

Taxonomic revision of *Anacaena* THOMSON, 1859

II. Neotropical species

(Coleoptera: Hydrophilidae)

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Abstract

The Neotropical species of *Anacaena* THOMSON, 1859 are revised. *Anacaena signaticollis* FALL, 1924 is reported for the first time from the northern area of the Neotropical Region. All hitherto known species, including *A. signaticollis* are redescribed. Two new species, *Anacaena hirsuta* sp.n. and *A. schoedli* sp.n., are described. Twelve species are synonymized: *A. attenuata* (d'ORCHYMONT, 1921), *A. cordobana* KNISCH, 1924, *A. debilis* (SHARP, 1882), *A. moreirai* d'ORCHYMONT, 1921, *A. morosa* d'ORCHYMONT, 1942, *A. morula* d'ORCHYMONT, 1942, *A. pescheti* d'ORCHYMONT, 1921, *A. peta* d'ORCHYMONT, 1942, and *A. sternalis* LEECH, 1948 with *A. suturalis* (LECONTE, 1866); *A. bireducta* d'ORCHYMONT, 1942 with *A. parvula* SHARP, 1882; and *A. perplexa* d'ORCHYMONT, 1942 and *A. perspicua* d'ORCHYMONT, 1942 with *A. solstitialis* KIRSCH, 1873. Five species, *A. attenuata*, *A. hirsuta*, *A. schoedli*, *A. solstitialis*, and *A. suturalis* are united under the name “*suturalis*-group”. Lectotypes and paralectotypes are designated for *A. debilis* and *A. suturalis*. A key to the species of the Neotropical Region is presented.

Key words: Coleoptera, Hydrophilidae, *Anacaena*, taxonomy, revision, synonymy, lectotype designation, key to species, new species, Neotropical Region.

Introduction

Twenty-one species of the genus *Anacaena* THOMSON, 1859 have been described from the Neotropics. Most of these species are known only from few specimens represented by the type material. The original descriptions are rarely detailed, and in some cases the authors offer only more or less brief comparative remarks instead. The morphology of the genitalia has not been described so far. This makes a revision of the genus an urgent matter. In recent years many specimens of *Anacaena* have been collected in Central America, particularly during a biodiversity project in Costa Rica. Among this material two new species were discovered. A comparison of the type material with the large series of specimens collected recently reveals that nine of the described species are merely individual variations of *A. suturalis* (LECONTE, 1866), two species are junior synonyms of *A. solstitialis* (KIRSCH, 1873), and one species is a junior synonym of *A. parvula* (SHARP, 1882). In addition, *A. signaticollis*, which is primarily an element of the Nearctic fauna, occurs in Mexico too, and is therefore considered in this revision. The total number of *Anacaena* species occurring in the Neotropical Region is thus reduced to 13. On account of their high similarity, five species are clustered under the name “*suturalis*-group” and discussed at the end of this study. In addition to the descriptions, a key to the Neotropical species of *Anacaena* is added.

Material and methods

About 4000 undetermined specimens of *Anacaena*, most of them collected recently in Central America were examined and compared with the type material of the Neotropical and Nearctic species of the genus.

Mouth parts, thoracic structures and male genitalia were carefully dissected, placed in concentrated lactic acid and investigated several hours later. The specimens were examined using a binocular Leica MZ 12.5 with diffuse and focused light sources, and a light microscope Olympus BX 41. Measurements were taken using a micrometric eyepiece, and ink drawings were made with a drawing tube. The morphological terminology is based on KOMAREK (2004). Within the precisely cited label data, “/” indicates the change of line, “\” the change of label.

Acknowledgements

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Abbreviations:

AEZS	A.E.Z. Short Collection, Ithaca (New York, U.S.A.)
CASF	California Academy of Sciences, San Francisco (California, U.S.A.)
E.I.	Elytral index (= largest elytral length / largest elytral width)
EMB	Essig Museum of Entomology, Berkeley (California, U.S.A.)
FMC	Field Museum, Chicago (Illinois, U.S.A.)
INBIO	Instituto Nacional de Biodiversidad, Santo Domingo de Heredia (Costa Rica)
ISNB	Institut National des Sciences Naturelles, Bruxelles (Belgium)
MASN	Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires (Argentina)
MCZH	Museum of Comparative Zoology, Harvard University, Cambridge (Massachusetts, U.S.A.)
MTD	Staatliches Museum für Tierkunde, Dresden (Germany)
NHM	The Natural History Museum, London (U.K.)
NMW	Naturhistorisches Museum Wien (Austria)
ZMUC	Zoological Museum Copenhagen (Denmark)

Checklist of *Anacaena* species from the Neotropical Region

1. *Anacaena attigua* d'ORCHYMONT, 1942: Peru
2. *Anacaena corumbana* d'ORCHYMONT, 1938: Brazil
3. *Anacaena coruscalis* d'ORCHYMONT, 1942: Brazil, Argentina
4. *Anacaena hirsuta* KOMAREK, 2005: Costa Rica, Guatemala
5. *Anacaena limostra* d'ORCHYMONT, 1942: Brazil
6. *Anacaena parvula* (SHARP, 1882): Costa Rica, Panama, Bolivia, Brazil, Paraguay
7. *Anacaena perparva* d'ORCHYMONT, 1942: Brazil
8. *Anacaena perpenna* d'ORCHYMONT, 1942: Costa Rica
9. *Anacaena punctata* (KIRSCH, 1873): Peru
10. *Anacaena schoedli* KOMAREK, 2005: Costa Rica
11. *Anacaena signaticollis* FALL, 1924: U.S.A. (California, Arizona, New Mexico), Mexico
12. *Anacaena solstitialis* (KIRSCH, 1873): Mexico, Guatemala, Costa Rica, Panama, Bolivia, Peru, Brazil
13. *Anacaena suturalis* (LECONTE, 1866): Canada to Argentina



Figs. 1: Habitus (pronotum and caput slightly flexed dorsad, in order to show more details) of *Anacaena solstitialis*.

Anacaena attigua d'ORCHYMONT, 1942

Anacaena attigua d'ORCHYMONT, 1942: 43.

TYPE LOCALITY: Peru, Huallaga Prov., Rio Mixiollo.

TYPE MATERIAL EXAMINED: **Holotype** ♂ (ISNB): "Pérou / Prov. Huallaga / Rio Mixiollo 1200m / G.A.Baer 7-8-1900 [mounted on a red collection label: Coll R.I.Sc.N.B. / Pérou] \ A. d'Orchymont det. / *Anacaena attigua* m. \ Type". **Paratypes**: 7 ♂♂, 1 ♀, 1 ex. (ISNB, NMW): same data as holotype, except type label "Paratype".

DIAGNOSIS: Body comparatively small, distinctly attenuated apically; clypeus, frons, pronotum and elytra black; pronotum with yellow lateral margins, anterior margin largely black; elytra with very indistinct yellowish lateral margins; clypeus rather short with very blunt anterolateral angles; antennae nine-segmented; maxillary palpi moderately stout with apical infuscation; punctation on head and pronotum fine, on elytra coarser and indistinctly subseriate; elytra with longitudinal impressions laterally; mesoventrite with distinct, large median elevation; procoxae with few spine-like setae; legs dark brown like ventrites; metafemoral pubescence reduced; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: Within the "*suturalis*-group" this species is distinguishable by distinct lateral elytral impressions. Moreover it differs from *A. suturalis* mainly by larger size, less serially arranged elytral punctures, procoxal spine-like setae, and a comparatively short metatarsus; from *A. hirsuta* by the absence of the dense elytral pubescence, from *A. solstitialis* by the black colouration, from *A. schoedli* by spine-like setae on the procoxa and the black anterior pronotal margin.

DESCRIPTION: Total length 2.1–2.4 mm, total width 1.3–1.4 mm, E.I.: 1.3. Habitus oblong oval, greatest width and maximum convexity distinctly in front of the middle, shortly behind elytral base (shoulder regions); posterior to maximum width gradually attenuated; elytra about four times as long as pronotum in dorsal view.

Head (Figs. 16, 19, 30): Labrum comparatively wide. Labrum, clypeus and frons entirely black. Irregular punctures fine, moderately densely distributed, denser towards clypeal margins; diameters of punctures smaller than interstices; few punctures with minute seta; a series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes not constricted anteriorly, dorsal portion slightly oviform. Clypeus comparatively short in longitudinal diameter, very slightly excised anteriorly, with blunt angles between lateral and anterior portion. Frontoclypeal suture not or scarcely visible. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus short and stout, shorter than segments 3, 4, and 5 together, antennomere 3 slightly elongated, shorter than antennomere 4 and 5 together. Apical club segment oval, ca. 1.7 times as wide as long. Maxillary palpi moderately stout, palpomere 2 inflated; palpomeres 1–3 yellow, palpomere 4 with indistinctly demarcated terminal infuscation. Temples, mentum, gula, submentum, cardo, and stipes dark brown, prementum and labial palpi yellow. Mentum ca. 1.6 times as wide as long, posterior portion flat, anterior portion distinctly depressed mesally, with sparse, fine setiferous punctures distributed mainly on the lateral part; with weakly impressed microstructure on anterior portion; lateral margins fringed with fine setae, slightly convex, with distinct anterior angles; anterior margin distinctly convex, distinctly excised in the middle. Submentum with long fine setae. Labial palpi comparatively short.

