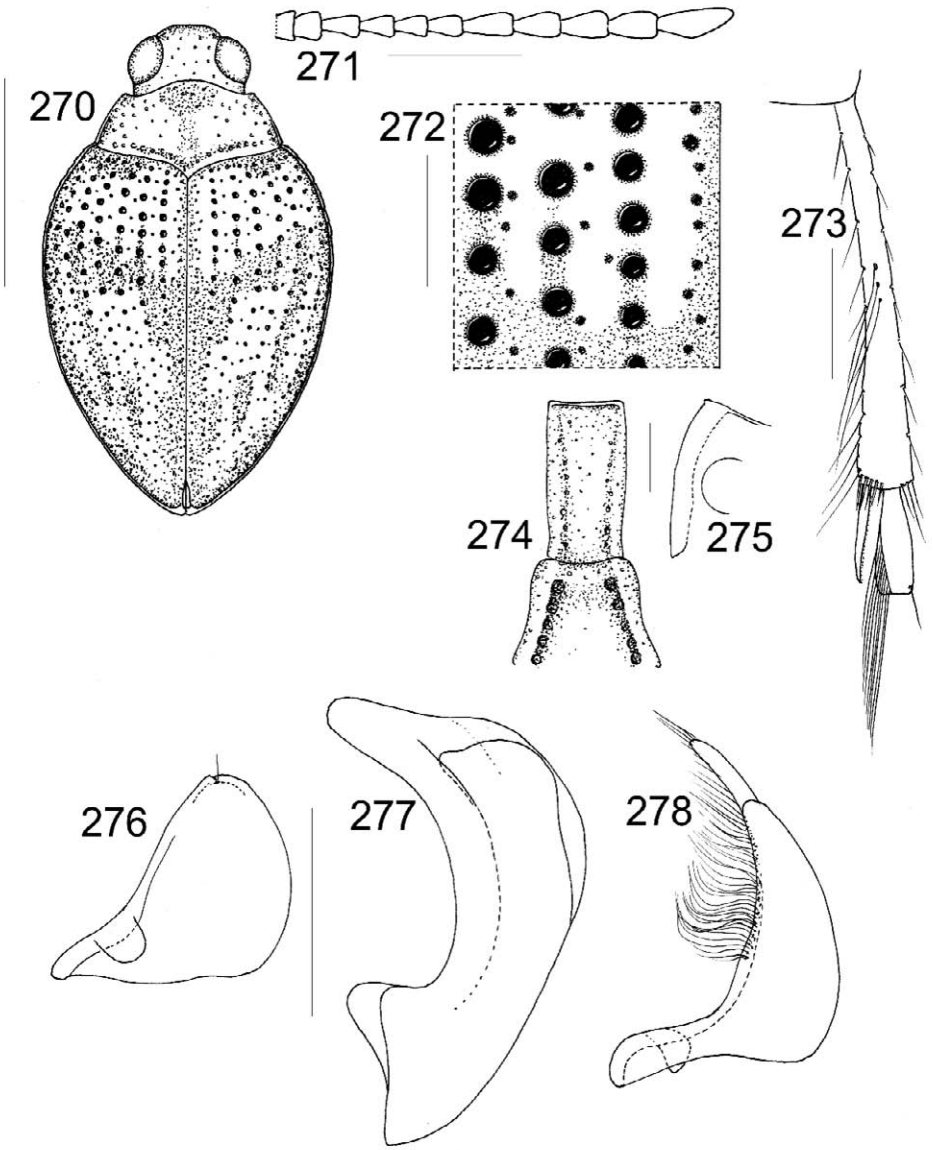
Figs. 240–249: *Haliplus megapunctatus* ♂, 240) habitus; 241) antenna; 242) punctures near elytral base and suture; 243) hind leg in dorsal view; 244) prosternal and metaventral process; 245) prosternal process in lateral view; 246) left paramere; 247) penis; 248) right paramere; 249) top of bristle of right paramere.



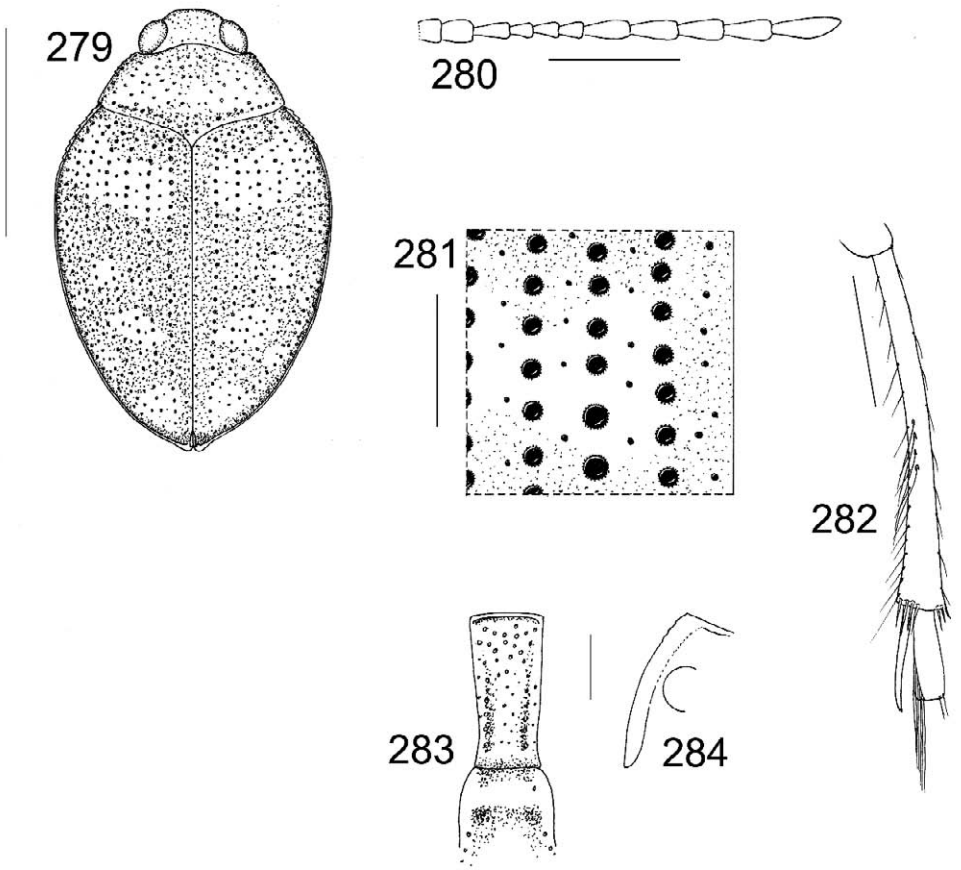
Figs. 250–259: *Haliplus mesoamericanus* ♂, 250) habitus; 251) antenna; 252) punctures near elytral base and suture; 253) hind leg in dorsal view; 254) prosternal and metaventral process; 255) prosternal process in lateral view; 256) left paramere; 257) penis; 258) right paramere; 259) top of bristle of right paramere.



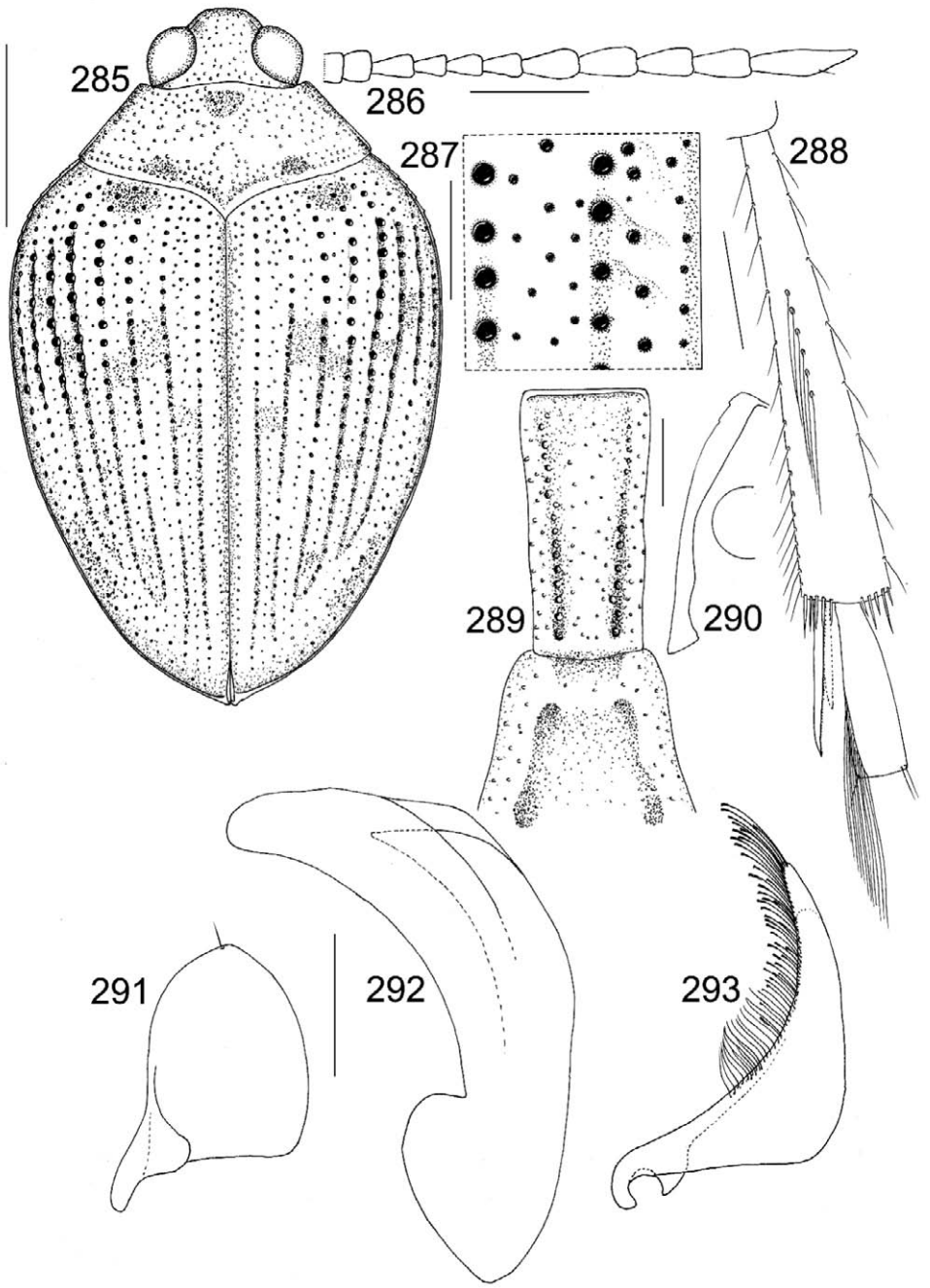
Figs. 260–269: *Haliplus mexicanus* ♂, 260) habitus; 261) antenna; 262) punctures near elytral base and suture; 263) hind leg in dorsal view; 264) prosternal and metaventral process; 265) prosternal process in lateral view; 266) left paramere; 267) penis; 268) right paramere; 269) top of bristle of right paramere.



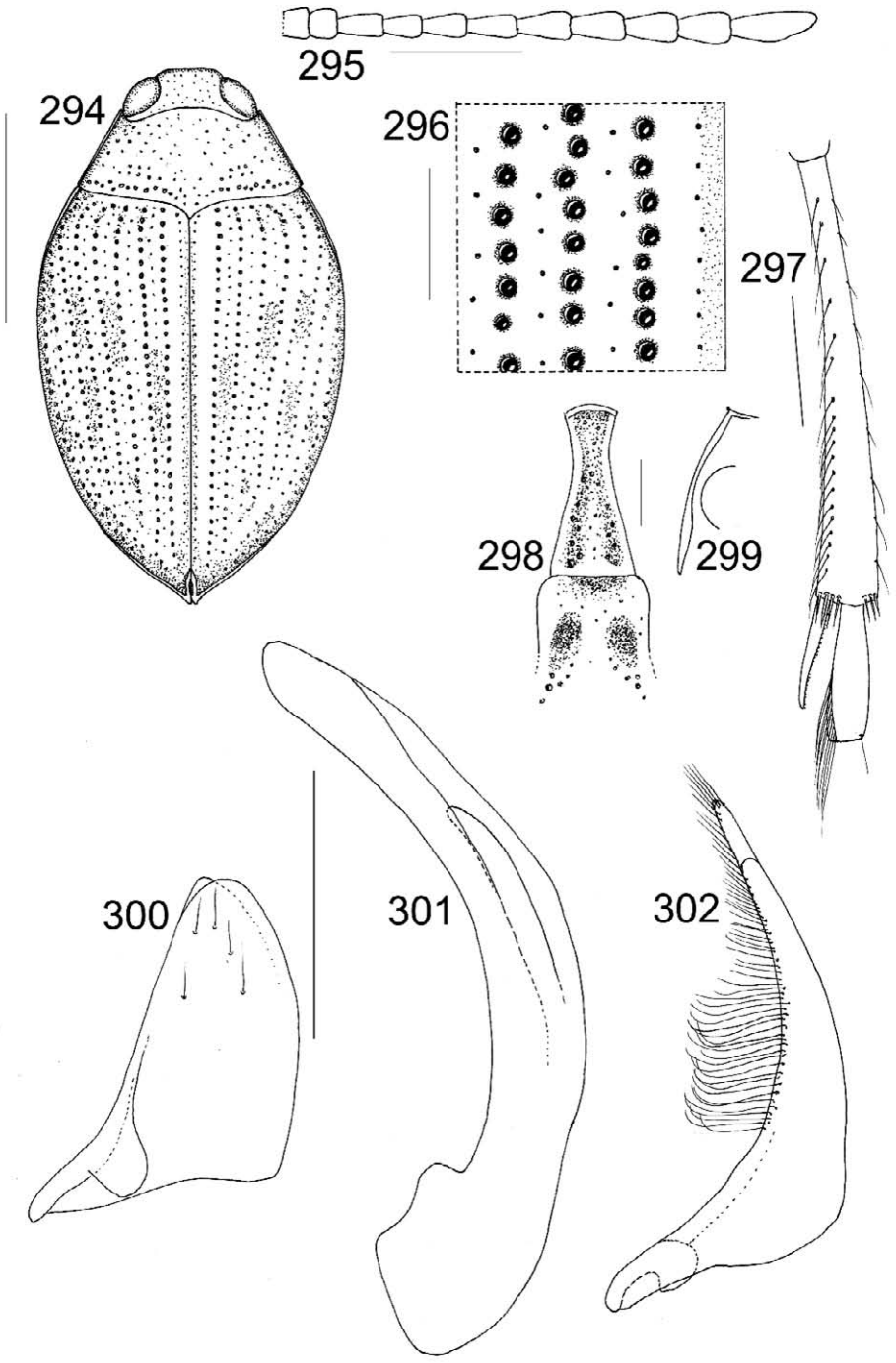
Figs. 270–278: *Haliplus minimus* ♂, 270) habitus; 271) antenna; 272) punctures near elytral base and suture; 273) hind leg in dorsal view; 274) prosternal and metaventral process; 275) prosternal process in lateral view; 276) left paramere; 277) penis; 278) right paramere.



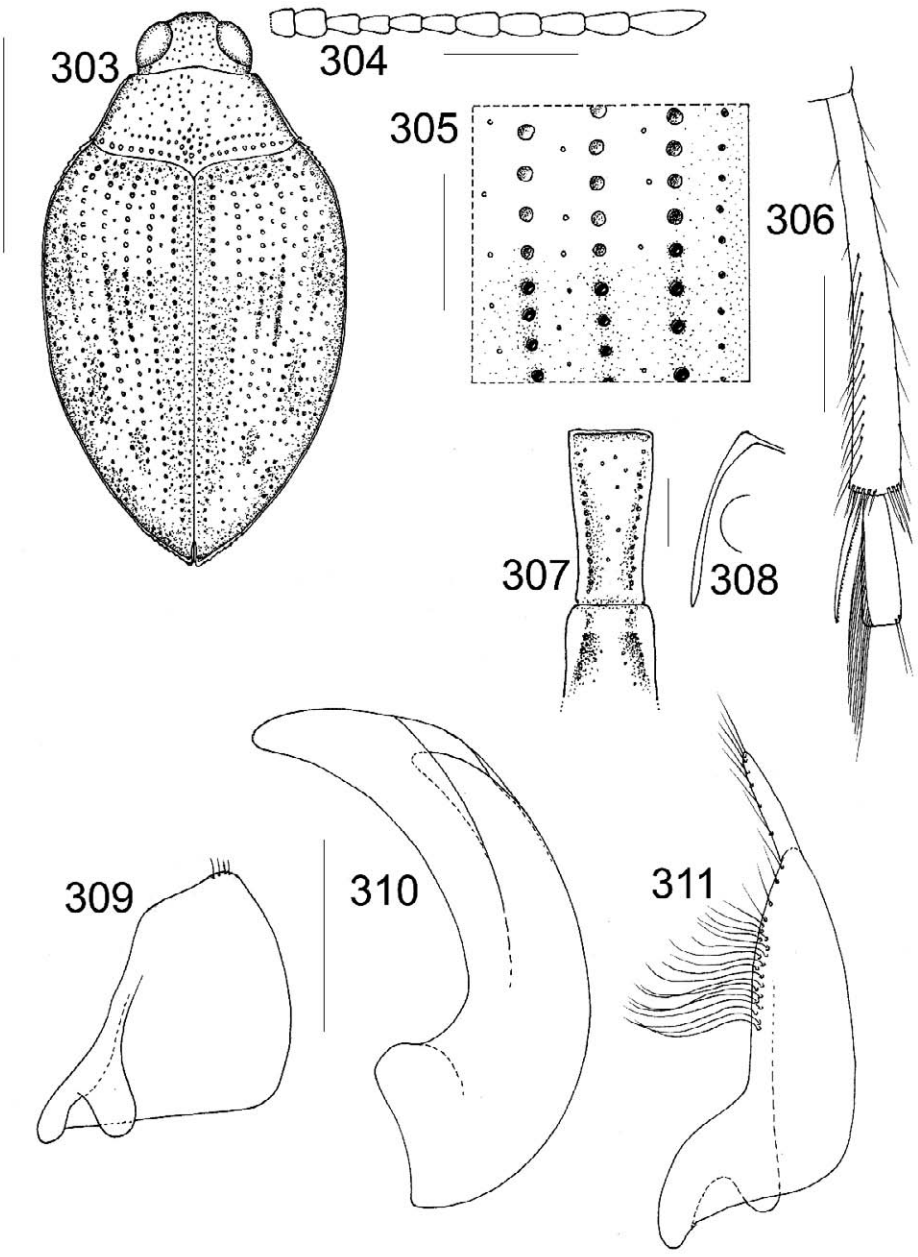
Figs. 279–284 *Haliplus nanus* ♀, 279) habitus; 280) antenna; 281) punctures near elytral base and suture; 282) hind leg in dorsal view; 283) prosternal and metaventral process; 284) prosternal process in lateral view.



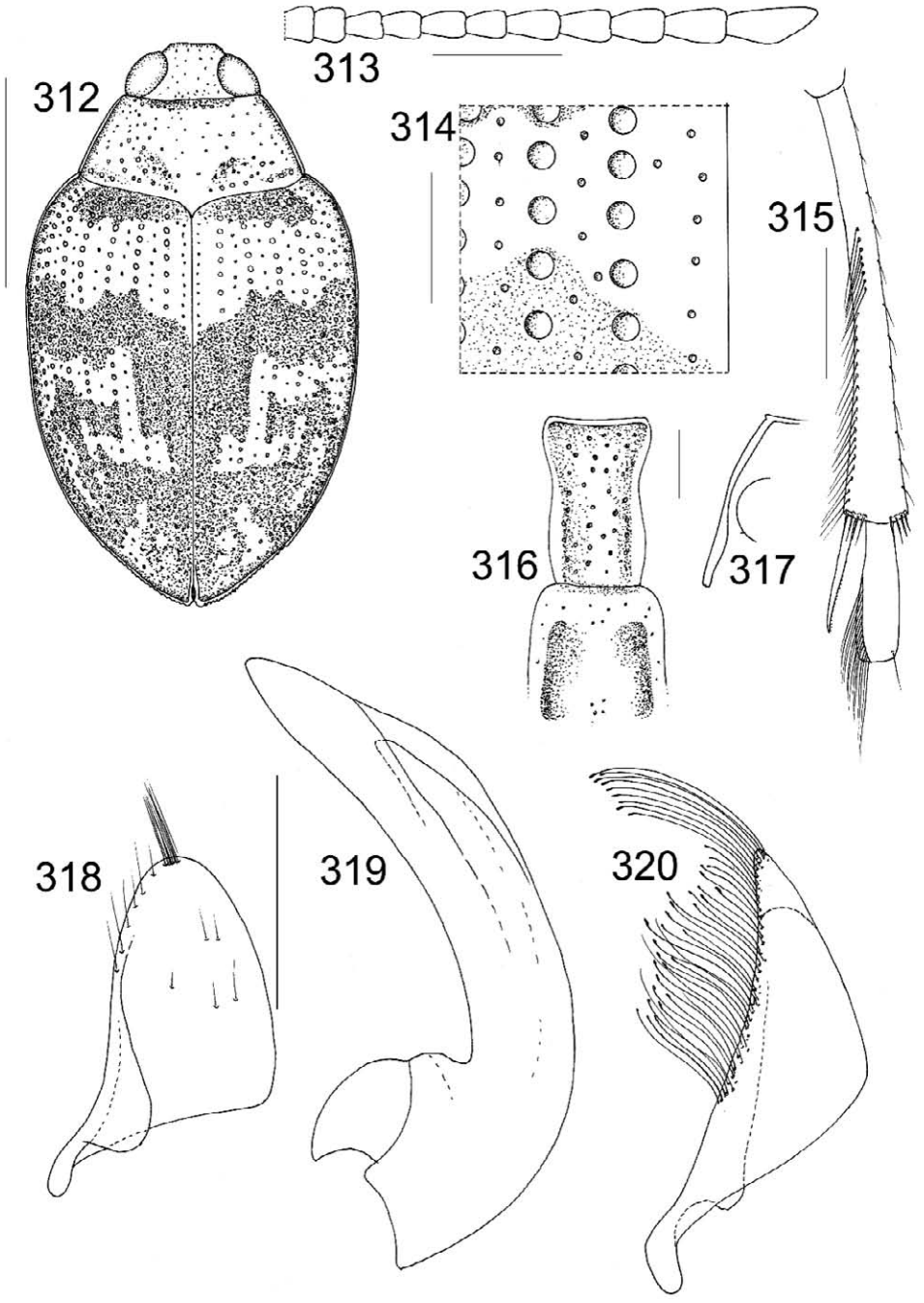
Figs. 285–293: *Haliplus nieseri* ♂, 285) habitus; 286) antenna; 287) punctures near elytral base and suture; 288) hind leg in dorsal view; 289) prosternal and metaventral process; 290) prosternal process in lateral view; 291) left paramere; 292) penis; 293) right paramere.



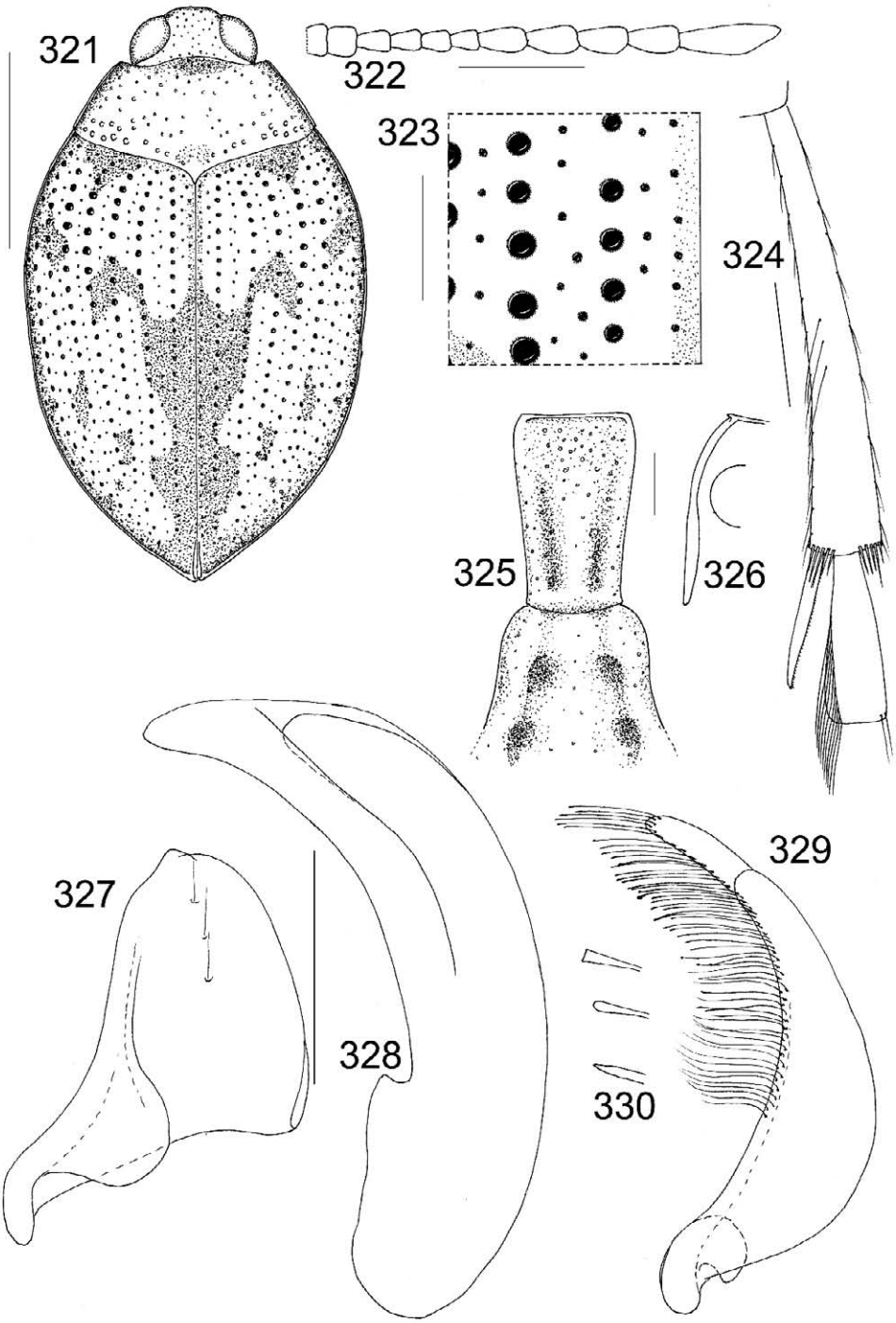
Figs. 294–302: *Haliplus oblongus* ♂, 294) habitus; 295) antenna; 296) punctures near elytral base and suture; 297) hind leg in dorsal view; 298) prosternal and metaventral process; 299) prosternal process in lateral view; 300) left paramere; 301) penis; 302) right paramere.



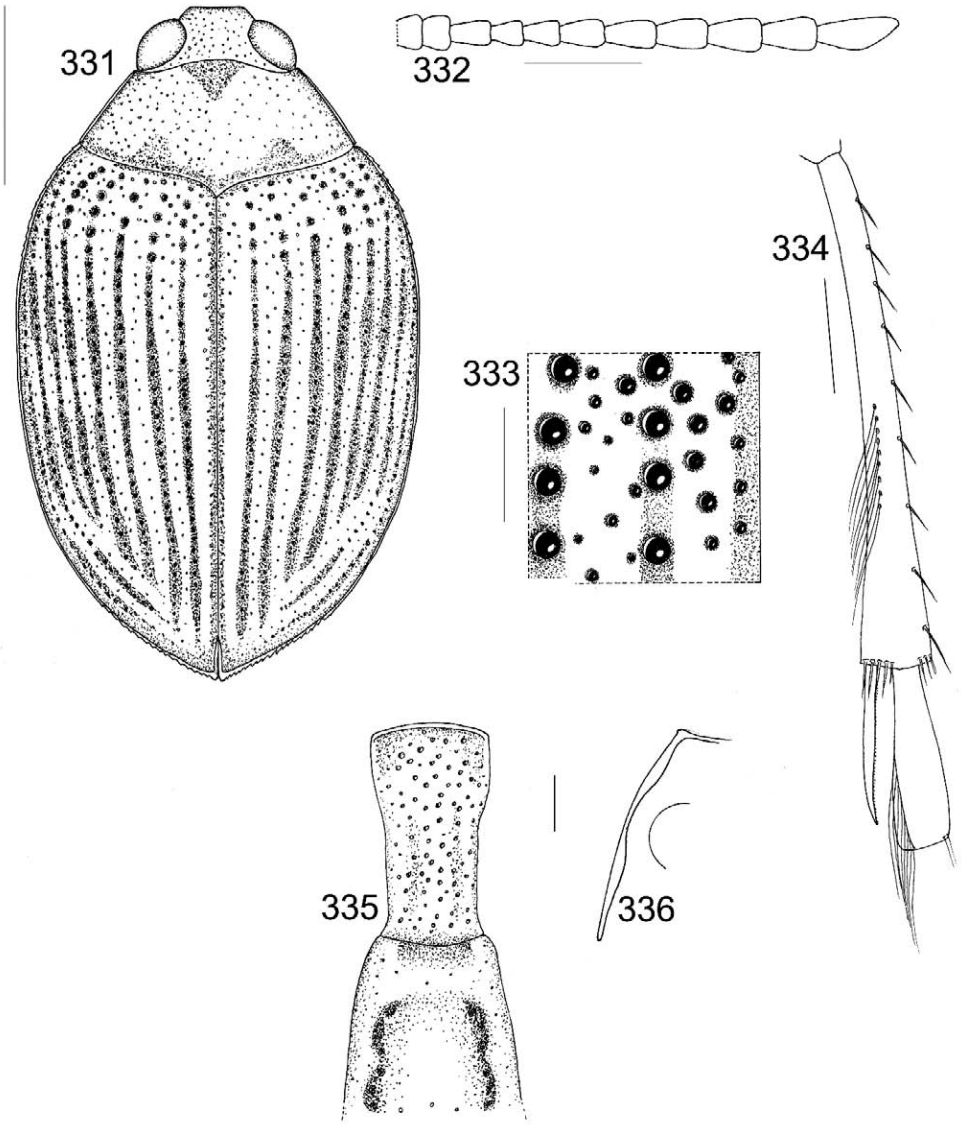
Figs. 303–311: *Haliplus oklahomensis* ♂, 303) habitus; 304) antenna; 305) punctures near elytral base and suture; 306) hind leg in dorsal view; 307) prosternal and metaventral process; 308) prosternal process in lateral view; 309) left paramere; 310) penis; 311) right paramere.