Thorax: Pronotum black, with indistinctly demarcated yellow lateral margins, anterior margin black. Irregular punctation fine, somewhat finer than on head, rather widely spaced on pronotal disc, coarser and denser towards lateral margins; large glabrous areas present between very irregularly distributed punctures. Very fine setae inserted in some of the lateral punctures. Interstices smooth, shiny, without microsculpture. Lateral margins with a distinct bead, weakly convex, with rather sharp posterior angles and more rounded anterior angles. Transverse fold

absent. Prosternum black, slightly bulged, very slightly projecting towards gula mesally. Hypomeron brown. Scutellar shield black, smooth, finely punctured. Elytra with distinct longitudinal impressions laterally behind shoulder regions. Elytra entirely black, very indistinctly yellowish brightened margins. Elytral punctures fine, but coarser than on pronotum, with indistinct subserial arrangement, finer on anterior portion, with longitudinal rows of coarser punctures towards lateral margins, particularly in the longitudinal impressions. Few punctures, mainly laterally and apically with a fine inconspicuous seta. Interstices without microsculpture. Sharply impressed sutural stria present in less than posterior three fourths of elytra. Mesoventrite with a bluntly pointed, high protuberance postero-mesally. Anapleural sutures S-shaped, anterior sections distinctly converging, reaching anterior margin of mesothorax (Fig. 40) very narrowly. Epipleura, meso- and metaventrite dark brown to black.

Legs (Fig. 51): Procoxae pubescent, with some spine-like setae. Legs coloured as ventrites. Femoral hairlines distinct. Profemur pubescent on proximal two thirds, with almost straight hairline; mesofemur pubescent on proximal three fourths with convex hairline; on metafemur pubescence confined to anterior margin and proximal portion with concave hairline. Metatibia with weak to moderately strong spines on lateral margin; metatibial spurs moderately strong, the longer mesal spur extending to half length of tarsomere 2. Pro-, meso-, and metatarsus with very inconspicuous fine long setae dorsally, not visible with stereomicroscope in 100 x amplification. Metatarsus slightly shorter than metatibia.

Abdominal ventrites dark brown, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 62): Phallobase slightly longer than parameres, manubrium not distinctly demarcated from phallobase. Parameres narrowed apically, with convex lateral margins and almost straight mesal margins, apices pointed. Median lobe as long as or very slightly shorter than parameres, corona in apical position, basal apophyses short, with very short extension into phallobase. Basis of median lobe mesally connected with parameres.

DISCUSSION: *A. attigua* belongs to the “*suturalis*-group”. D’ORCHYMONT (1942) compares this species with *A. attenuata*, stating that the main differences are the distinct protuberance on the mesoventrite and the coarser punctation. The following distinguishing features must be added: *A. attigua* is distinctly larger, there are differences in the mentum, less distinct in the antenna, the procoxae are set with few spine-like setae, the lateral elytral depressions are deeper, the metatarsus is shorter than the metatibia, the long metatarsal dorsal setae are absent. The difference in the length of the median lobe and in the apical position of the corona of the aedeagus, which can be seen in all male type specimens of *A. attigua*, are probably due to artefacts and has to be proved by additional material. Differences in the shape of the median lobe, i.e. truncate in *A. attigua* and pointed in *A. attenuata* seen by d’ORCHYMONT must certainly be judged as artefacts.

DISTRIBUTION: Peru.

Anacaena corumbana (d’ORCHYMONT, 1938)

Anacaena corumbana d’ORCHYMONT, 1938: 267.

TYPE LOCALITY: Brazil, Matto Grosso, Corumba.

TYPE MATERIAL EXAMINED: **Holotype** (ISNB): “Corumba / Matto Grosso \ coll. Knisch [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil”. **Paratypes** 92 exs. (ISNB, NMW): same data as holotype, except type label “Paratype”; 2 exs. (NHM): “Corumba Matt Grosso \ Paratype \ A.d’Orchymont det. *Anacaena corumbana* m.”.



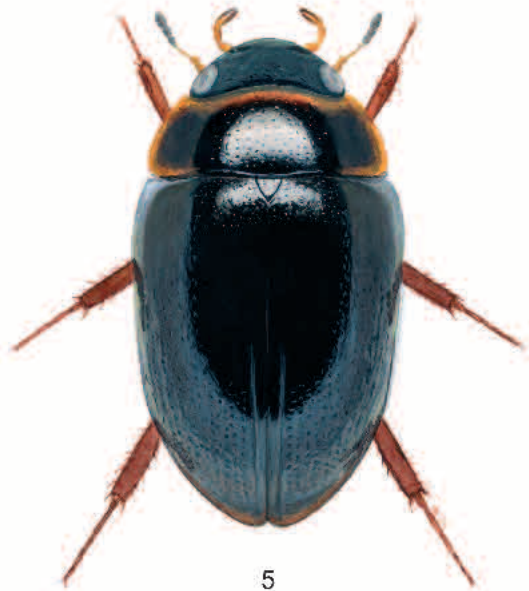
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Figs. 2–5: Habitus (pronotum and caput slightly flexed dorsad, in order to show more details): 2) *Anacaena suturalis*, 3) *A. corumbana*, 4) *A. coruscalis*, 5) *A. schoedli*.



Figs. 6–9: Habitus (pronotum and caput slightly flexed dorsad, in order to show more details): 6) *Anacaena hirsuta*, 7) *A. limostrata*, 8) *A. parvula*, 9) *A. signaticollis*.

DIAGNOSIS: Body comparatively small, short, not distinctly attenuated apically; frons sometimes darker than clypeus, eyes distinctly emarginated anteriorly; pronotum and elytra dark brown, pronotum sometimes very indistinctly darkened centrally; clypeus short with very blunt anterolateral angles; antennae seven-segmented; maxillary palpi slender, without apical infuscation; punctuation on head, pronotum, and elytra fine; mesoventrite with distinct median protuberance; procoxae simply pubescent; legs uniformly brown; metafemoral pubescence extended; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: Among the species with a short oval body shape and emarginated eyes, *A. corumbana* differs from similar Neotropical species by the combination of a brown head without distinct preocular patches and an extended metafemoral pubescence.

DESCRIPTION: Total length 1.5–1.7 mm, total width 0.9–1.1 mm, E.I.: 1.14. Habitus (Fig. 3) oval, greatest width in midlength; lateral margins evenly rounded, not attenuated toward apex, rounded apically; elytra about three times as long as pronotum in dorsal view.

Head (Figs. 17, 20, 31): Labrum, clypeus and frons brown; clypeus in many individuals brighter than frons to varying degree, sometimes distinctly brighter laterally in front of eyes, but rarely reduced to the size of preocular patches. Irregular punctures fine, rather densely and very regularly distributed, with diameters of punctures smaller than intervals between them. A series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes distinctly emarginated anteriorly by extension of frons, dorsal portion therefore slightly renal-shaped. Ventral portion moderately large, ocular ridge short. Clypeus short in longitudinal diameter, almost straight anteriorly, with blunt angles between lateral and anterior portion. Frontoclypeal suture visible, forming the border between brighter clypeus and darker frons; lateral branches of frontoclypeal suture meeting in a very acute angle centrally. Antennae seven-segmented; antennomeres 1–5 yellow, pedicellus about twice as long as wide, longer than segment 3 and cupula together, antennomere 3 slightly elongated. Apical club segment spherical, about as long as wide. Maxillary palpi slender, palpomere 2 very weakly inflated; palpomeres yellow, without infuscation. Temples, mentum, gula, submentum, cardo, and stipes dark brown, prementum and labial palpi yellow. Mentum ca. 1.4 times as wide as long, anterior and posterior portion flat, with few, equally distributed, setiferous punctures; microsculpture absent; lateral margins without fine setae, very slightly convex with distinct anterior angles; anterior margin distinctly convex, not excised in the middle. Submentum with long fine setae. Labial palpi comparatively large, elongated.

Thorax: Pronotum brown, with variable, very indistinctly demarcated darker areas, mainly in central portion. Irregular punctation as fine and spaced as on head. Interstices smooth, shiny, without microsculpture. Lateral margins with a fine bead, weakly convex, with rounded anterior and posterior angles. Transverse fold present. Prosternum and hypomeron equally brown. Prosternum slightly bulged, very slightly projecting towards gula mesally. Scutellar shield brown, smooth, feebly punctured. Lateral margins of elytra, including pseudopleura, not impressed behind shoulder regions. Elytra brown. Elytral punctures moderately fine, coarser than on pronotum, irregular, without subserial arrangement, becoming coarser towards lateral margins, with an indistinct short longitudinal row of coarser punctures at lateral margins. Interstices without microsculpture. Sharply impressed sutural stria present in posterior two thirds of elytra. Level of mesoventrite not elevated, mesoventrite with a sharply pointed ventrad protuberance postero-mesally. Anapleural sutures sharply S-shaped, anterior sections weakly converging, but narrowly reaching anterior margin of mesothorax (Fig. 41). Mesoventrite, metaventrite, and epipleura dark brown.

Legs (Fig. 53): Procoxae weakly pubescent. Coxae, trochantera, femora, tibiae and tarsi dark brown. Femoral hairlines distinct. Pro-, meso-, and metafemora almost entirely pubescent except

extreme apical portion, with convex hairline. Metatibia with moderately strong spines on lateral margin; metatibial spurs short and weak, the longer mesal spur hardly extending to half length of tarsomere 2. Tarsi without setae on dorsal face of tarsomeres. Metatarsus shorter than metatibia, with comparatively short tarsomeres.

Abdominal ventrites black, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 61): Phallobase slightly longer than parameres, manubrium indistinctly demarcated from phallobase. Parameres widest in the middle, at basis as wide as on apex, broadly rounded apically. Median lobe slightly shorter than parameres, corona in subapical position, basal apophyses long and narrow, with long extension into phallobase. Basis of median lobe connected with parameres.

DISCUSSION: This species is similar to *A. parvula*, a fact which has already been stated by d'ORCHYMONT (1938). The average measure of body length of 1.86 mm (d'ORCHYMONT 1938) seems too large. Striking differences in size, body shape, colouration, mentum, mesoventrite, lateral elytral punctation, and metafemoral pubescence to *A. parvula* justify the specific rank of *A. corumbana*, however.

DISTRIBUTION: Brazil.

Anacaena coruscalis (d'ORCHYMONT, 1942)

Anacaena coruscalis d'ORCHYMONT, 1942: 51.

TYPE LOCALITY: Brazil, Santa Catharina, Nova Teutonia.

TYPE MATERIAL EXAMINED: **Holotype** (ISNB): "Brasilien / Nova Teutonia / 27°11' B. 52°23'L. / Fritz Plaumann [mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil] \ A. d'Orchymont det. / *Anacaena coruscalis* m. \ Type". **Paratypes** (ISNB, NMW): 76 exs.: same data as holotype, except type label "Paratype".

ADDITIONAL MATERIAL EXAMINED: 1 ex. (ISNB): "Brazil: Santa Rita / VIII.1850 / F. Sahlberg [mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil]"; 1 ex. (ISNB): "Brazil: Rio Janeiro / XII.1... [year not readable] / F. Sahlberg [mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil]"; 1 ex. (ISNB): "Argentina / Prov. B. Aires / C. Bruch leg. [mounted on a red collection label: Coll R.I.Sc.N.B. / Argentina]".

DIAGNOSIS: Body comparatively small, short, not distinctly attenuated apically; clypeus and frons entirely black, eyes distinctly emarginated anteriorly; pronotum and elytra dark brown, pronotum sometimes with very indistinct darkened patches centrally; clypeus short with very blunt anterolateral angles; antennae seven-segmented; maxillary palpi slender, without apical infuscation; punctation on head, pronotum, and elytra fine; mesoventrite with distinct median protuberance; procoxae simply pubescent; legs uniformly brown; metafemoral pubescence extended; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: Among the species with a short oval body shape and emarginated eyes, *A. coruscalis* differs from similar Neotropical species by the combination of an entirely black head and an extended metafemoral pubescence.

DESCRIPTION: Total length 1.5–1.8 mm, total width 0.9–1.1 mm, E.I.: 1.16. Habitus (Fig. 4) oval, greatest width in midlength; lateral margins evenly rounded, not attenuated toward apex, rounded apically; elytra more than three times as long as pronotum in dorsal view.

Head (Figs. 18, 21, 32): Labrum, clypeus and frons black. Irregular punctures fine, rather densely and very regularly distributed, diameters of punctures smaller than interstices. A series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes distinctly emarginated anteriorly by extension of frons, dorsal portion therefore slightly renal-shaped, ventral portion very small, ocular ridge distinct, sharp. Clypeus short in longitudinal diameter, almost straight anteriorly, with blunt angles between

lateral and anterior portion. Frontoclypeal suture not visible. Antennae seven-segmented; antennomeres 1–5 yellow, pedicellus about twice as long as wide, longer than segment 3 and cupula together, antennomere 3 slightly elongated. Apical club segment slightly longer than wide. Maxillary palpi slender, palpomere 2 very weakly inflated; palpomeres yellow, without infuscation. Temples, mentum, gula, submentum, cardo, and stipes dark brown, prementum and labial palpi yellow. Mentum ca. 1.6 times as wide as long, anterior and posterior portion flat, with few, equally distributed, setiferous punctures; microsculpture absent; lateral margins without fringes of fine setae, straight with distinct anterior angles; anterior margin distinctly convex, not excised in the middle. Submentum with long fine setae. Labial palpi moderately sized.

Thorax: Pronotum brown, with variable, very indistinctly demarcated darker areas, mainly in central portion. Often four dark spots slightly outside of dark patch arranged like the four corners of a square. Irregular punctation as fine and densely distributed as on head. Interstices smooth, shiny, without microsculpture. Lateral margins with a fine bead, weakly convex, with rounded anterior and posterior angles. Transverse fold present. Prosternum and hypomeron equally brown. Prosternum slightly bulged, very slightly projecting towards gula mesally. Scutellar shield brown, smooth, feebly punctured. Lateral margins of elytra, including pseudepipleura, not impressed behind shoulder regions. Elytra brown; small, dark brown to black patches, serially arranged, shining through from ventral face of elytra, mainly in apical and lateral portion. Sutural stria often accentuated by darker brown colouration. Elytral punctures moderately fine, coarser than on pronotum, irregular, without subserial arrangement, hardly becoming coarser towards lateral margins, longitudinal rows of coarser punctures at lateral margins not visible. Interstices without microsculpture. Sharply impressed sutural stria present in posterior half of elytra. Level of mesoventrite not elevated, mesoventrite with a pointed, ventrad protuberance postero-mesally. Anapleural sutures sharply S-shaped, anterior sections weakly converging, reaching anterior margin of mesothorax (Fig. 42). Meso- and metaventrite dark brown to almost black, epipleura dark brown.

Legs (Fig. 54): Procoxae weakly pubescent. Coxae, trochantera, femora, tibiae and tarsi dark brown. All femora almost entirely pubescent except extreme apical portion, with distinct, convex hairline. Metatibia with moderately strong spines on lateral margin; metatibial spurs moderately strong, the longer mesal spur exceeding half length of tarsomere 2. Tarsi without setae on dorsal face of tarsomeres. Metatarsus shorter than metatibia, with comparatively short tarsomeres.

Abdominal ventrites dark brown to black, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 63): Phallobase slightly longer than parameres, manubrium indistinctly demarcated from phallobase. Parameres slender, narrowed in the middle, at basis as wide as apex, broadly rounded apically. Median lobe distinctly shorter than parameres, corona in subapical position, basal apophyses long and narrow, with long extension into phallobase. Basis of median lobe connected with parameres.

DISCUSSION: This species is similar to *A. parvula*, and particularly to *A. corumbana*. The latter affinity has already been stated by d'ORCHYMONT (1942), who described *A. coruscalis* mainly in comparison to *A. corumbana*. The differences in punctation (denser and stronger in *A. coruscalis*) are extremely vague at best and probably rather due to individual variation than to specific differences. Nevertheless, the specific rank of *A. coruscalis* appears to be justified by significant differences mainly in the colouration of the head and the shape of the eyes (smaller in *A. coruscalis*, particularly the ventral portion), and differences of the aedeagus (compared to *A. corumbana*).

DISTRIBUTION: Brazil, Argentina.

Anacaena schoedli sp.n.

TYPE LOCALITY: Costa Rica, Cartago Province, Tapantí National Park.

TYPE MATERIAL: **Holotype** ♂ (INBIO): “Costa Rica: Cartago Prov., Tapanti Nat. Park, in rock seeps/waterfalls, 22.VI.2003, leg. A.E.Z.Short”. **Paratypes**: 26 exs. (INBIO, NMW, AEZS): same data as holotype; 1 ex. (NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, pools along road, 22.VI.2003, leg. A.E.Z. Short; 2 exs. (INBIO, NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, 5.1 km above gate, 4980 m a.s.l., unnamed stream, 22.VI.2003, leg. W.D. Shepard (WDS-A-1552); 2 exs. (INBIO, NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, 6.1 km above gate, 5050 m a.s.l., unnamed stream, 22.VI.2003, leg. W.D. Shepard (WDS-A-1550); 2 exs. (NMW): Costa Rica: Puntarenas Prov., Las Cruces, Biological Station, Rio Jaba, 18.VI.2003, leg. A.E.Z. Short; 1 ex. (INBIO): Costa Rica: Guanacaste Prov., 2 km S Comunidad, 10°31.60'N / 85°35.04'W, 280 m a.s.l., roadside pools, 16.VI.2003, leg. A.E.Z. Short; 8 exs. (INBIO, NMW, AEZS): Costa Rica: San José Prov., waterfalls/seeps along rt. 2, nr. Division, 21.VI.2003, leg. A.E.Z. Short.