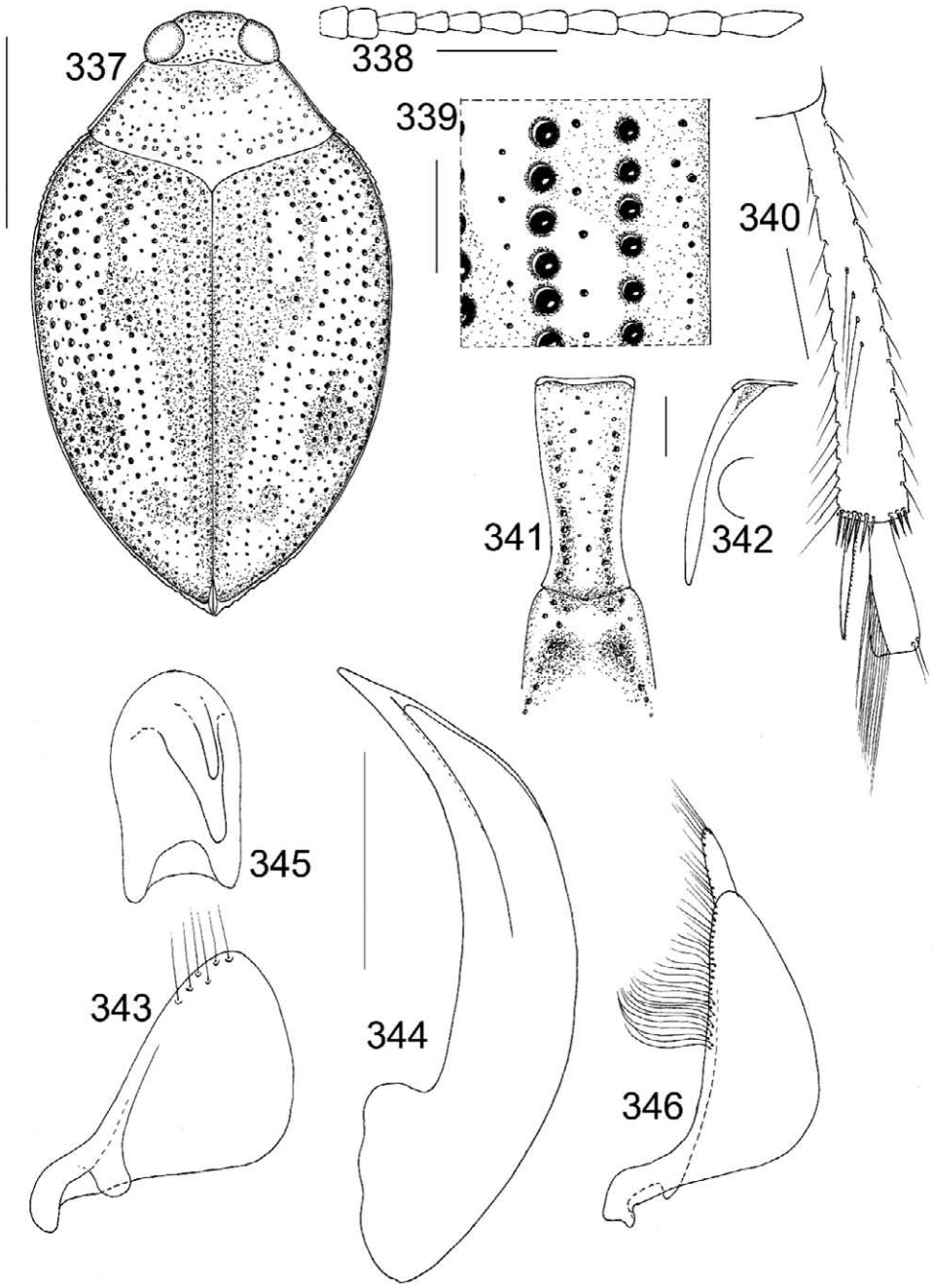
Figs. 312–320: *Haliplus ornatipennis* ♂, 312) habitus; 313) antenna; 314) punctures near elytral base and suture; 315) hind leg in dorsal view; 316) prosternal and metaventral process; 317) prosternal process in lateral view; 318) left paramere; 319) penis; 320) right paramere.



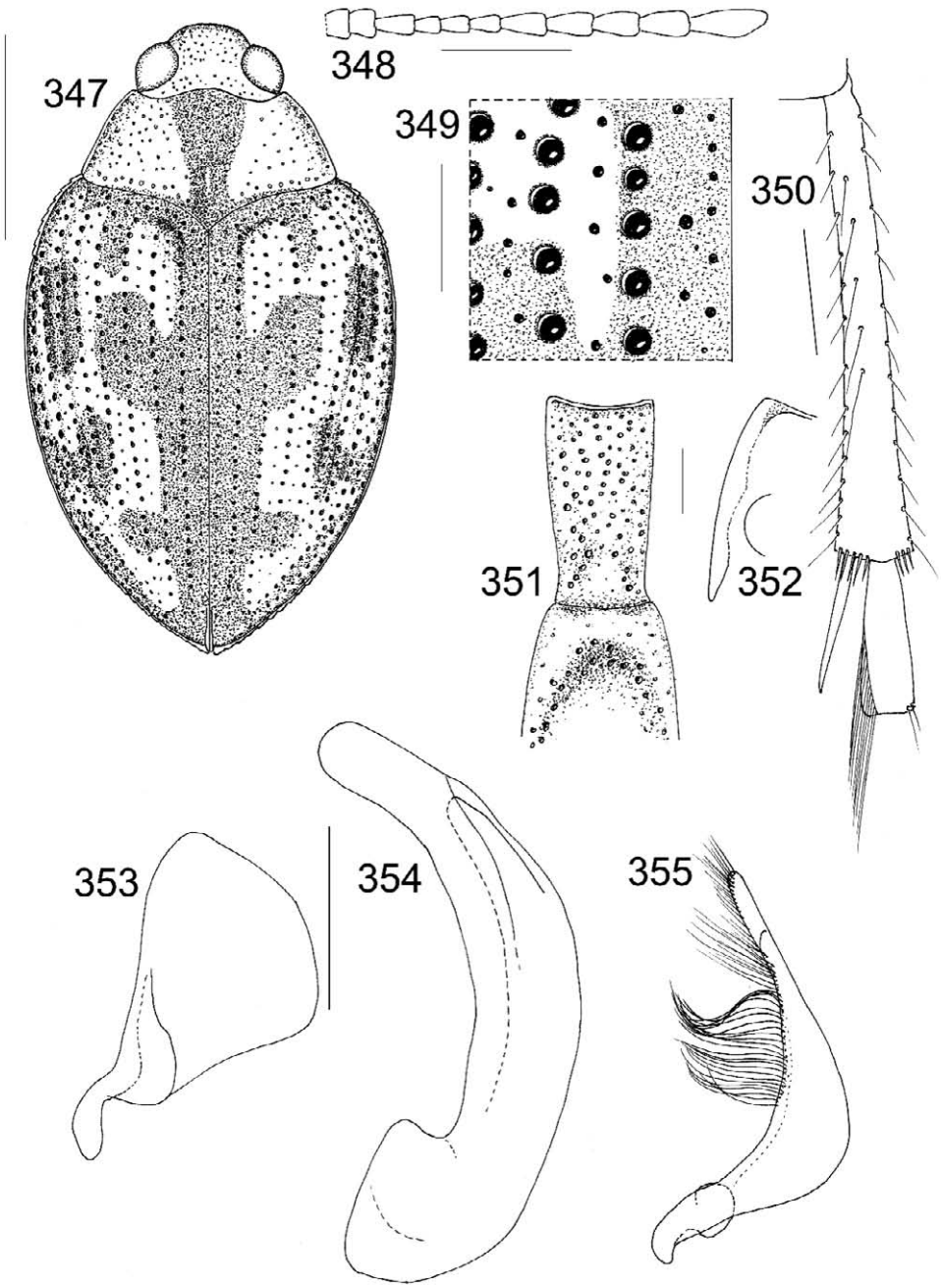
Figs. 321–330: *Haliplus panamanus* ♂, 321) habitus; 322) antenna; 323) punctures near elytral base and suture; 324) hind leg in dorsal view; 325) prosternal and metaventral process; 326) prosternal process in lateral view; 327) left paramere; 328) penis; 329) right paramere; 330) top of bristle of right paramere.



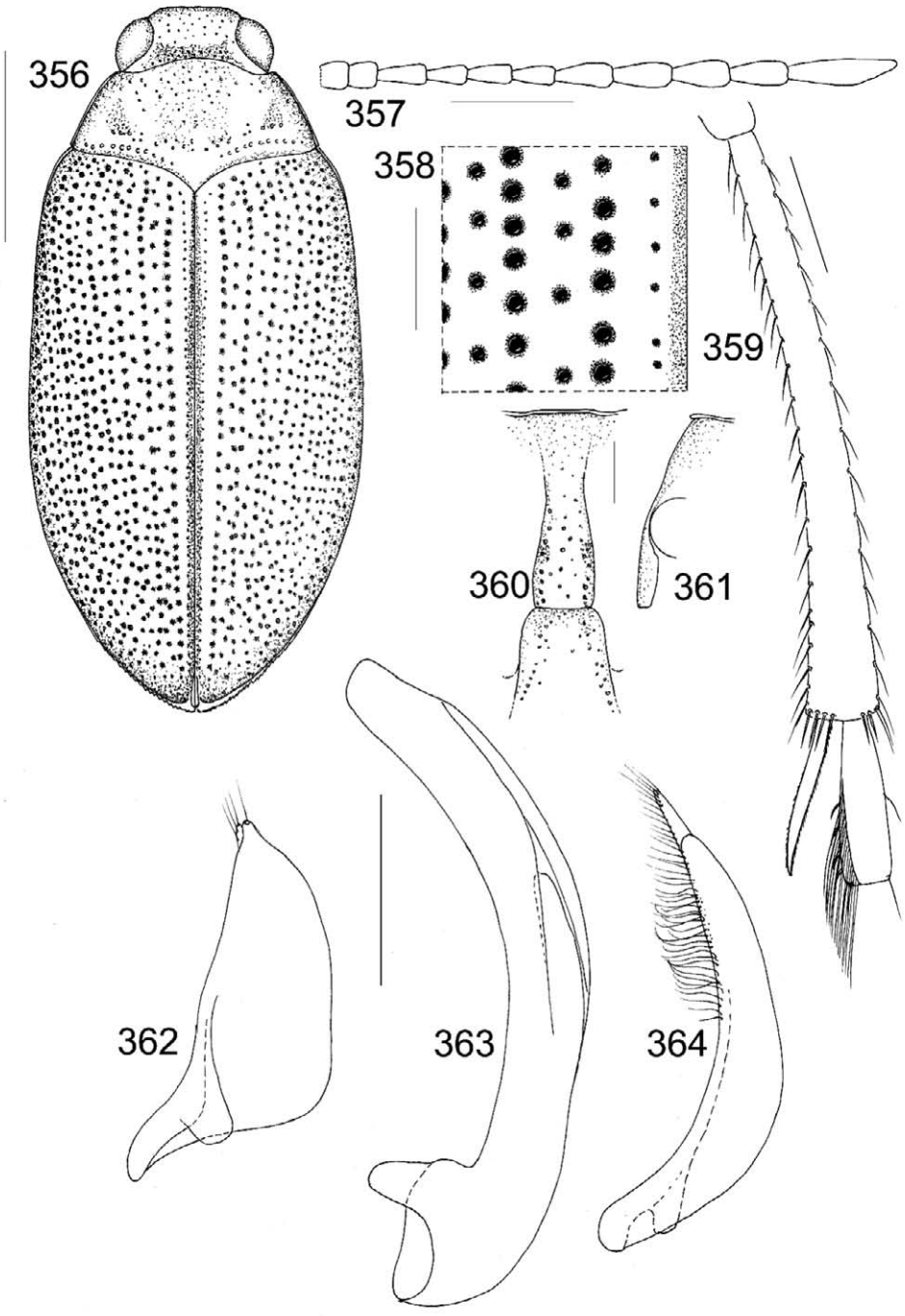
Figs. 331–336: *Haliplus peruanus* ♀, 331) habitus; 332) antenna; 333) punctures near elytral base and suture; 334) hind leg in dorsal view; 335) prosternal and metaventral process; 336) prosternal process in lateral view.



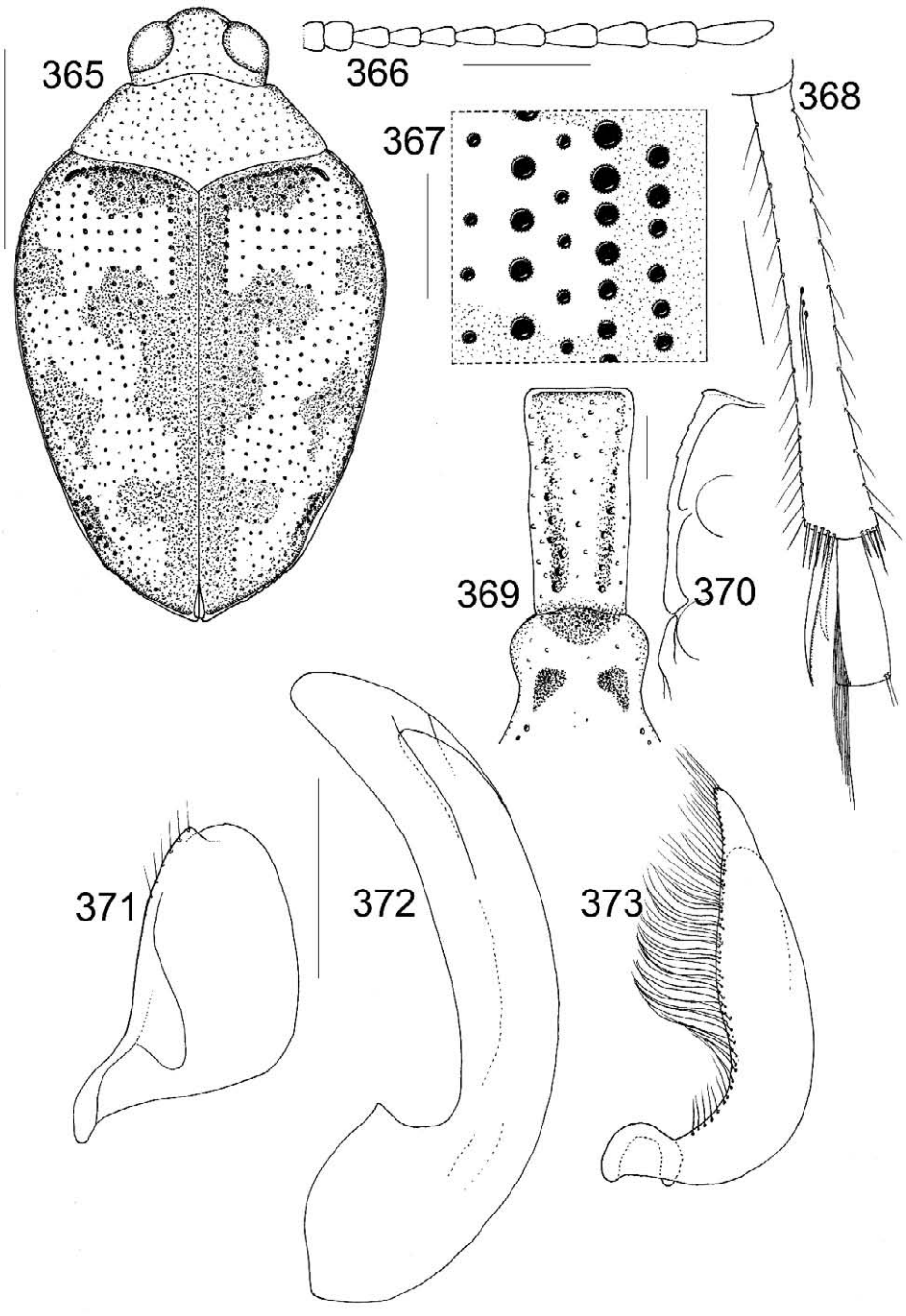
Figs. 337–346: *Haliplus signatus* ♂, 337) habitus; 338) antenna; 339) punctures near elytral base and suture; 340) hind leg in dorsal view; 341) prosternal and metaventral process; 342) prosternal process in lateral view; 343) left paramere; 344) penis; 345) penis in apical view; 346) right paramere.