DIAGNOSIS: Body comparatively small, distinctly attenuated apically; clypeus, frons, pronotum and elytra black; pronotum with yellow lateral and anterior margins, elytra with narrow but distinct yellow lateral margins and weak apical brightening; clypeus large with distinct anterolateral angles; antennae nine-segmented; maxillary palpi moderately stout, yellow with apical infuscation; punctuation on head and pronotum fine, on elytra moderately fine and subseriate with minute setae; mesoventrite with distinct median protuberance; procoxae without spine-like setae; metafemora distinctly brightened in apical third; metafemoral pubescence reduced; metatarsus distinctly shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: Within the “*suturalis*-group” this species is separable from *A. suturalis* by the larger body-size, the yellow anterior margin of the pronotum, the distinct elytral punctures, which are arranged in irregular series and by the metatarsus shorter than the metatibia; from *A. attigua* by the yellow anterior pronotal margin, absence of procoxal spines, and absence of distinct lateral elytral impressions; from *A. hirsuta* by the absence of distinct elytral pubescence, absence of procoxal spines, and a comparatively shorter metatarsus, from *A. solstitialis* by the larger size and different colouration of pronotum and elytra.

DESCRIPTION: Total length 2.2–2.5 mm, total width 1.3–1.4 mm, E.I.: 1.43. Habitus (Fig. 5) oblong oval, greatest width and maximum convexity distinctly in front of the middle, at level of elytral base (shoulder regions); posterior to maximum width gradually attenuated and with decreasing convexity; elytra ca. four to five times as long as pronotum in dorsal view.

Head (Figs. 22, 33): Labrum comparatively wide. Labrum, clypeus and frons entirely black. Irregular punctures fine, mixed with few slightly coarser punctures, with moderately dense distribution, hardly denser towards lateral clypeal margin; diameter of punctures smaller than interstices; some punctures with very inconspicuous fine short seta; one series of very fine densely arranged punctures present along inner margin of eyes, sometimes a shorter second series accompanying the first one. Interstices shiny without microsculpture. Eyes not emarginated anteriorly, dorsal portion slightly ovoid, oblique. Clypeus large, slightly concave anteriorly, with distinct blunt angles between lateral and anterior portion. Frontoclypeal suture hardly visible as unpunctured, smooth line. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus short and stout, hardly as long as segments 3–5 together, antennomere 3 longer than antennomere 4 and 5 together. Apical club segment oval, twice as long as wide. Maxillary palpi moderately stout, palpomeres 1–3 yellow; palpomere 2 inflated, palpomere 4 with indistinctly demarcated terminal infuscation in about apical half. Temples, mentum, gula, submentum, cardo, and stipes black, prementum and labial palpi yellow. Mentum ca. 1.6 times as wide as long, posterior portion flat, anterior portion weakly depressed mesally, with rather sparse, equally distributed setiferous punctures; microstructure consisting of isodiametric meshes; lateral margins densely fringed with fine long setae; straight, parallel-sided with distinct anterior angles;

anterior margin distinctly convex, weakly excised in the middle. Submentum with long fine setae. Labial palpi short, moderately stout.

Thorax: Pronotum black, with rather narrow, distinctly demarcated yellow margins, wide laterally, narrower and less bright at anterior and posterior margin. Irregular punctation finer than on head, widely spaced on pronotal disc, significantly coarser and denser towards lateral margins; interstices smooth, shiny, without microsculpture. Lateral margins with a very tender bead, weakly convex, with distinct blunt posterior angles and more rounded anterior angles. Transverse fold hardly visible. Prosternum black, flat, convexely projecting towards gula mesally. Hypomeron brown. Scutellar shield black, smooth, almost unpunctured. Each elytron with a marked callosity in middle of elytral base, and with a very shallow, elongated impression laterally behind shoulder regions, including pseudopleura. Elytra black, lateral margins with a very narrow yellow rim, slightly wider than lateral elytral bead, fusing apically with an indistinct bright patch. Elytral punctures setiferous, fine, coarser than on pronotum, with subserial arrangement, very fine and irregular on anterior portion, with longitudinal rows of coarser punctures towards lateral margins. Interstices without microsculpture. Sharply impressed sutural stria in posterior four fifths of elytra. Mesoventrite with a conspicuous bluntly pointed protuberance postero-mesally, anapleural sutures S-shaped, anterior sections distinctly converging, narrowly reaching anterior margin of mesothorax (Fig. 43). Epipleura brown, meso- and metaventrite dark brown to black.

Legs: Procoxae pubescent, with some longer setae near trochanteral joint, but without spine-like setae. Proximal two thirds of femora dark brown to almost black, distal third of femora, tibiae and tarsi distinctly lighter brown. Femoral hairlines distinct. Profemur pubescent on proximal three fourths, with convex hairline; mesofemur almost entirely pubescent with convex hairline; on metafemur pubescence confined to anterior margin and proximal portion with concave hairline. Metatibia with moderately strong spines on lateral margin; the longer mesal spur extending to less than half length of tarsomere 2. Pro-, meso-, and metatarsus with a loose fringe of very long fine setae arising from dorsal face of each tarsomere. Protibia with moderately sized distal spurs, much narrower than tarsomere 1. Metatarsus shorter than metatibia.

Abdominal ventrites black, entirely covered with dense hydrofuge pubescence.

Aedeagus: Phallobase slightly longer than parameres, manubrium not distinctly demarcated from phallobase. Parameres narrowed apically, with convex lateral margins and almost straight mesal margins, apices pointed. Median lobe shorter than parameres, corona in subapical position, basal apophyses short, with very short extension into phallobase. Base of median lobe mesally connected with parameres.

DISCUSSION: The species belongs to the “*suturalis*-group”. Within this group it is particularly similar to *A. suturalis*. The comparatively much larger size in combination with more distinct and more serially arranged elytral punctures, and the fact that both species can be found at the same locality, seem to justify a separate specific rank.

DISTRIBUTION: Costa Rica.

ETYMOLOGY: I dedicate this species to the late Dr. Stefan Schödl, who helped me tremendously with his entomological expertise during the first years of my water beetle research.

Anacaena hirsuta sp.n.

TYPE LOCALITY: Costa Rica, Cartago Province, Tapanti National Park.

TYPE MATERIAL: **Holotype** ♂ (INBIO): “Costa Rica: Cartago Prov., Tapanti Nat. Park, Quebrada Segunda, 11.1 km above gate, 5080 m a.s.l., 22.VI.2003, leg. W.D. Shepard (WDS-A-1548)”. **Paratypes**: 9 exs. (INBIO, NMW): same data as holotype; 1 ex. (NMW): Costa Rica: Cartago Prov., San José, 23.1 km S Villa Mills, 21.VI.2003, 5400 m a.s.l., unnamed stream & fall, leg. W.D. Shepard (WDS-A-1547); 2 exs. (INBIO, NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, 6.3 km above gate, 4720 m a.s.l., unnamed stream & fall, 22.VI.2003, leg. W.D. Shepard (WDS-A-1549); 1 ex. (NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, 6.1 km above gate, 5050 m a.s.l., unnamed stream, 22.VI.2003, leg. W.D. Shepard (WDS-A-1550); 8 exs. (INBIO, NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, 5.1 km above gate, 4980 m a.s.l., unnamed stream, 22.VI.2003, leg. W.D. Shepard (WDS-A-1552); 1 ex. (NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, 1.6 km above gate, 4160 m a.s.l., unnamed stream, 22.VI.2003, leg. W.D. Shepard (WDS-A-1553); 5 exs. (INBIO, NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, pools along road, 22.VI.2003, leg. A.E.Z. Short; 39 exs. (INBIO, NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, in rock seeps/waterfalls, 22.VI.2003, leg. A.E.Z. Short; 6 exs. (INBIO, NMW): Costa Rica: Cartago Prov., Tapanti Nat. Park, 4.6 km after gate, 1500 m waterfall, 8.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-015); 2 exs. (INBIO, NMW): Costa Rica: San José Prov., waterfalls/seeps along rt. 2, nr. Division, 21.VI.2003, leg. A.E.Z. Short; 49 exs. (INBIO, NMW): Costa Rica: San José Prov., 19.1 km NE of Domatical on rt. 243, waterfall and seeps, 18.VI.2003, leg. A.E.Z. Short; 1 ex. (NMW): Costa Rica: Guanacaste Prov., 2 km S Comunidad, 10°31.60'N / 85°35.04'W, 280 m a.s.l., roadside pools, 16.VI.2003, leg. A.E.Z. Short; 1 ex. (INBIO): Costa Rica: Alajuela Prov., seeps on Rio San Lorenzo, 6.1 km N Los Lagos on Los Lagos-Colonia Rd., 10°13'39.6"N / 84°34'14.6"W, 870 m a.s.l., 12.I.2003, leg. A.E.Z. Short & R.E. Roughly (CR-03-04); 1 ex. (INBIO, NMW): Costa Rica: Alajuela Prov., few km W of Florencia, margins/pools of small river, 15.I.2004, 200 m a.s.l., leg. A.E.Z. Short & D.J. Lebbin (AS-04-049); 7 exs. (INBIO, NMW): Costa Rica: Alajuela Prov., 1 km S Cariblanco, wall seep, 870 m a.s.l., 6.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-055); 21 exs. (INBIO, NMW): Costa Rica: Alajuela Prov., 9.4 km S Varablanca on rt. 126, 10°07.22'N / 84°09.82'W, 5640 m a.s.l., rock wall seep, 25.VI.2003, leg. A.E.Z. Short; 1 ex. (EMB): Costa Rica: Alajuela Prov., 8 rd.-km N Vara Blanca, Volcan Poas, 1500 m a.s.l., 11.V.1985; 1 ex. (NMW): Costa Rica: Puntarenas Prov., Alturas Biol. Station, 4360 m a.s.l., Rio Bella Vista, 20.VI.2003, leg. W.D. Shepard (WDS-A-1546); 5 exs. (INBIO, NMW): Costa Rica: Puntarenas Prov., Las Cruces, Biological Station, Rio Jaba, 18.VI.2003, leg. A.E.Z. Short; 14 exs. (AEZS, NMW): Guatemala: Baia Verapaz, La Cascada Chilesco, 13.VII.2001, leg. W.D. Shepard (WDS-A-1412).

DIAGNOSIS: Body comparatively very small, distinctly attenuated apically; clypeus, frons, pronotum and elytra black; pronotum with yellow lateral margins; clypeus rather short with indistinct anterolateral angles; antennae nine-segmented; maxillary palpi very stout in male, stout in female, yellow with apical infuscation; punctuation on head and pronotum fine, on elytra moderately fine and subseriate; punctures on head, pronotum and elytrae with long, recumbent, bright setae; mesoventrite with distinct, pointed median protuberance; procoxae with distinct spine-like setae on mesal face; metafemora distinctly brightened in apical third; metafemoral pubescence reduced; metatarsus as long as metatibia.

DIFFERENTIAL DIAGNOSIS: Within the *suturalis*-group this species differs in the combination of distinct spines on the procoxae and the conspicuously pubescent dorsal face, from *A. schoedli* moreover by the absence of a yellow anterior pronotal margin, and from *A. attigua* by the absence of distinct lateral elytral impressions. The body shape appears comparatively high-convex, compared with other species of the *suturalis*-group. *A. signaticollis* and *A. hirsuta* share the procoxal spines; these species differ significantly by their body-shape and by the colouration of the pronotum and the elytra.

DESCRIPTION: Total length 1.7–2.1 mm, total width 1.0–1.3 mm, E.I.: 1.25. Habitus (Fig. 6) oblong oval, greatest width and maximum convexity distinctly in front of the middle, at level of elytral base (shoulder regions); posterior to maximum width gradually attenuated; elytra about three times as long as pronotum in dorsal view.

Head (Figs. 12, 23, 24, 34): Labrum moderately wide. Labrum, clypeus and frons entirely black. Irregular punctures fine, mixed with few slightly coarser punctures, densely distributed, denser

towards clypeal margins and on frons; diameters of punctures slightly smaller than interstices; each puncture with a long, fine, recumbent seta; two series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes not emarginated anteriorly, dorsal portion slightly ovoid, oblique. Clypeus short in longitudinal diameter, almost straight anteriorly, without distinct angles between lateral and anterior portion. Frontoclypeal suture hardly visible as unpunctured, smooth line. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus short and stout, shorter than segments 3–5 together, antennomere 3 longer than antennomere 4 and 5 together. Apical club segment oval, twice as long as wide. Maxillary palpi stout, palpomere 2 inflated; palpomeres 1–3 yellow, palpomere 4 with indistinctly demarcated terminal infuscation in apical half to apical two thirds, in some individuals almost entirely darkened. Palpomere 4 showing sexual dimorphism: about as wide as palpomere 2 in males, distinctly less stout in females, with distinct apical excision in males, apically blunt in females. Temples, mentum, gula, submentum, cardo, and stipes black, prementum and labial palpi yellow. Mentum ca. 1.6 times as wide as long, posterior portion flat, anterior portion weakly depressed mesally, with rather sparse, equally distributed comparatively strong setiferous punctures; microstructure absent; lateral margins sparsely fringed with fine setae, straight, parallel-sided with distinct anterior angles; anterior margin distinctly convex, weakly excised in the middle. Submentum with long fine setae. Labial palpi moderately stout.

Thorax: Pronotum black, with distinctly demarcated yellow lateral margins, reaching the anterolateral angles, anterior and posterior margins black. Irregular punctation scarcely finer than on head, widely spaced on pronotal disc, coarser and denser towards lateral margins. Each puncture with a long, fine, recumbent seta. Interstices smooth, shiny, without microsculpture. Lateral margins with a very tender bead, weakly convex, with distinct blunt posterior angles and more rounded anterior angles. Transverse fold absent, replaced by an indistinct bulge. Prosternum black, flat, with a median convexity projecting towards gula. Lateral portion of hypomeron light brown, mesal portion dark brown. Scutellar shield black, smooth, feebly punctured. Each elytron with a callosity in the middle of elytral base; lateral margins, including pseudopleura, very shallowly impressed behind shoulder regions. Elytra black, without yellow margins, some individuals with very indistinctly and narrowly brightened margins apically. Elytral punctures coarser than on pronotum, with subserial arrangement, finer on anterior portion, with longitudinal rows of coarser punctures towards lateral margins. Elytra distinctly pubescent, with a long, fine recumbent seta in each puncture. Interstices without microsculpture. Sharply impressed sutural stria present in posterior four fifths of elytra. Mesoventrite with a conspicuous, pointed protuberance postero-mesally, anapleural sutures S-shaped, anterior sections distinctly converging, reaching anterior margin of mesothorax (Fig. 44). Epipleura dark brown, meso- and metaventrite dark brown to black.

Legs (Figs. 57): Procoxae weakly pubescent, with some strong, spine-like, apically recurved setae on the mesal face close to the trochanteral joint. All coxae, trochantera, femora, tibiae and tarsi light brown, distinctly lighter than ventrites; proximal portions of femora, especially metafemora, indistinctly and to a variable degree darker brown. Femoral hairlines distinct; on pro- and mesofemur pubescence on proximal three fourths, with convex hairline; on metafemur pubescence confined to anterior margin and proximal portion with concave hairline. Metatibia with moderately strong spines on lateral margin; the longer mesal spur extending to half length of tarsomere 2. Protibia in both sexes with very wide distal spurs, about as wide as tarsomere 1. Meso- and metatarsus with very long setae, arising distally on the dorsal face of the tarsomeres: one seta present on tarsomeres 1–4, several setae on tarsomere 5. Metatarsus as long as metatibia.

Abdominal ventrites black, entirely covered with dense hydrofuge pubescence.

Aedeagus: Phallobase slightly longer than parameres, manubrium not distinctly demarcated from phallobase. Parameres narrowed apically, with convex lateral margins and almost straight mesal margins, apices pointed. Median lobe shorter than parameres, corona situated subapically, basal apophyses short, with very short extension into phallobase. Base of median lobe mesally connected with parameres.

DISCUSSION: This species belongs to the “*suturalis*-group”. The elytral pubescence of *A. suturalis* is variable but usually much less conspicuous in contrast to *A. hirsuta*. Spines on the procoxae are also found in *A. signaticollis*, a species with very different morphology, regarding body shape, eyes, mentum, colouration, elytral punctation, and metafemoral pubescence, and is thus not assumed to be closely related to *A. hirsuta*. The stout maxillary palpi with sexual dimorphism, and the distinct pubescence on the dorsal side are likely autapomorphic.

DISTRIBUTION: Costa Rica, Guatemala.

ETYMOLOGY: The name of the epithet refers to the conspicuously pubescent elytra (*hirsutus* = shaggy).

Anacaena limostra d'ORCHYMONT, 1942

Anacaena limostra d'ORCHYMONT, 1942: 58.

TYPE LOCALITY: Brazil, Pernambuco, Município de Buique, Alto Sertão, Brejo S. José.

TYPE MATERIAL EXAMINED: **Holotype** (ISNB): “♂ \ Br.966 Pernambuco / (Mun. Buique) Brejo S. José 30.8.'37 Schubart [mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil] \ A. d'Orchymont det. / *Anacaena limostra* m. \ Type”. **Paratypes** 2 ♀♀ (ISNB, NMW): same data as holotype, except sampling number “Br.967” and type label “Paratype”.

DIAGNOSIS: Body comparatively large, not distinctly attenuated apically; clypeus and frons entirely black, eyes emarginated anteriorly; pronotum and elytra dark brown, pronotum with indistinctly demarcated yellowish lateral margins, elytra with indistinct brightenings; clypeus moderately large with very blunt anterolateral angles; antennae seven-segmented; maxillary palpi slender, without apical infuscation; punctation on head, pronotum, and elytra moderately coarse, very dense; mesoventrite with distinct median protuberance; procoxae simply pubescent; legs uniformly brown; metafemoral pubescence reduced; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: This species differs from other Neotropical species by the combination of a large size, an oval habitus, which is not attenuated posteriorly, a black head, a dark brown pronotum and elytra, entirely yellow maxillary palpi and a reduced metafemoral pubescence.

DESCRIPTION: Total length 2.5 mm, total width 1.4 mm, E.I.: 1.2. Habitus (Fig. 7) oval, greatest width in midlength; lateral margins evenly rounded, not attenuated toward apex, rounded apically; elytra three to four times as long as pronotum in dorsal view.