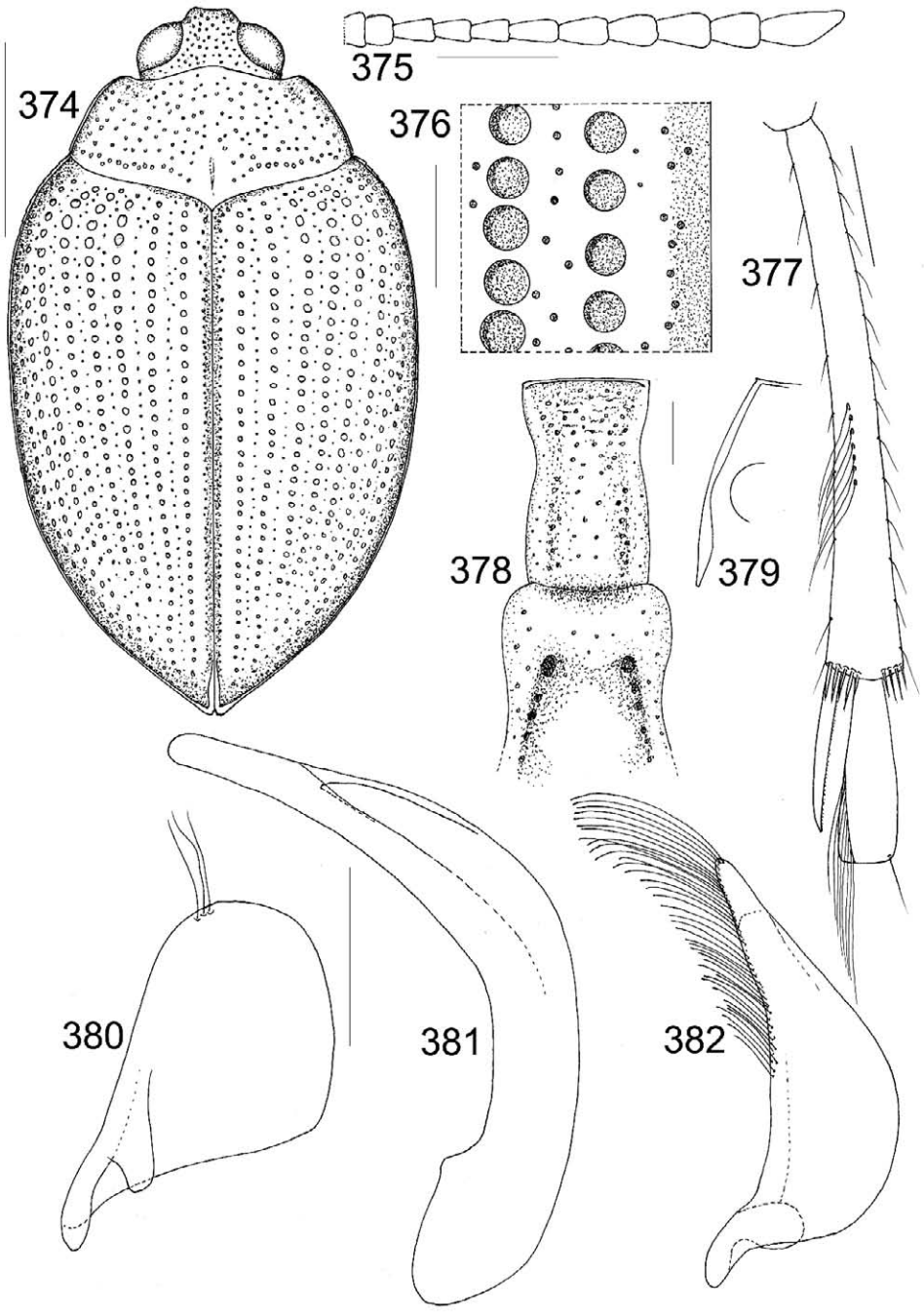
Figs. 347–355: *Haliplus solitarius* ♂, 347) habitus; 348) antenna; 349) punctures near elytral base and suture; 350) hind leg in dorsal view; 351) prosternal and metaventral process; 352) prosternal process in lateral view; 353) left paramere; 354) penis; 355) right paramere.



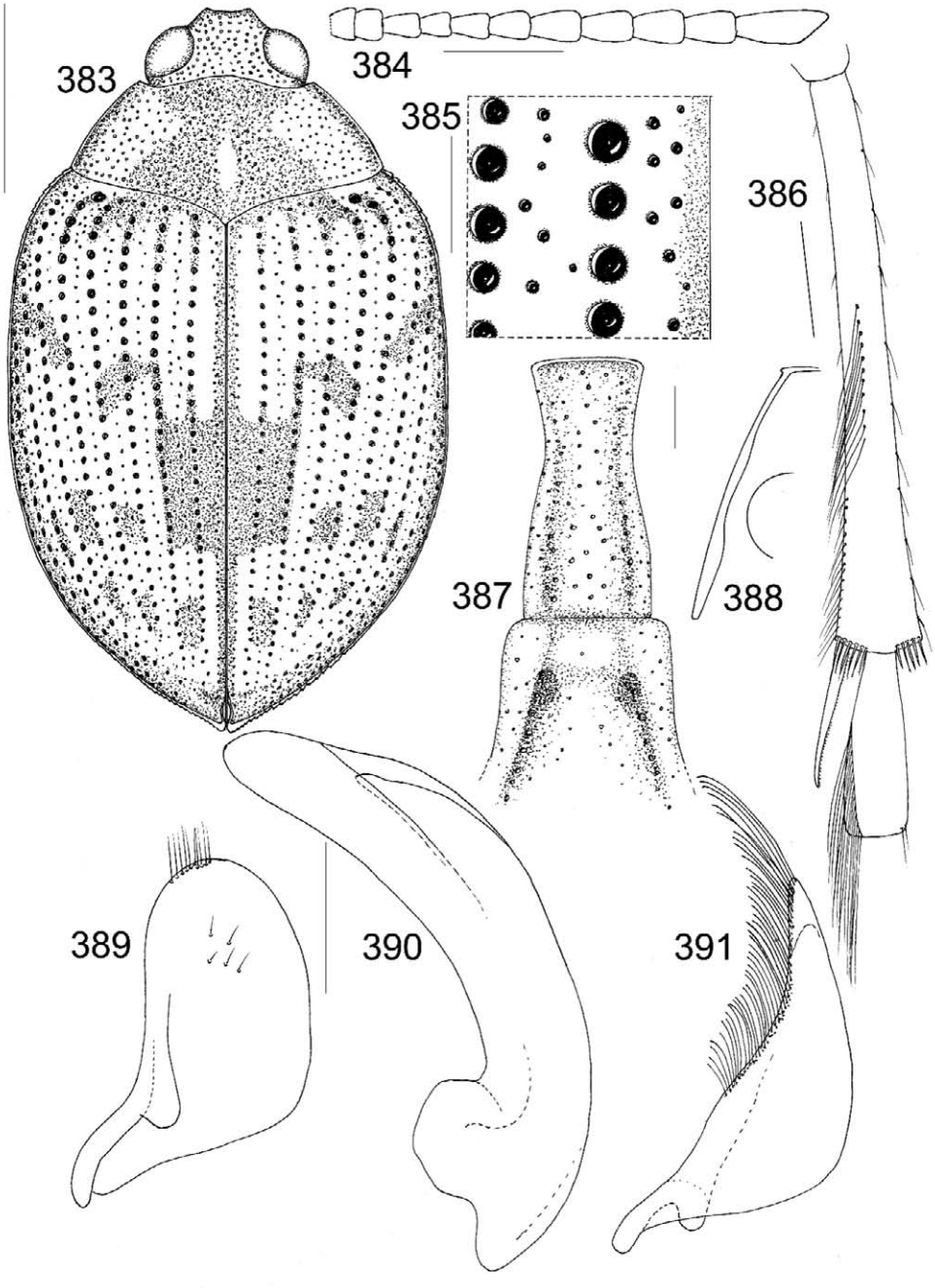
Figs. 356–364: *Haliplus subseriatus* ♂, 356) habitus; 357) antenna; 358) punctures near elytral base and suture; 359) hind leg in dorsal view; 360) prosternal and metaventral process; 361) prosternal process in lateral view; 362) left paramere; 363) penis; 364) right paramere.



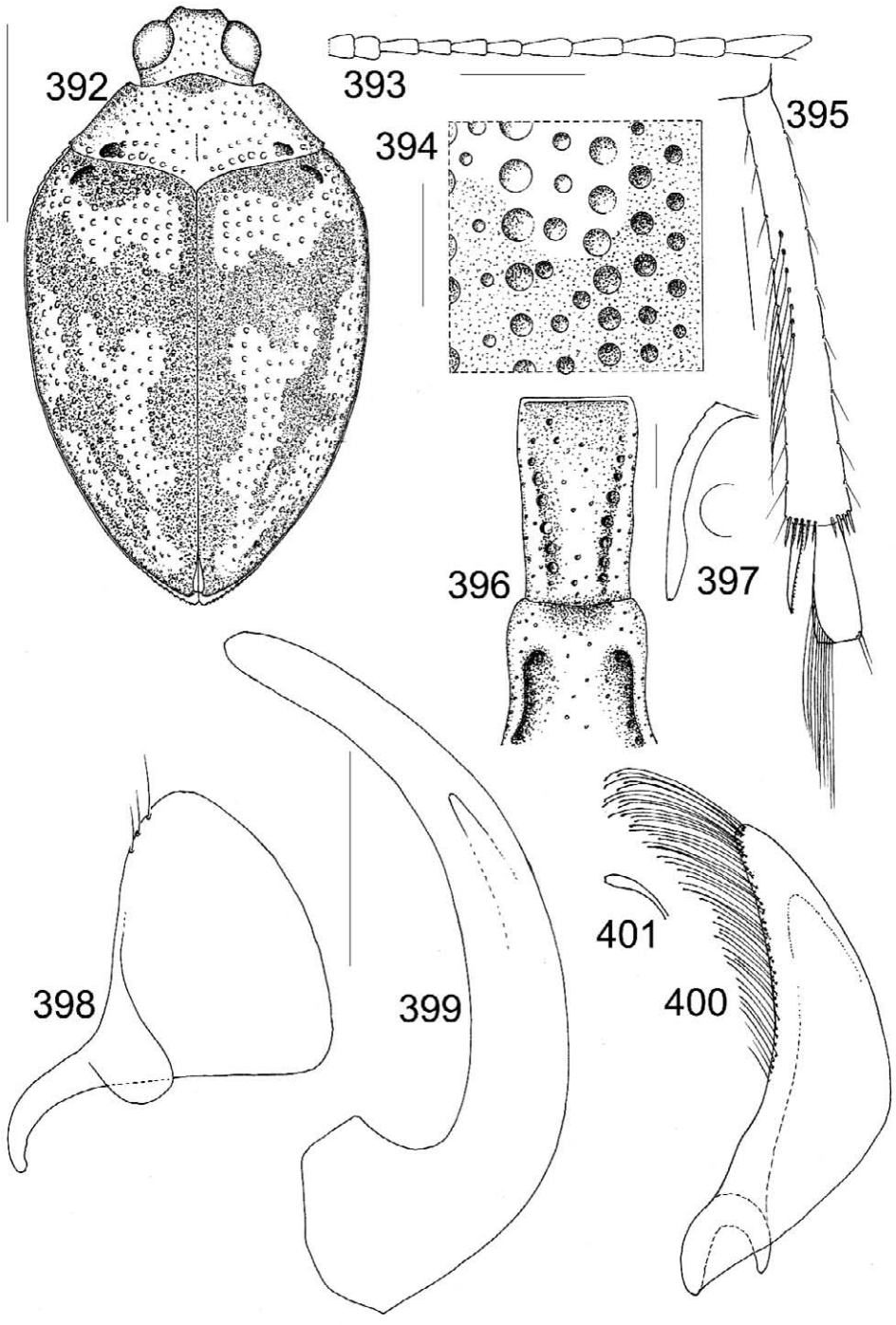
Figs. 365–373: *Haliplus tantoyucanus* ♂, 365) habitus; 366) antenna; 367) punctures near elytral base and suture; 368) hind leg in dorsal view; 369) prosternal and metaventral process; 370) prosternal process in lateral view; 371) left paramere; 372) penis; 373) right paramere.



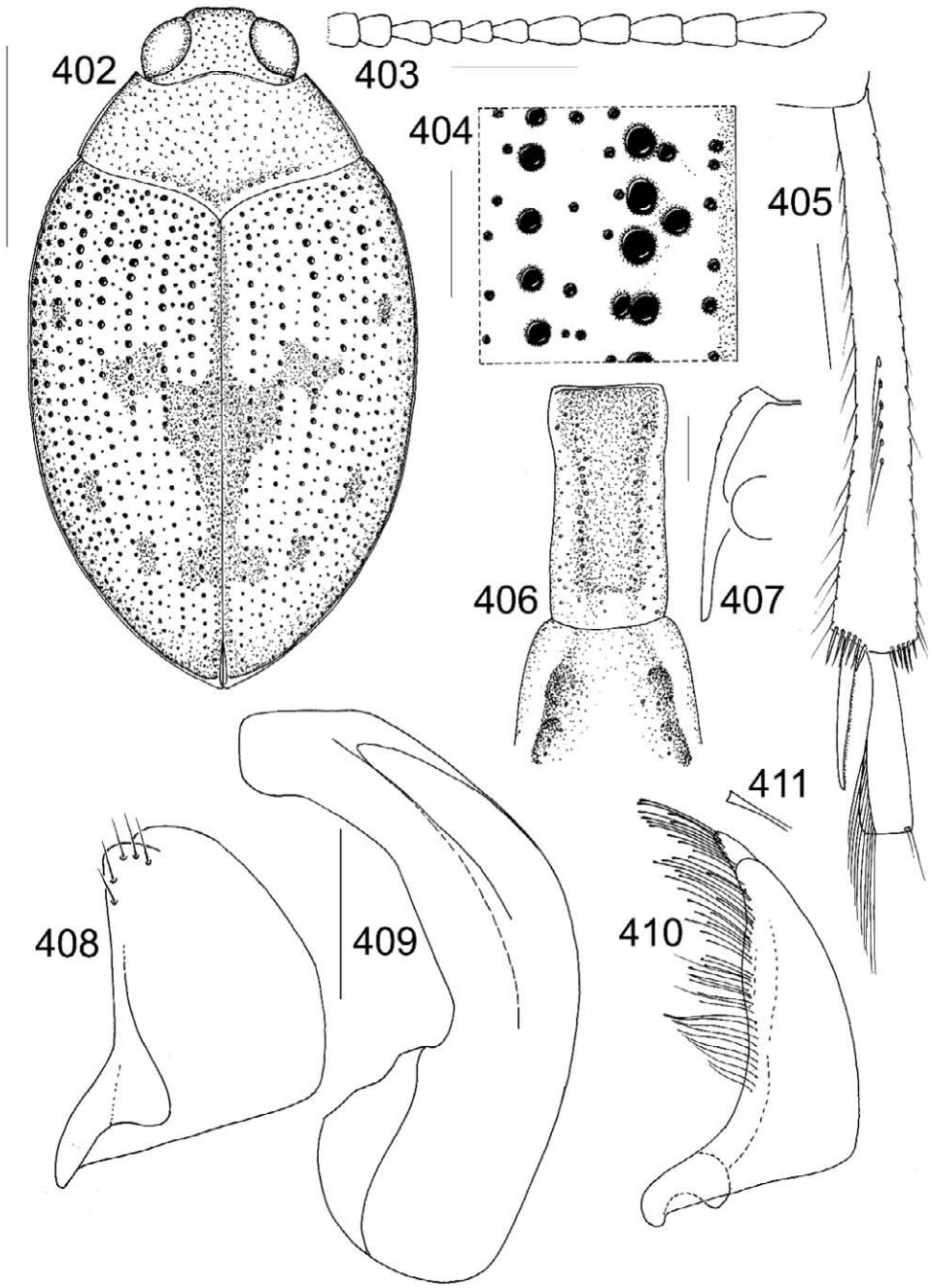
Figs. 374–382: *Haliplus testaceus* ♂, 374) habitus; 375) antenna; 376) punctures near elytral base and suture; 377) hind leg in dorsal view; 378) prosternal and metaventral process; 379) prosternal process in lateral view; 380) left paramere; 381) penis; 382) right paramere.