Head: Labrum, clypeus and frons black. Irregular punctures moderately coarse, very densely and regularly distributed, diameters of punctures smaller than interstices. A series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes large, emarginated anteriorly by extension of frons, dorsal portion therefore slightly renal-shaped, dorsal and ventral portion equally large, ocular ridge short. Clypeus moderately large in longitudinal diameter, almost straight anteriorly, with blunt angles between lateral and anterior portion. Frontoclypeal suture rather indistinct but visible, lateral branches forming an acute angle medially. Antennae seven-segmented; antennomeres 1–5 yellow, pedicellus about twice as long as wide, slightly longer than segment 3 and cupula together, antennomere 3 slightly elongated. Apical club segment about as long as wide. Maxillary palpi

slender, palpomere 2 very weakly inflated; palpomeres yellow, without infuscation. Temples, mentum, gula, submentum, cardo, and stipes black, prementum and labial palpi yellow. Mentum about two times as wide as long, anterior and posterior portion flat, with few setiferous punctures; microsculpture absent; lateral margins without fringes of fine setae, straight with distinct anterior angles; anterior margin distinctly convex, not excised in the middle. Submentum with long fine setae. Labial palpi comparatively long, slender.

Thorax: Pronotum dark brown, with weakly demarcated yellow lateral margins, variably reaching anterior and posterior margin, with very indistinctly demarcated darker central areas. Irregular punctation finer than on head. Interstices smooth, shiny, without microsculpture. Lateral margins with a very fine bead, weakly convex, with rounded anterior and posterior angles. Transverse fold present. Prosternum dark brown, hypomeron slightly lighter brown. Prosternum slightly bulged, slightly projecting towards gula mesally. Scutellar shield dark brown, smooth, feebly punctured. Lateral margins of elytra, including pseudopipleura, not impressed behind shoulder regions. Elytra dark brown, gradually lightened laterally and apically; small, dark brown to black patches, serially arranged, shining through from ventral face of elytra, mainly in apical and lateral portion. Elytral punctures very densely distributed, moderately coarse, distinctly coarser than on pronotum, irregular, without subserial arrangement, coarser and denser towards lateral margins, without longitudinal rows of coarser punctures at lateral margins. Interstices without microsculpture. Sharply impressed sutural stria present in posterior two thirds of elytra. Level of mesoventrite elevated, mesoventrite with a conspicuous, pointed, ventrad protuberance postero-mesally. Anapleural sutures sharply S-shaped, anterior sections distinctly diverging, broadly reaching anterior margin of mesothorax (Fig. 45). Meso- and metaventrite dark brown to almost black, epipleura somewhat lighter.

Legs (Fig. 52): Procoxae weakly pubescent. Coxae, trochantera, femora, tibiae and tarsi dark brown. Femoral hairlines distinct; profemur pubescent in proximal two thirds, with convex hairline; mesofemur almost entirely pubescent except extreme apical portion, with convex hairline; pubescence on metafemur on more than proximal half, with very oblique hairline. Metatibia with comparatively strong spines on lateral margin; metatibial spurs moderately strong, the longer mesal spur reaching halflength of tarsomere 2. Tarsi without setae on dorsal face of tarsomeres. Metatarsus shorter than metatibia.

Abdominal ventrites black, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 64): Phallobase slightly longer than parameres, manubrium indistinctly demarcated from phallobase. Parameres slender, at basis as wide as on apex, broadly rounded apically. Median lobe distinctly shorter than parameres, position of corona in midlength between apex and basis, basal apophyses long and narrow, with long extension into phallobase. Basis of median lobe not visibly connected with parameres.

DISCUSSION: d'ORCHYMONT (1942) compares this species with *A. limbata* (F., 1792). Actually, *A. limostrata* shows more affinities with *A. lutescens* (STEPHENS, 1829) than with *A. limbata* (mainly concerning habitus and colouration); many other structures are distinctly different, like the antennae (with seven segments), maxillary palpi (entirely bright), mesoventrite (elevated, diverging anapleural sutures, larger protuberance), and femoral pubescence (more reduced). Therefore *A. limostrata* does not seem to be very closely related to *A. limbata*, *A. lutescens*, or any other species of *Anacaena* known so far.

DISTRIBUTION: Brazil.

Anacaena parvula (SHARP, 1882)

Metacymus parvulus Sharp, 1882: 66.

Anacaena parvula (SHARP, 1882); synonymized by d'ORCHYMONT 1938: 268.

Anacaena bireducta d'ORCHYMONT, 1942: 57; junior synonym.

TYPE LOCALITY: Panama, Volcan de Chiriquí.

TYPE MATERIAL EXAMINED: *Metacymus parvulus*: **Holotype** ♂ (NHM): "Metacymus parvulus Sharp / Panama, Volcan de Chiriquí, 2500 - 4000 feet, Champion [handwritten] \ Type [round red-bordered label] \ Volcan de Chiriquí, 25 - 4000 feet, Champion \ B.C.A. Col.I.2. / Metcymus parvulus Sharp". **Paratype**: 1 ex. (ISNB): "V. de Chiriquí, 25 - 4000 ft., Champion [mounted on red collection label: "Coll. R. I. Sc. N. B."] \ Metacymus parvulus Sh [hand-written] \ C.G. Champion det. Metacymus parvulus Sh. \ A.d'Orchymont Rev. Anacena parvula (Sh.) \ Paratype".

Anacaena bireducta: **Holotype** ♂ (ISNB): "Br 1190 Pernambuco Mun Custodi / Fonte Sabá 5 - x - '37 O. Schubart [mounted on red collection label: "Coll. R. I. Sc. N. B."] \ A.d'Orchymont det. / Anacaena bireducta m. \ TYPE \ [hand-written:] Fonte de Sabá (Pern.) Schubart Br. 1190 \ Anacaena parvula (Sharp 1882) / rev. A.Komarek. ". **Paratypes**: 3 ♂♂ (ISNB): "[same locality dates as holotype] \ Paratype \ Anacaena parvula (Sharp 1882) / rev. A.Komarek".

ADDITIONAL MATERIAL EXAMINED: **COSTA RICA**: 75 exs. (ZMUC): Guanacaste Prov., Guanacaste Conservation Area, Cacao Field Station, 1400 m a.s.l., wet cloud forest litter, 20.II.1996, leg. R. Anderson; 2 exs. (ZMUC): Puntarenas Prov., Monteverde, 1500 m a.s.l., 23.-27.XI.1991, H. & A. Howden; 2 exs. (ZMUC): Puntarenas Prov., Monteverde Reserve, 1500 m a.s.l., 23.VIII.1987, H. & A. Howden; 27 exs. (INBIO, NMW, AEZS): Cartago Prov., Tapanti Nat. Park, Quebrada Segunda, 11.1 km above gate, 5080 m a.s.l., 22.VI.2003, leg. W.D. Shepard (WDS-A-1548); 1 ex. (EMB): San José Prov., N San Isidro 24.V.1985, leg. J.T. Doyen & P.A. Opler. **PANAMA**: 1 ♀ (NHM): V. de Chiriquí, 3-4000 ft, Champion; 22 exs. (ZMUC): Chiriquí, 5.6 km N Boquete, La Culebra Trail, 1450 m a.s.l., oak forest litter, 19.VI.1996, leg. R.S. Anderson (96-141°); 28 exs. (ZMUC): Chiriquí, 5.8 km NE Boquete, 1620 m a.s.l., oak forest litter, 14.VI.1996, leg. R.S. Anderson (96-130B); 12 exs. (ZMUC): Chiriquí, 5.7 km NE Boquete, 1500 m a.s.l., mixed oak forest litter, 19.VI.1995, leg. R.S. Anderson (95-035); 1 ex. (ZMUC): Chiriquí, P. Nac. Volcan Baru, 8.4 km W Boquete, 1850 m a.s.l., dry oak forest litter, 18.VI.1995, leg. R.S. Anderson; 3 exs. (ZMUC): Chiriquí, La Fortuna Area, Finca La Suisse, 1200 m a.s.l., oak forest litter, 10.VI.1995, leg. R.S. Anderson; 33 exs. (ZMUC): Chiriquí, La Fortuna Area, Finca La Suisse, 1450 m a.s.l., wet mountain forest litter, 12.VI.1995, leg. R.S. Anderson; 1 ex. (ZMUC): Chiriquí, La Fortuna Area, Finca La Suisse, 1300 m a.s.l., oak ridge forest litter, 10.VI.1995, leg. R.S. Anderson; 4 exs. (ZMUC): Chiriquí, La Fortuna Area, Finca La Suiza, 1450-1600 m a.s.l., oak ridge forest litter, 11.VI.1995, leg. R.S. Anderson; 1 ex. (ZMUC): Chiriquí, La Fortuna Area, Finca La Suiza, 1450 m a.s.l., wet montane forest litter, 12.VI.1995, leg. R.S. Anderson (19F); 1 ex. (ZMUC): Chiriquí, 30.7 km W Volcan, Hartmann's Finca, 1625 m a.s.l., mixed montane forest litter, 16.VI.1995, leg. R.S. Anderson; 2 exs. (ZMUC): Chiriquí, 30.7 km W Volcan, Hartmann's Finca, 1800 m a.s.l., mixed oak forest litter, 16.VI.1995, leg. R.S. Anderson; 3 exs. (ZMUC): Chiriquí, Bocas de Toro, La Fortuna Area, Continental Divide Trail, 1200 m a.s.l., wet montane cloud forest litter, 9.VI.1995, leg. R.S. Anderson; 27 exs. (ZMUC): Chiriquí, 12 km NE Santa Clara, Cerro Pando, 8°54.74'N / 82°43.29'W, 1850 m a.s.l., oak forest litter, 18.VI.1996, leg. R.S. Anderson (96-139C). **PARAGUAY**: 1 ex. (NMW): Dep. Paraguari, Sapucay, 12.VIII.1995, leg. U. Drechsel; 3 exs. (NMW): Dep. Paraguari, Sapucay, spring, ca. 400 m a.s.l., 14.V.1994, leg. U. Drechsel; 1 ex. (NMW): Dep. Paraguari, Sapucay, 1.-3.IV.1994, leg. U. Drechsel; 1 ex. (NMW): Dep. Alto Paraguay, 90 km NW Bahía Negra, 30.VII.1995, leg. U. Drechsel. **BOLIVIA**: 2 exs. (ZMUC): El Beni, El Porvenir Stn., NE of San Borja, 6.-9.VIII.1988, R.W. Brooks, at lights; 1 ex. (FMC): Cochabamba Dep., Carrasco Prov., Serranía de Siberia, Chua Khocha \ FMHD#90-215, cloud forest, 2300 m a.s.l., leaf litter, 5.IX.1990, leg. P. Parillo & R. Rengel, No.151.