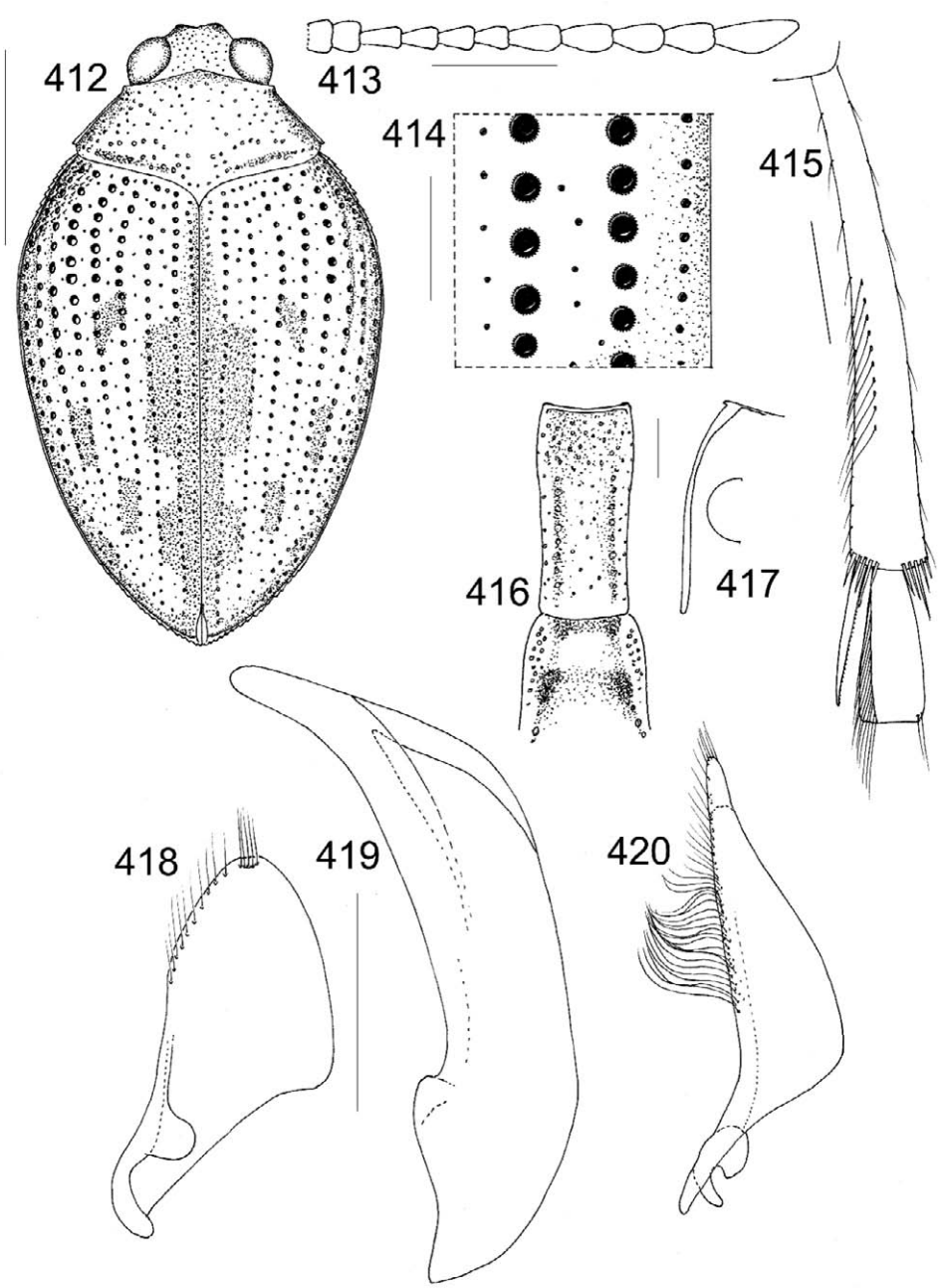
Figs. 383–391: *Haliplus thoracicus* ♂, 383) habitus; 384) antenna; 385) punctures near elytral base and suture; 386) hind leg in dorsal view; 387) prosternal and metaventral process; 388) prosternal process in lateral view; 389) left paramere; 390) penis; 391) right paramere.



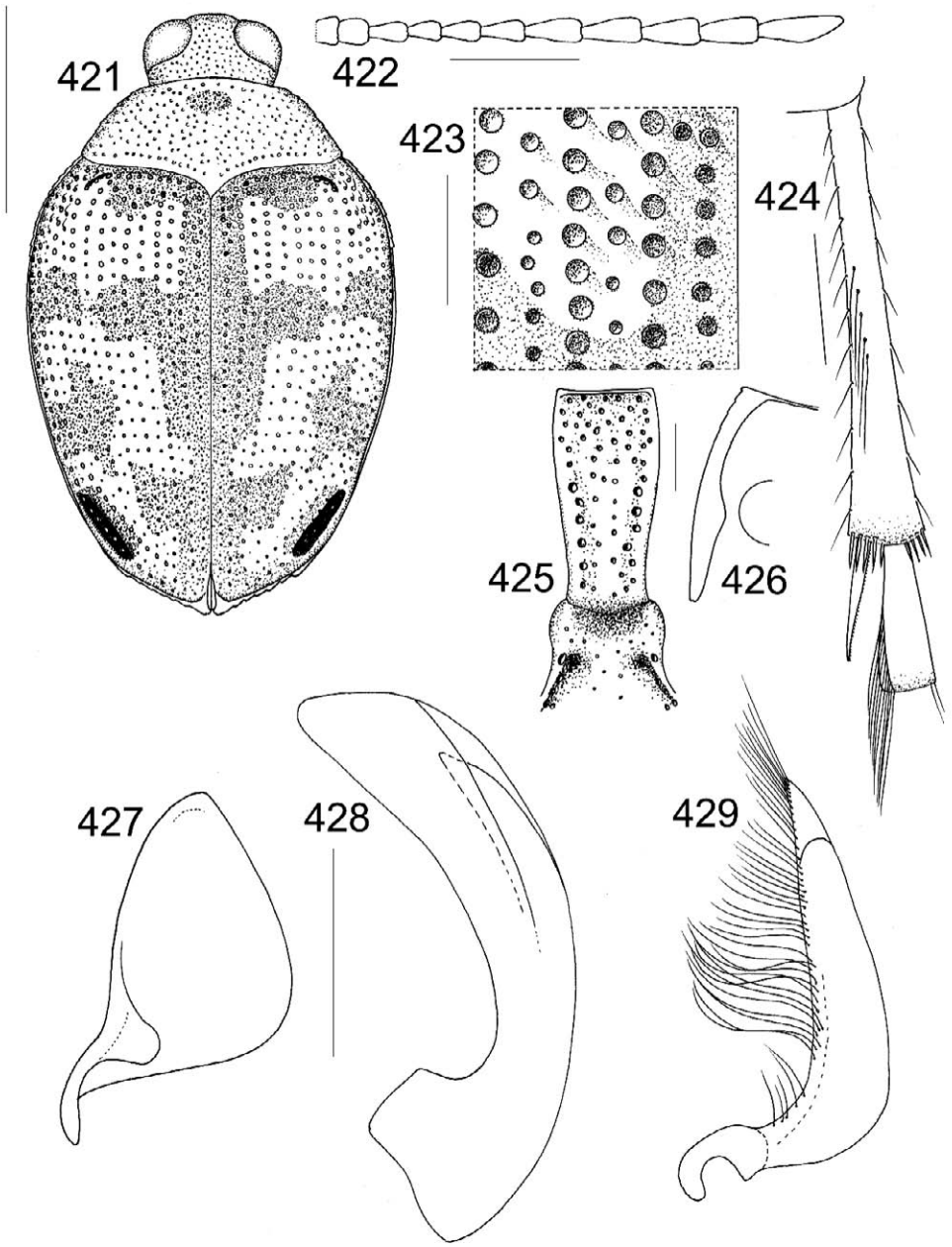
Figs. 392–401: *Haliplus tocumenus* ♂, 392) habitus; 393) antenna; 394) punctures near elytral base and suture; 395) hind leg in dorsal view; 396) prosternal and metaventral process; 397) prosternal process in lateral view; 398) left paramere; 399) penis; 400) right paramere; 401) top of bristle of right paramere.



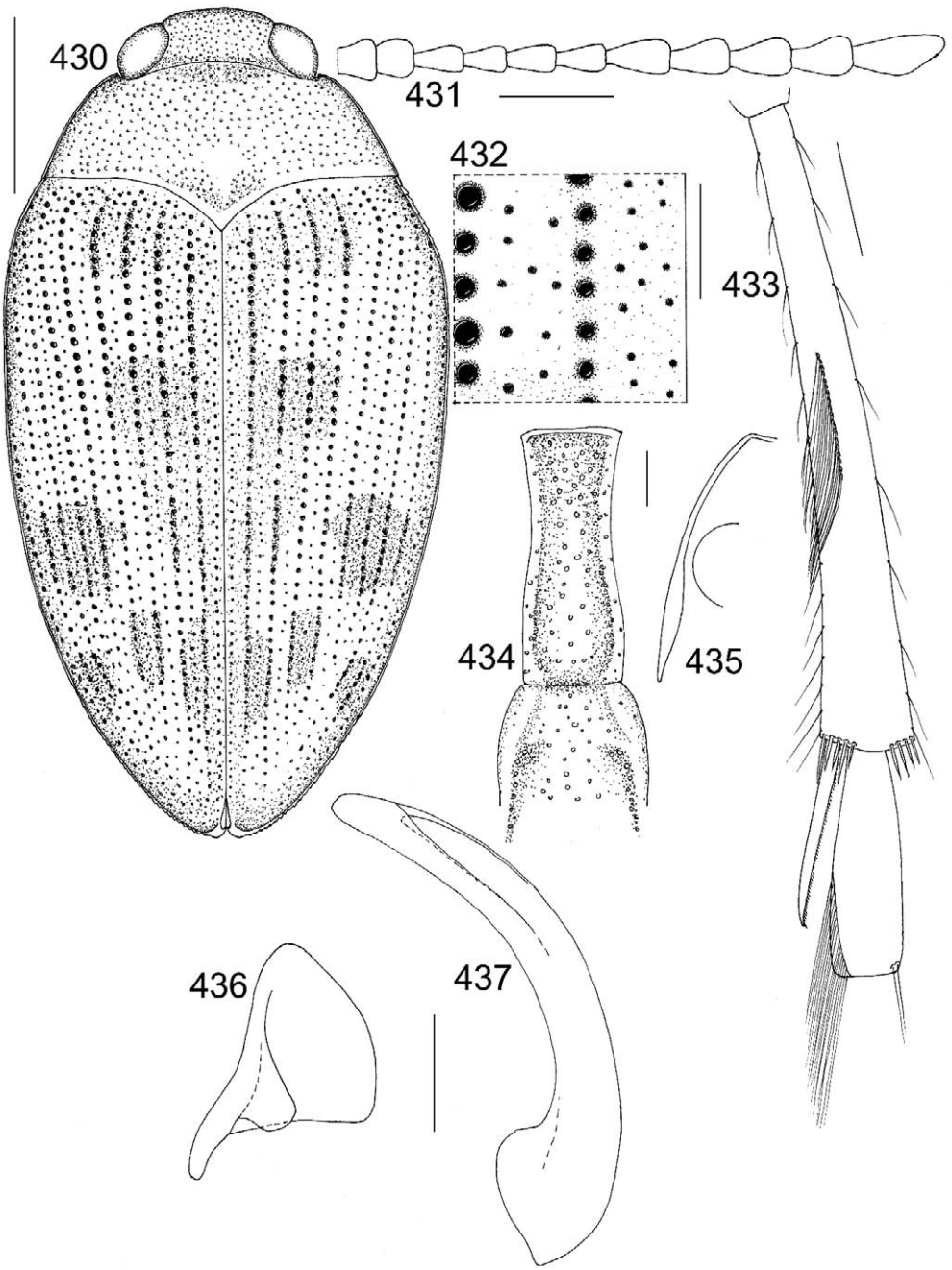
Figs. 402–411: *Haliplus triplehorni* ♂, 402) habitus; 403) antenna; 404) punctures near elytral base and suture; 405) hind leg in dorsal view; 406) prosternal and metaventral process; 407) prosternal process in lateral view; 408) left paramere; 409) penis; 410) right paramere; 411) top of bristle of right paramere.



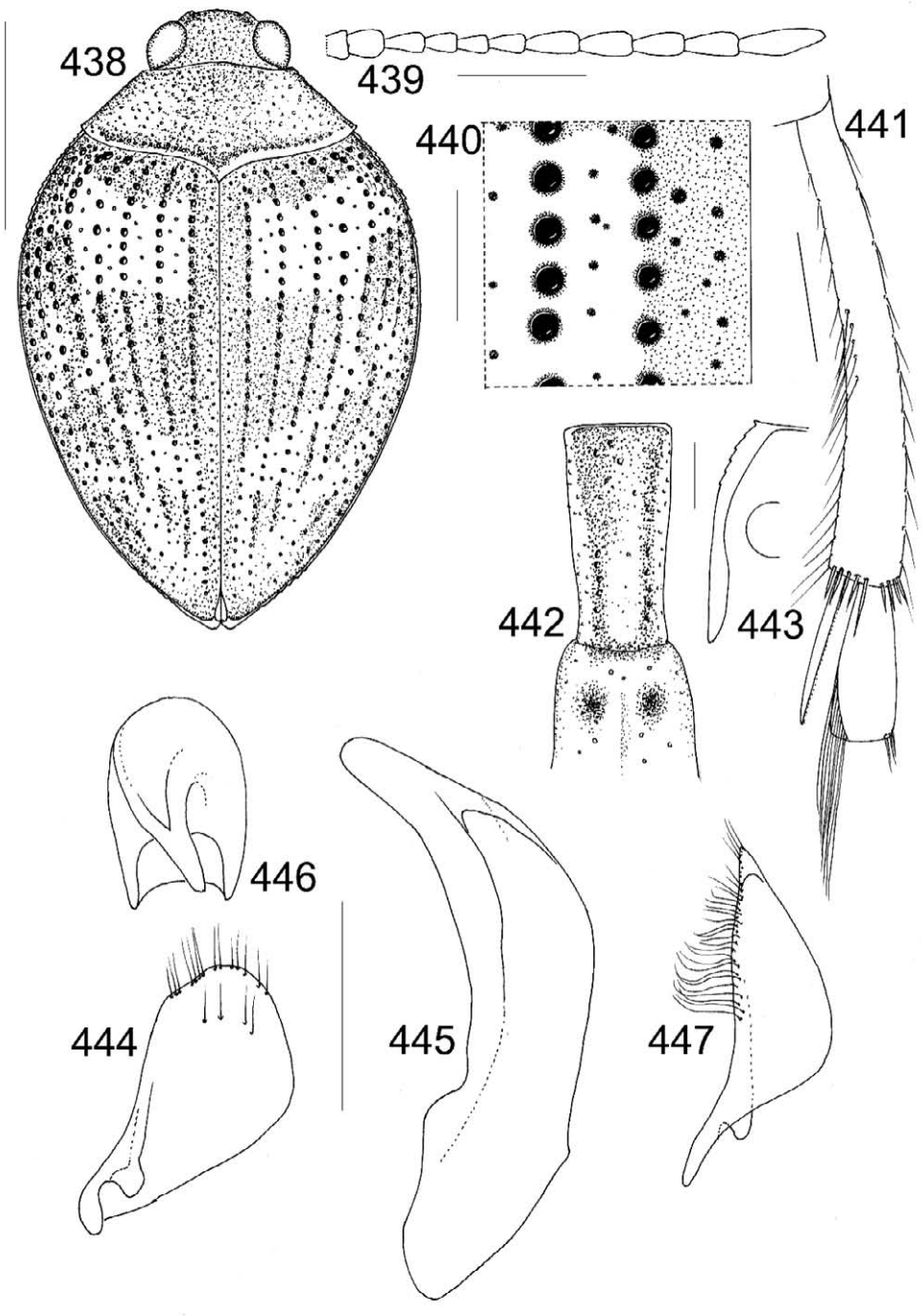
Figs. 412–420: *Haliplus tumidus* ♂, 412) habitus; 413) antenna; 414) punctures near elytral base and suture; 415) hind leg in dorsal view; 416) prosternal and metaventral process; 417) prosternal process in lateral view; 418) left paramere; 419) penis; 420) right paramere.



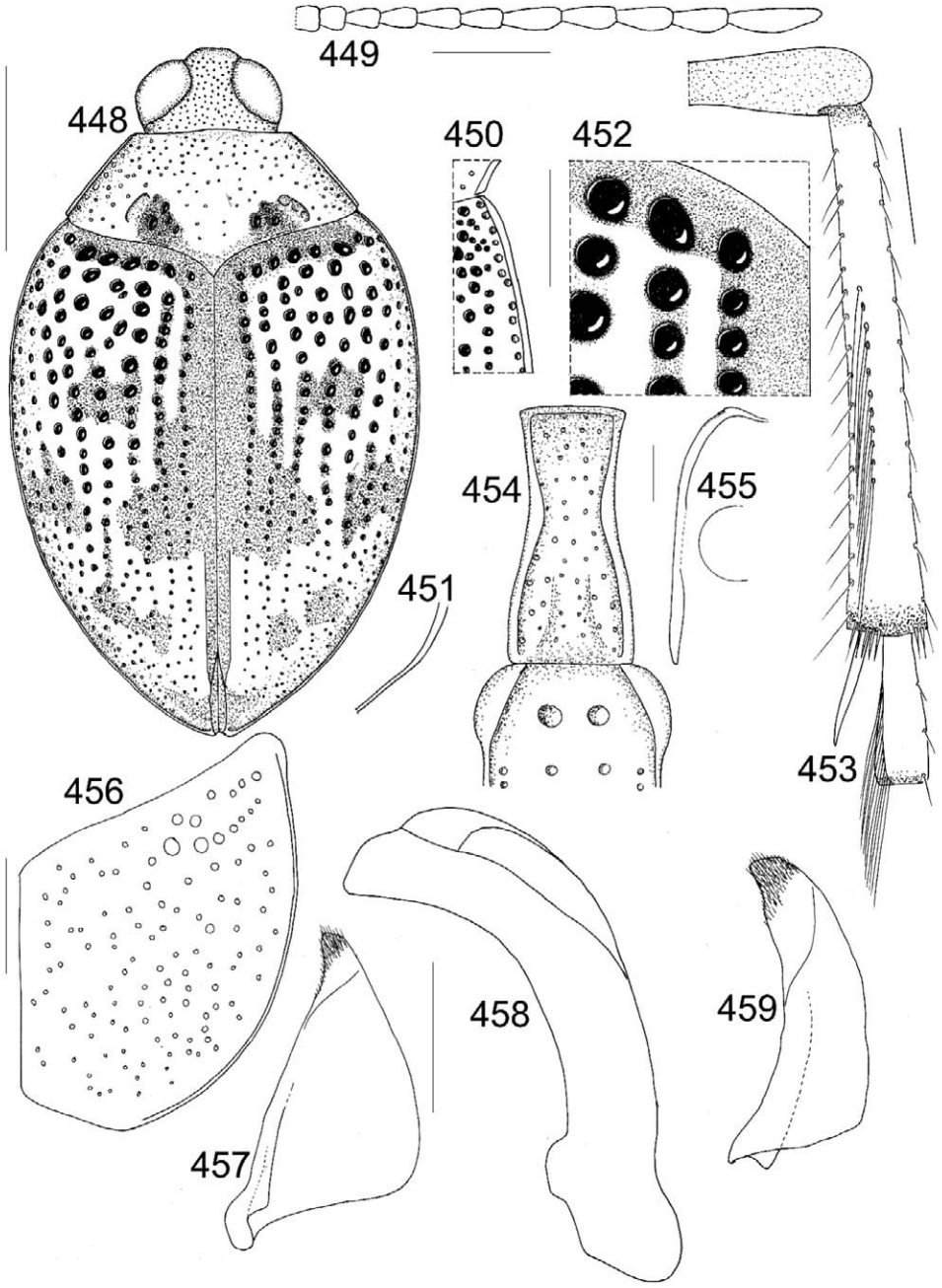
Figs. 421–429: *Haliplus unicarinatus* ♂, 421) habitus; 422) antenna; 423) punctures near elytral base and suture; 424) hind leg in dorsal view; 425) prosternal and metaventral process; 426) prosternal process in lateral view; 427) left paramere; 428) penis; 429) right paramere.



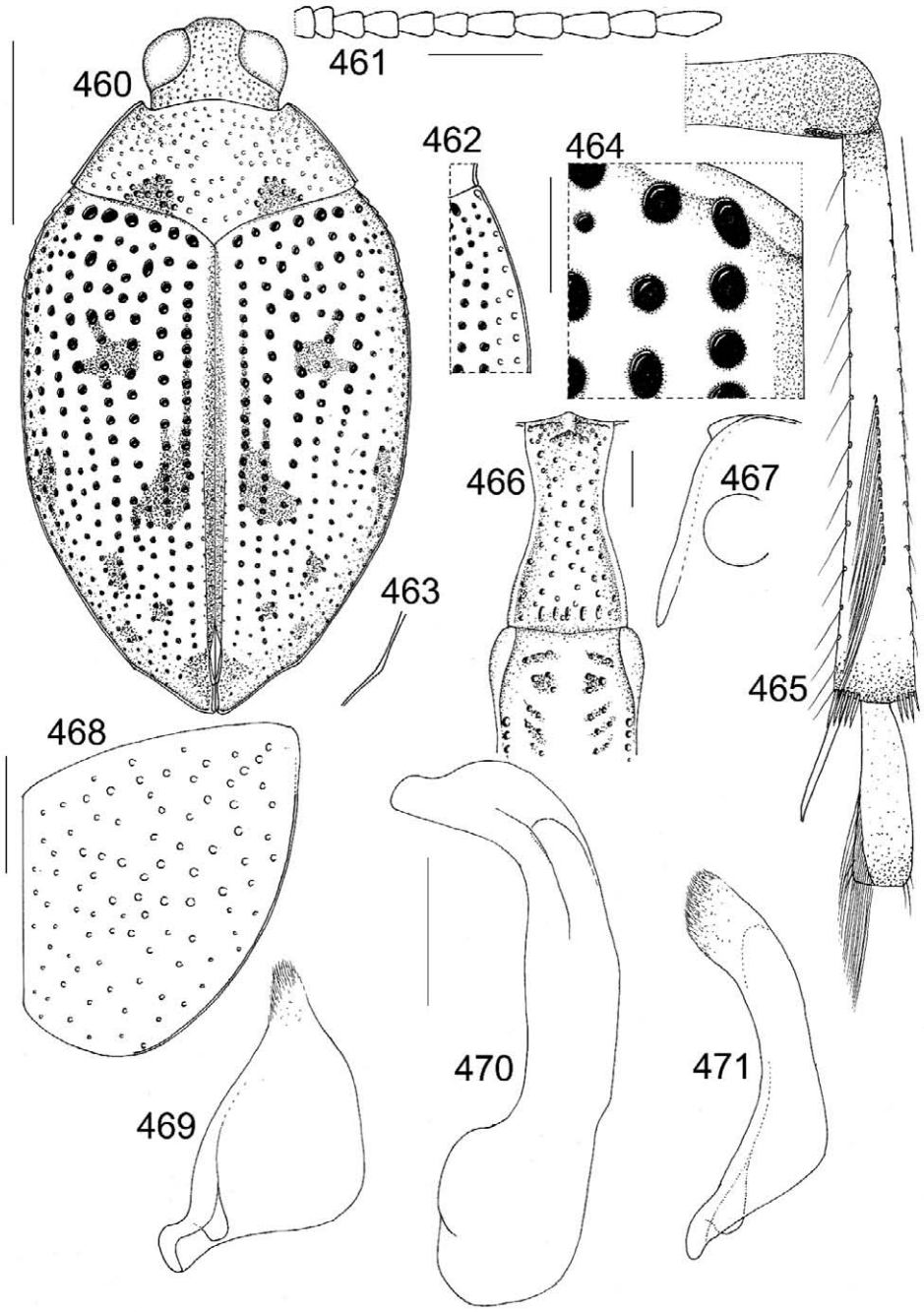
Figs. 430–437: *Haliplus valdiviensis* ♂, 430) habitus; 431) antenna; 432) punctures near elytral base and suture; 433) hind leg in dorsal view; 434) prosternal and metaventral process; 435) prosternal process in lateral view; 436) left paramere; 437) penis.



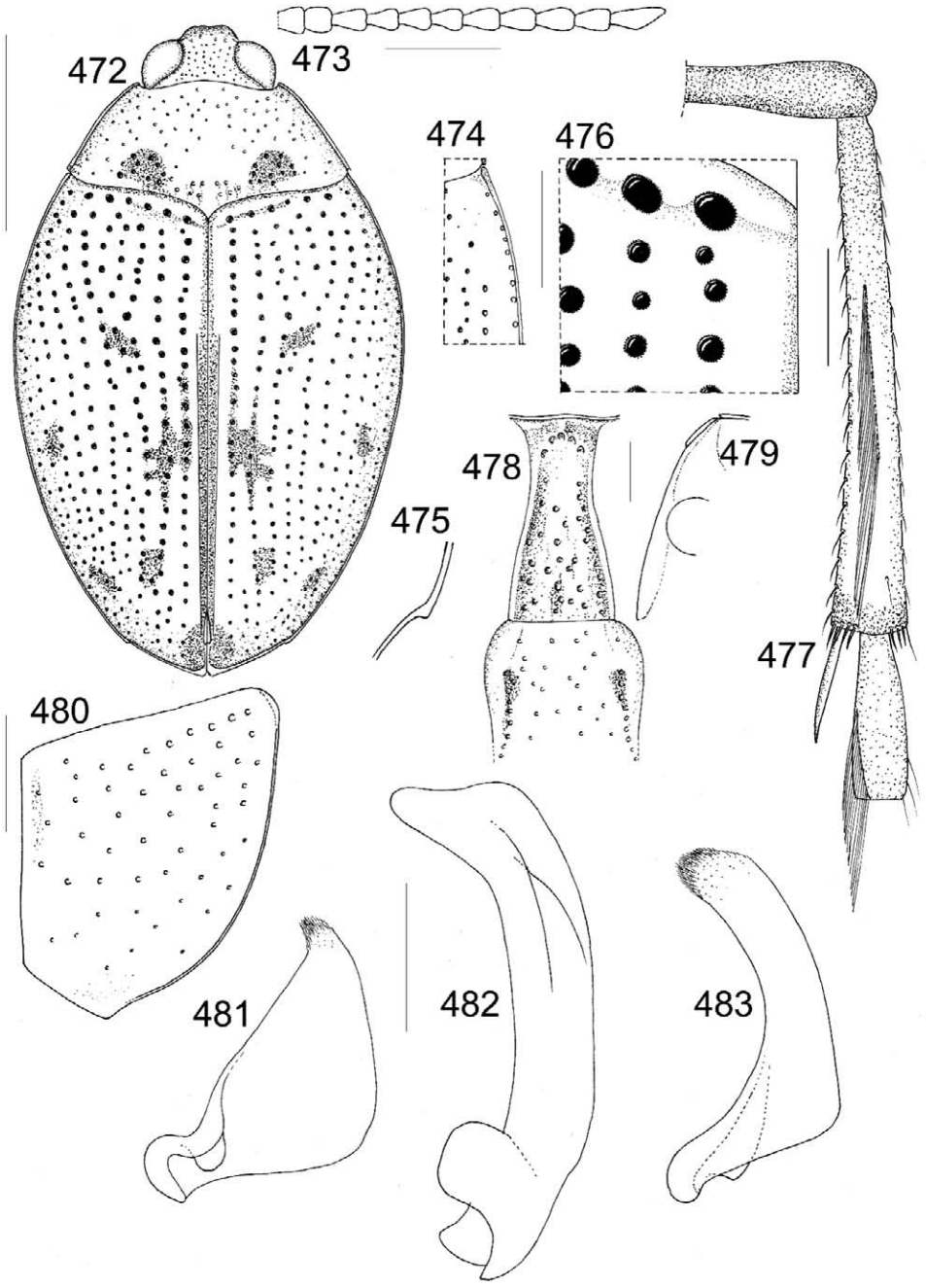
Figs. 438–447: *Haliplus youngi* ♂, 438) habitus; 439) antenna; 440) punctures near elytral base and suture; 441) hind leg in dorsal view; 442) prosternal and metaventral process; 443) prosternal process in lateral view; 444) left paramere; 445) penis; 446) penis in apical view; 447) right paramere.