DIAGNOSIS: Body comparatively small, short, not distinctly attenuated apically; clypeus and frons dark brown with large yellow preocular patches, sometimes confluent, eyes distinctly emarginated anteriorly; pronotum and elytra brown: pronotum with dark brown central patch and wide yellow lateral portion; elytra largely dark brown with variable yellowish brightenings; clypeus short with very blunt anterolateral angles; antennae seven-segmented; maxillary palpi not stout, without apical infuscation; punctuation on head, pronotum, and elytra fine; mesoventrite with distinct, pointed median protuberance; procoxae simply pubescent; legs slightly brighter than ventrites; metafemoral pubescence reduced; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: Within the species with a short oval body shape, apically broadly rounded elytra and a comparatively short metatibia, *A. parvula* resembles most *A. signaticollis*. It differs from that species significantly in the shape of the eyes, the size of the preocular patches, the shape of the dark central pronotal patch and the extension of the metafemoral pubescence.

DESCRIPTION: Total length 1.9–2.5 mm, total width 1.2–1.5 mm, E.I.: 1.16. Habitus (Fig. 8) oval, greatest width very shortly anterior to midlength; almost parallel for a short distance behind shoulder regions, moderately attenuated toward apex, rounded apically; elytra about three times as long as pronotum in dorsal view.

Head (Figs. 14, 25, 35): Labrum, clypeus and frons dark brown, clypeus with yellow preocular patches, about the size of compound eye or slightly larger, its inner margin approximately reaching to lateral margin of labrum; in some individuals (Panama, type material from Brazil) clypeus almost entirely yellowish, with preocular patches strongly extended and confluent mesally. Irregular punctures fine, densely spaced, only in individuals from Brazil (types) mixed with some coarser punctures; diameters of punctures slightly smaller than interstices. A series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes distinctly emarginated anteriorly by extension of frons, dorsal portion therefore slightly renal-shaped. Clypeus short in longitudinal diameter, very slightly excised anteriorly, with blunt angles between lateral and anterior portion. Frontoclypeal suture distinct laterally, forming the border between yellow clypeal patches and dark brown preocular portion of frons; central portion of frontoclypeal suture not visible. Antennae seven-segmented; antennomere 1–5 yellow, pedicellus about twice as long as wide, longer than segment 3 and cupula together, antennomere 3 slightly elongated. Apical club segment spherical, about as long as wide. Maxillary palpi not stout, palpomere 2 weakly inflated; palpomeres yellow, without infuscation. Temples, mentum, gula, and submentum black, cardo and stipes brown, prementum and labial palpi yellow. Mentum ca. 1.6 times as wide as long, posterior portion flat, anterior portion weakly depressed mesally, with few, setiferous punctures, positioned rather on the lateral parts than in the center; microsculpture absent; lateral margins sparsely fringed with fine setae, slightly convex with distinct anterior angles; anterior margin distinctly convex, not excised in the middle. Submentum with long fine setae. Labial palpi slender, elongated.

Thorax: Pronotum yellowish brown, with dark brown central patch of oval shape within the limits of interocular space, variably reaching posterior pronotal margin; lateral and anterior pronotal margin widely yellow. Four dark spots slightly outside of dark patch arranged as four corners of a square. Irregular punctation fine, spaces wider than on head, punctures somewhat denser at lateral margins; in individuals from Brazil (types), punctures somewhat finer, but not “almost imperceptible”, as described by SHARP (1882). Interstices smooth, shiny, without microsculpture. Lateral margins with a distinct bead, weakly convex, with blunt posterior angles and more rounded anterior angles. Transverse fold present. Prosternum dark brown, hypomeron dark brown on mesal portion, gradually lighter brown towards lateral portion. Prosternum flat, very slightly projecting towards gula mesally. Scutellar shield dark brown, smooth, feebly punctured. Lateral margins of elytra, including pseudopleura, not or scarcely impressed behind shoulder regions, in most individuals almost parallel-sided for a short distance. Elytra largely dark brown with variable patterns of light brown areas, not well demarcated: most individuals with wide lateral bright margins and narrow, brightened basal and parasutural area; type specimens with wide lateral bright margins, with very indistinct, brighter longitudinal stripes, but with dark elytral base and sutural area. Small dark brown patches, arranged in longitudinal rows variably present, particularly on lateral portion of elytra. Elytral punctures moderately fine, coarser than on pronotum, irregular, without subserial arrangement, with one or two distinct short longitudinal row(s) of coarser punctures at lateral margins. Interstices without

microsculpture. Sharply impressed sutural stria present in posterior three fourths of elytra. Mesoventrite slightly elevated, with a conspicuous, sharply pointed, ventrad protuberance postero-mesally. Anapleural sutures sharply S-shaped, anterior sections distinctly diverging, very broadly reaching anterior margin of mesothorax (Fig. 46). Meso- and metaventrite dark brown to almost black, epipleura light brown.

Legs (Fig. 58): Procoxae weakly pubescent. Coxae, trochantera, femora dark brown, tibiae and tarsi indistinctly brighter. Femoral hairlines distinct. Pro- and mesofemur almost entirely pubescent except extreme apical portion, with convex hairline; on metafemur pubescence confined to anterior half with horizontal hairline. Metatibia with moderately strong spines on lateral margin; metatibial spurs short and weak, the longer mesal spur hardly extending to half length of tarsomere 2. Tarsi without setae on dorsal face of tarsomeres. Metatarsus shorter than metatibia.

Abdominal ventrites black, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 68): Phallobase slightly longer than parameres, manubrium indistinctly demarcated from phallobase. Parameres widest in the middle, at basis as wide as on apex, broadly rounded apically. Median lobe slightly shorter than parameres, corona in subapical position, basal apophyses long and narrow, with long extension into phallobase. Basis of median lobe not visibly connected with parameres.

DISCUSSION: In his key to the species of *Anacaena*, d'ORCHYMONT (1942) places *A. parvula* and *A. bireducta* closely together, separating them by the slight difference in the metafemoral pubescence. Careful re-examination of the type material does not confirm this difference. In his description of *A. bireducta*, however, d'ORCHYMONT compares this species with *A. bipustulata* (MARSHAM, 1802), referring to the distinct preocular patches and the similar metafemoral pubescence. d'ORCHYMONT based his description on the comparison of the few type specimens of *A. parvula* and *A. bireducta*. The large series examined here reveal the variability in the size of the preocular patches, and other characters examined, as described above. This justifies the synonymization of the two species.

Since many of the specimens of *A. parvula* were collected in forest litter, it must be assumed that this species is terrestrial.

DISTRIBUTION: Costa Rica, Panama, Bolivia, Brazil, Paraguay.

Anacaena perparva d'ORCHYMONT, 1942

Anacaena perparva d'ORCHYMONT, 1942: 48.

TYPE LOCALITY: Brazil, Rio de Janeiro.

TYPE MATERIAL: **Holotype** ♀ (ISNB): "Brésil / Rio de Janeiro / décembre \ coll d'Orchymont [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil] \ A. d'Orchymont det. / Anacena perparva m. \ Type".

DIAGNOSIS: Body comparatively small, broadly rounded, not attenuated apically; clypeus and frons dark brown, eyes not emarginated anteriorly, pronotum and elytra brown: pronotum with weakly yellowish lateral border; clypeus rather short with blunt anterolateral angles; antennae nine-segmented; punctuation on head and pronotum very fine, on elytra fine; mesoventrite with distinct median protuberance; procoxae simply pubescent; legs not brighter than ventrites; metafemoral pubescence reduced; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: *A. perparva* differs from *A. perpenna* by the smaller size, brown (instead of black) dorsal colouration, comparatively larger, spherical eyes, and a finer elytral punctuation.

DESCRIPTION: Total length 1.6 mm, total width 1.0 mm. Habitus oval, greatest width in midlength; slightly converging behind shoulder regions, broadly rounded apically; elytra more than three times as long as pronotum in dorsal view.

Head: Labrum, clypeus and frons dark brown, clypeus with very indistinct brighter preocular area. Irregular punctures very fine, shallow, distant. Interstices without microsculpture. Eyes not emarginated anteriorly, dorsal portion nearly spherical. Clypeus moderately large in longitudinal diameter, very slightly concave, with blunt angles between lateral and anterior portion. Frontoclypeal suture weakly visible. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus slightly longer than wide, slightly longer than segment 3, the latter elongated, about as long as segment 4, 5, and cupula together, segment 4 minute. Temples, mentum, gula, submentum dark brown. Mentum flat, anterior portion weakly depressed mesally, lateral margins almost straight with distinct anterior angles; anterior margin convex.