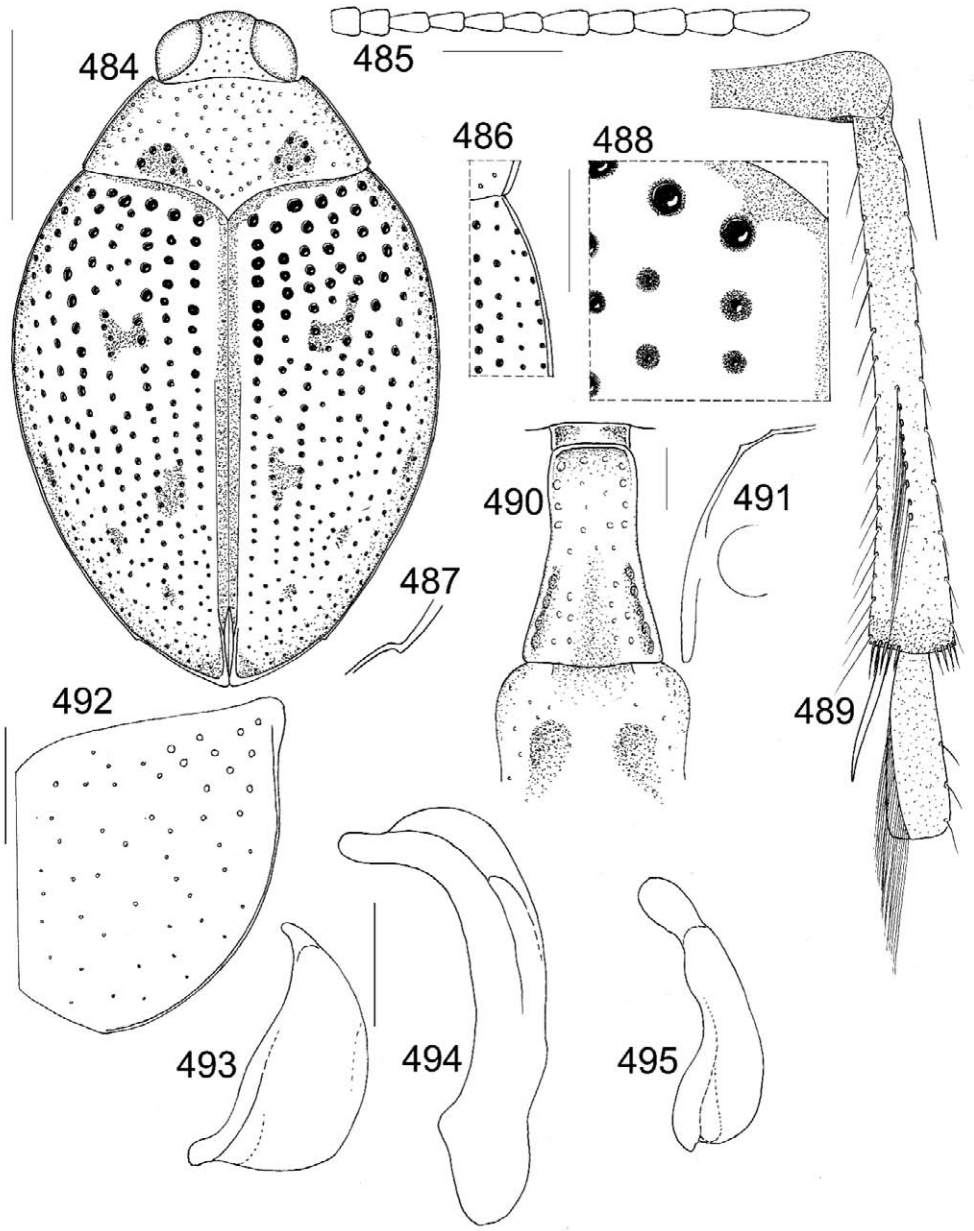
Figs. 448–459: *Peltodytes darlingtoni* ♂, 448) habitus; 449) antenna; 450) shoulder in lateral view; 451) preapical bend in elytral margin; 452) punctures near elytral base and suture; 453) hind leg in dorsal view; 454) prosternal and metaventral process; 455) prosternal process in lateral view; 456) metacoxal plate; 457) left paramere; 458) penis; 459) right paramere. [drawn from MCZ Type Database: ttp://insects.oeb.harvard.edu/mcz/FMPro?]



Figs. 460–471: *Peltodytes mexicanus* ♂, 460) habitus; 461) antenna; 462) shoulder in lateral view; 463) preapical bend in elytral margin; 464) punctures near elytral base and suture; 465) hind leg in dorsal view; 466) prosternal and metaventral process; 467) prosternal process in lateral view; 468) metacoxal plate; 469) left paramere; 470) penis; 471) right paramere.



Figs. 472–483: *Peltodytes ovalis* ♂, 472) habitus; 473) antenna; 474) shoulder in lateral view; 475) preapical bend in elytral margin; 476) punctures near elytral base and suture; 477) hind leg in dorsal view; 478) prosternal and metaventral process; 479) prosternal process in lateral view; 480) metacoxal plate; 481) left paramere; 482) penis; 483) right paramere.



Figs. 484–495: *Peltodytes tamaulipensis* ♂, 484) habitus; 485) antenna; 486) shoulder in lateral view; 487) preapical bend in elytral margin; 488) punctures near elytral base and suture; 489) hind leg in dorsal view; 490) prosternal and metaventral process; 491) prosternal process in lateral view; 492) metacoxal plate; 493) left paramere; 494) penis; 495) right paramere.

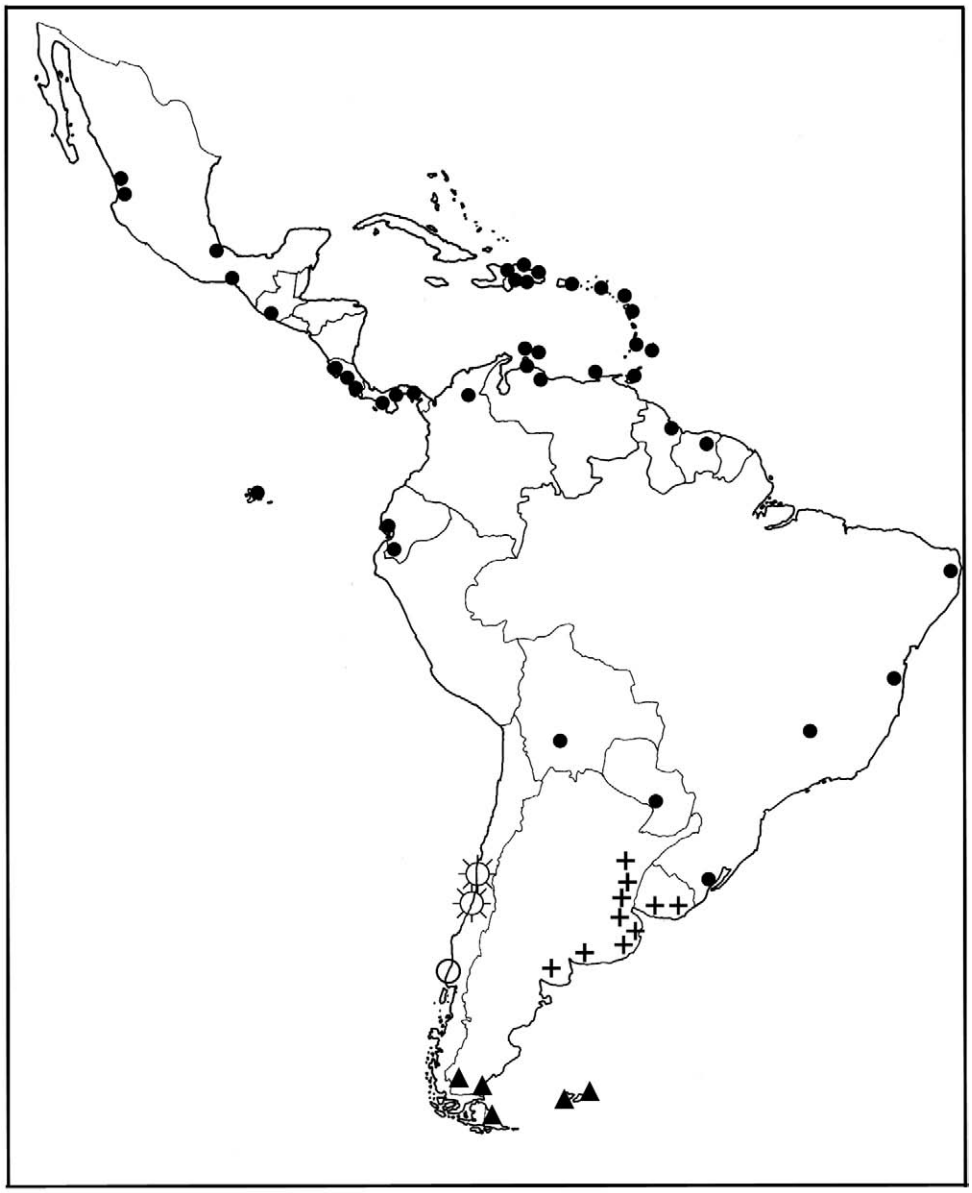


Fig. 496: Distribution map: *Haliplus bonariensis* (✚); *H. gravidus* (●); *H. subseriatus* (▲); *H. fuscipennis* (☼); *H. valdiviensis* (○).

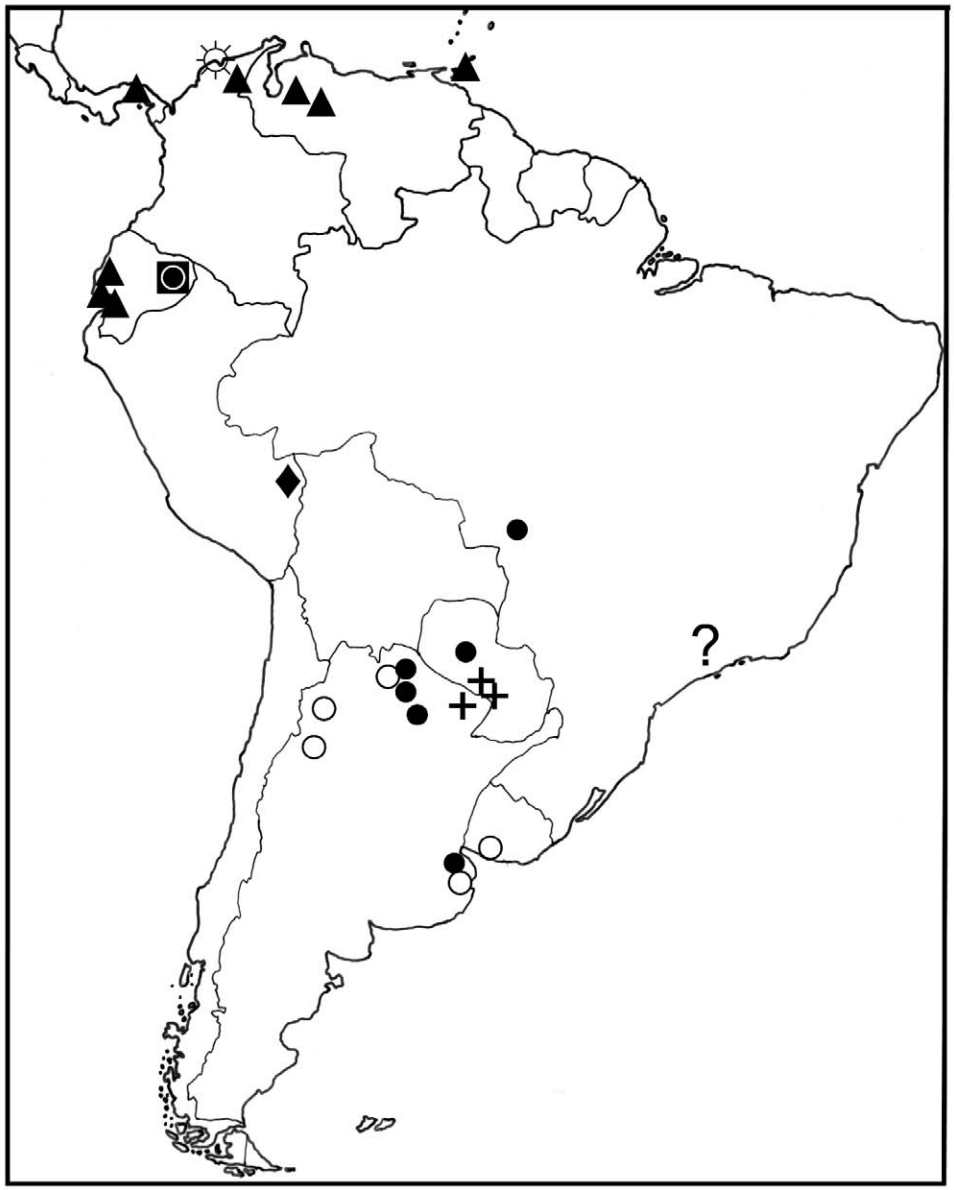


Fig. 497: Distribution map: *Haliplus bachmanni* (●); *H. brasiliensis* (?), location not exactly known; *H. camposi* (▲); *H. colombiensis* (☼); *H. drechseli* (✚); *H. heppneri* (♦); *H. langleyi* (◙); *H. maculicollis* (○).

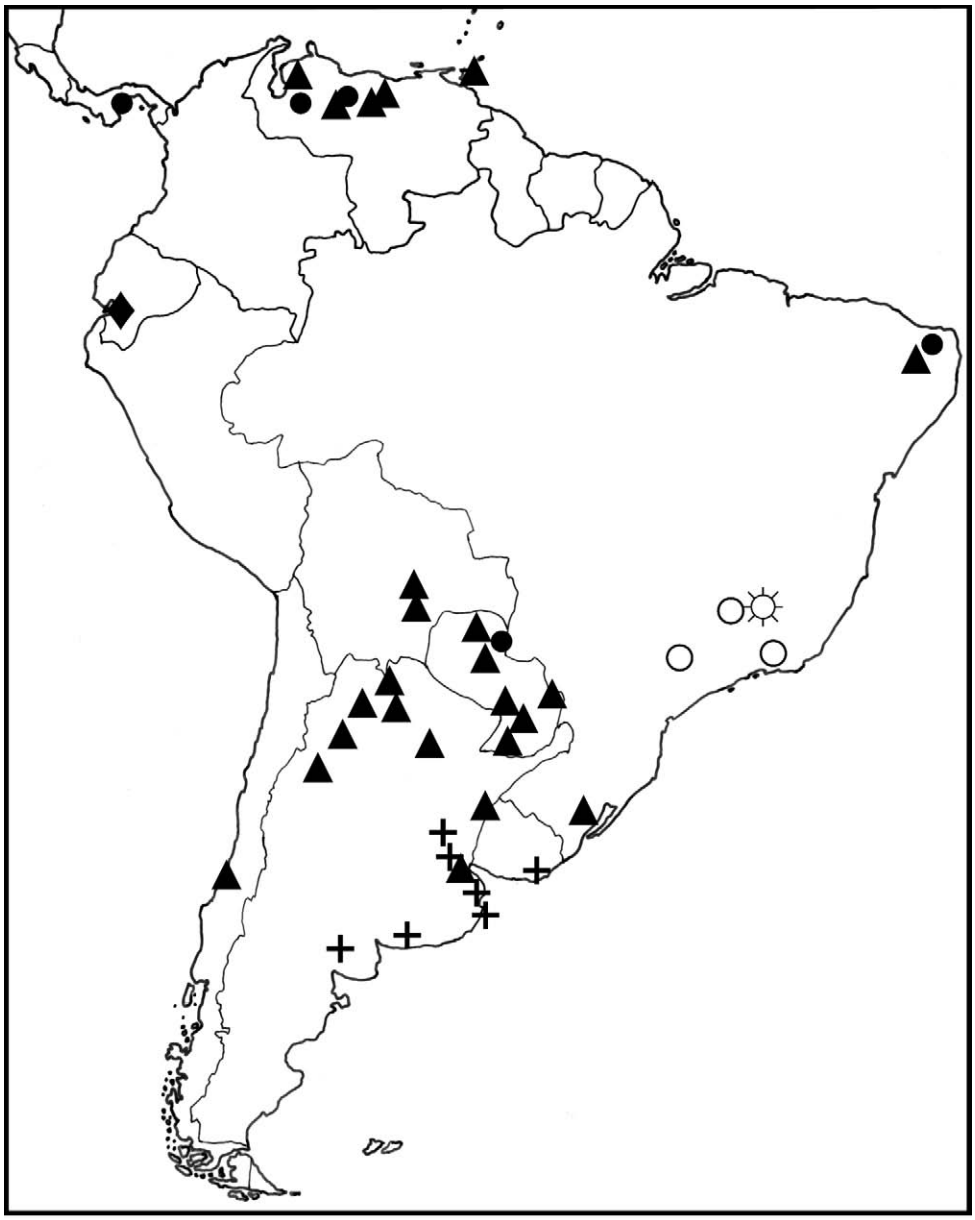


Fig.498: Distribution map: *Haliplus crassus* (●); *H. indistinctus* (▲); *H. megapunctatus* (☼); *H. minimus* (♦); *H. nieseri* (○); *H. oblongus* (✚).

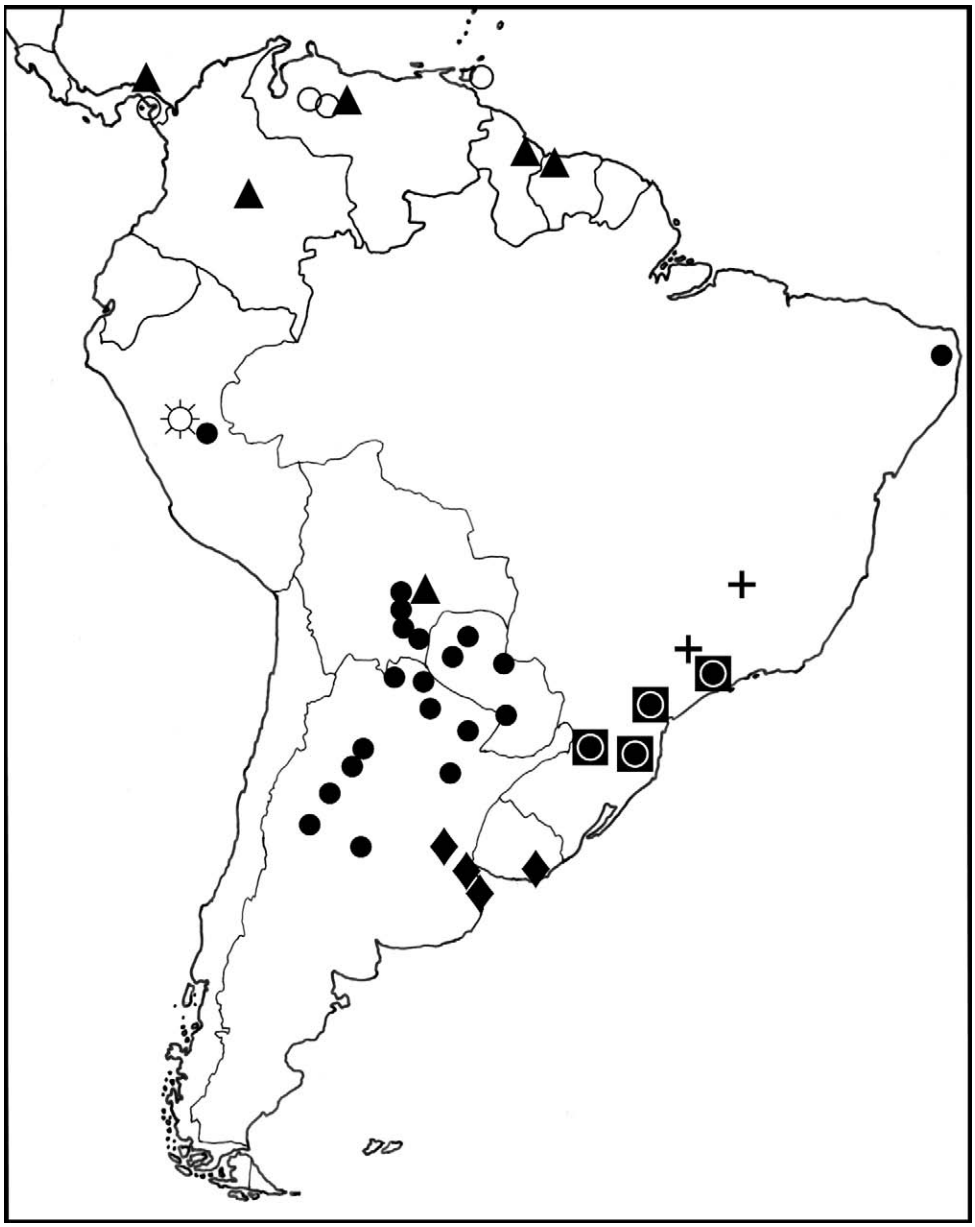


Fig. 499: Distribution map: *Haliplus ornatipennis* (●); *H. panamanus* (▲); *H. peruanus* (☼); *H. testaceus* (♦); *H. thoracicus* (◙); *H. tocumenus* (○); *H. triplehorni* (✚).

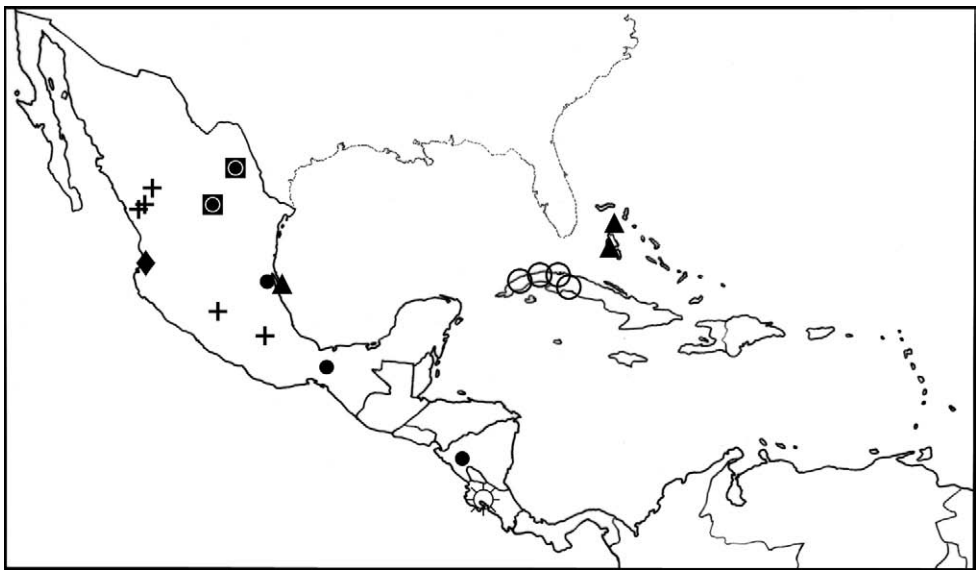


Fig. 500: Distribution map: *Haliplus annulatus* (●); *H. carinatus* (○); *H. concolor* (♦); *H. confluentus* (▲); *H. costaricanus* (☼); *H. deceptus* (◙); *H. elsaltous* (✚).

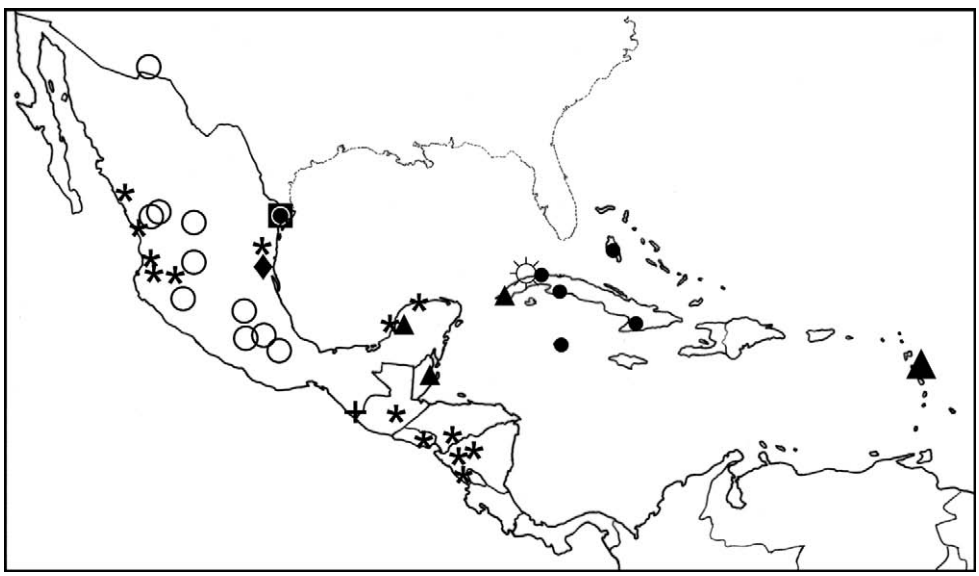


Fig. 501: Distribution map: *Haliplus cubensis* (●); *H. grandis* (○); *H. gravidoides* (▲); *H. immaculicollis* (♦); *H. lewisii* (◙); *H. mexicanus* (✚); *H. nanus* (☼); *H. solitarius* (★).

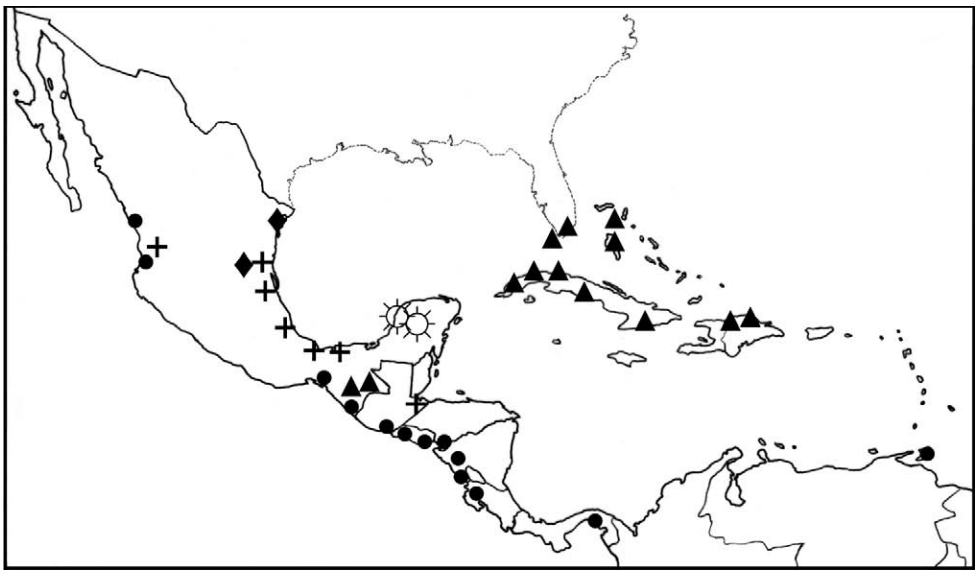


Fig. 502: Distribution map: *Haliplus havaniensis* (▲); *H. mesoamericanus* (●); *H. oklahomensis* (♦); *H. tantoyucanus* (✚); *H. unicarinatus* (☼).

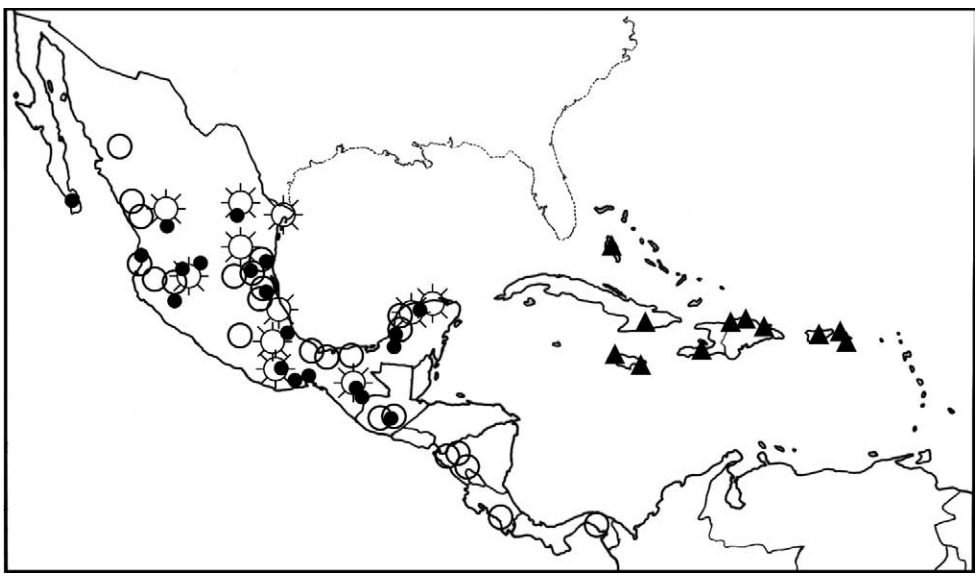


Fig. 503: Distribution map: *Haliplus signatus* (○); *H. tumidus* (●); *H. signatus* or *tumidus* (☼); *H. youngi* (▲).

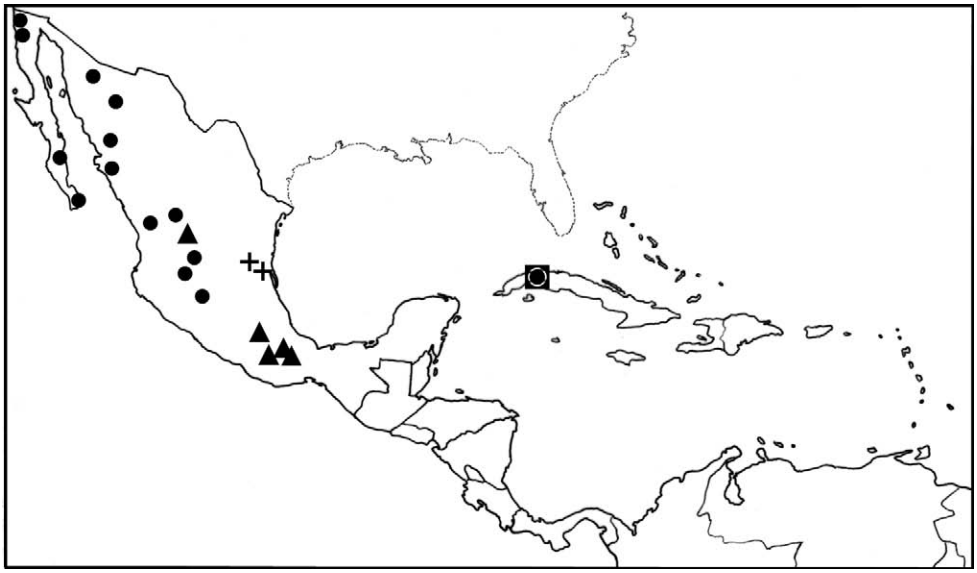


Fig. 504: Distribution map: *P. darlingtoni* (◙); *P. mexicanus* (●); *P. ovalis* (▲); *P. tamaulipensis* (✚).

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