Thorax: Pronotum brown, with obsolete punctation, without microsculpture. Lateral margins without a bead, weakly convex, with distinct, blunt posterior angles and rounded anterior angles. Transverse fold absent. Prosternum and hypomeron brown. Prosternum flat, very slightly projecting towards gula mesally. Scutellar shield brown, smooth, unpunctured. Lateral margins of elytra, including pseudopipleura, not impressed posterior to shoulder regions. Elytra brown. Elytral punctures very fine, shallow, slightly subseriate, fading antero-laterad. Interstices without microsculpture. Sharply impressed sutural stria present in posterior three fourths of elytra. Mesoventrite with rather low transverse ridge postero-mesally, not pointed. Anapleural sutures sharply S-shaped, anterior sections distinctly converging, narrowly reaching anterior margin of mesothorax. Meso- metaventrite and epipleura brown.

Legs: Procoxae very weakly pubescent. Legs brown. Femoral hairlines distinct. Profemur and mesofemur pubescent on proximal three fourths, with convex hairline; on metafemur pubescence confined to anterior half and proximal portion, with concave hairline. Metatibia with weak spines on lateral margin; metatibial spurs weak. Tarsi without setae on dorsal face of tarsomeres. Metatarsus shorter than metatibia.

Abdominal ventrites brown, entirely covered with dense hydrofuge pubescence.

DISCUSSION: *A. perparva* is so far only known from the incomplete female holotype (maxillary palpi missing). D'ORCHYMONT (1942) compared this species with *A. parvula* and *A. perparva*. The similarities seem to be rather superficial. Therefore the morphological differences do not suggest a closer relationship to either of those species.

DISTRIBUTION: Brazil.

Anacaena perpenna d'ORCHYMONT, 1942

Anacaena perpenna d'ORCHYMONT, 1942: 49.

TYPE LOCALITY: Costa Rica, Cartago Province, Turrialba.

TYPE MATERIAL: **Holotype** ♂ (ZMUC): "Turrialba Costarica \ coll. d'Orchymont [both labels mounted on a red Collection label: "Coll. I.R.Sc.N.B / Costa Rica, ex Staudinger"] \ A.d'Orchymont det., *Anacaena perpenna* m. \ Type".

ADDITIONAL MATERIAL EXAMINED: 3 exs. (EMB): Costa Rica: Puntarenas Prov., Cloud Forest Res. Monteverde, 1450 m a.s.l., 18.–19.V.1985, leg. J. Doyen; 1 ex. (EMB): Costa Rica: San José Prov., N San Isidro 24.V.1985, leg. J.T. Doyen & P.A. Opler; 1 ex. (INBIO): Costa Rica: Cartago Prov., Tapanti Nat. Park, pools along road, 22.VI.2003, leg. A.E.Z. Short.

DIAGNOSIS: Body comparatively small, broadly rounded, not attenuated apically; clypeus and frons black, eyes not emarginated anteriorly; pronotum and elytra black, pronotum weakly

yellowish brightened towards lateral portion; clypeus short with very blunt anterolateral angles; antennae nine-segmented; maxillary palpi stout, apical palpomere infuscated; punctation on head and pronotum very fine, on elytra fine; mesoventrite with distinct median protuberance; procoxae simply pubescent; legs hardly brighter than ventrites; metafemoral pubescence reduced; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: *A. perpena* differs from the other species with broad, apically rounded habitus by the combination of an entirely black dorsal colour, the absence of emarginated eyes and by the reduced metafemoral pubescence.

DESCRIPTION: Total length 1.8–2.2 mm, total width 1.3 mm, E.I.: 1.25. Habitus oval, with comparatively high convexity, greatest width anterior to midlength; slightly converging posterior to shoulder regions, broadly rounded apically; elytra more than three times as long as pronotum in dorsal view.

Head (Figs. 13, 29, 36): Labrum, clypeus and frons entirely black. Irregular punctures very fine, widely spaced; very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes not emarginated anteriorly, dorsal portion obliquely oval. Clypeus very short in longitudinal diameter, with wide anterior margin, very slightly concave, without angles between lateral and anterior portion. Eyes widely separated. Frontoclypeal suture not visible. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus about as long as wide, as long as segment 3, the latter elongated, about as long as segments 4, 5, and cupula together. Apical club segment spherical, about as long as wide. Maxillary palpi stout, palpomere 2 distinctly inflated; palpomeres 1–3 yellow, palpomere 4 dark brown to almost black. Temples, mentum, gula, submentum, and maxillary palpus black, prementum and labial palpi brown. Mentum ca. 1.8 times as wide as long, posterior portion flat, anterior portion weakly depressed mesally, with few, setiferous punctures, rather on lateral than on central parts; microsculpture absent; lateral margins sparsely fringed with fine setae, almost straight with distinct anterior angles; anterior margin convex, very weakly excised in the middle. Submentum with long fine setae. Labial palpi stout.

Thorax: Pronotum black, with slightly lighter lateral margins, smooth, shiny, with few, very fine, shallow, irregular punctures, mainly on lateral portion; interstices without microsculpture. Lateral margins with a very fine bead, weakly convex, with distinct, blunt posterior angles and rounded anterior angles. Transverse fold represented by a very indistinct line. Prosternum and hypomeron brown. Prosternum flat, very slightly projecting towards gula mesally. Scutellar shield black, smooth, almost unpunctured. Lateral margins of elytra, including pseudopipleura, not or scarcely impressed posterior to shoulder regions. Elytra black without yellow margins, but with brownish, slightly lighter apical margins. Elytral punctures moderately fine, completely irregularly and very densely distributed, diameter of punctures almost as large as interstices, with two short longitudinal rows of closer standing, almost fusing punctures at the lateral margins; antero-lateral areas at shoulder regions almost completely smooth, i.e. devoid of punctures. Interstices without microsculpture. Sharply impressed sutural stria in posterior three fourths of elytra. Mesoventrite with distinct transverse ridge postero-mesally, not pointed. Anapleural sutures sharply S-shaped, anterior sections distinctly converging, narrowly reaching anterior margin of mesothorax (Fig. 47). Meso- and metaventrite dark brown to almost black, epipleura light brown.

Legs (Fig. 59): Procoxae very weakly pubescent. Legs brown, slightly brightened distally. Femoral hairlines distinct. Profemur pubescent on little more than proximal half, mesofemur on proximal three fourths, with convex hairline; on metafemur pubescence confined to anterior half and proximal portion, with concave hairline. Metatibia with moderately strong spines on lateral

margin; metatibial spurs strong, the longer mesal spur extending to half length of tarsomere 2. Tarsi without setae on dorsal face of tarsomeres. Metatarsus shorter than metatibia.

Abdominal ventrites dark brown to black, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 66): Phallobase slightly shorter than parameres, manubrium indistinctly demarcated from phallobase. Parameres sickle-shaped, widest in the middle, narrowed towards basis, pointed apically. Median lobe shorter than parameres, corona in subapical position, basal apophyses short and narrow, with short extension into phallobase. Basis of median lobe connected with parameres.

DISCUSSION: The description by d'ORCHYMONT (1942) is largely restricted to a differential diagnostic comparison with *A. parvula* and the similar *A. perparva* from Brazil. The similarity to *A. perparva* is striking; the main distinguishing features are the larger size and the black colour (*A. perparva* is dark brown). Differences of the protuberance on the mesoventrite, the elytral punctuation and the metafemoral pubescence (d'ORCHYMONT 1942) are not significant. This species does not show any structural affinities with *A. parvula*. The aedeagus, which is very similar to that of *A. suturalis*, suggests a closer relationship with the "*suturalis*-group".

DISTRIBUTION: Costa Rica.

Anacaena punctata (KIRSCH, 1873)

Hydrobius punctatus KIRSCH, 1873: 134.

Paracymus punctatus (KIRSCH, 1873), ZAITZEV, 1908: 379.

Anacaena punctata (KIRSCH, 1873), generical assignment by d'ORCHYMONT 1933: 304.

TYPE LOCALITY: Peru, Pozuzu.

TYPE MATERIAL EXAMINED: **Holotype** ♀ (MTD): "Pozuzu /M.Kirsch \ Typus [red label] \ d'Orchymont vid.1926-27 / *Anacaena punctata* Kirsch \ Staatliches Museum für Tierkunde, Dresden \ *Anacaena punctata* (Kirsch) / det. PJSpangler".

DIAGNOSIS: Body comparatively small, not attenuated apically; clypeus, frons, pronotum and elytra dark brown; clypeus moderately large with blunt anterolateral angles; eyes not emarginated anteriorly; antennae nine-segmented; punctuation on head and pronotum fine, on elytra coarser and distinctly subseriate; mesoventrite without median elevation; legs dark brown like ventrites; metafemoral pubescence reduced; metatarsus about as long as metatibia.

DIFFERENTIAL DIAGNOSIS: *A. punctata* differs from the other species with a broad, apically rounded habitus by the pronounced serial arrangement of the elytral punctures, the bulged mesoventrite without a protuberance, and the reduced metafemoral pubescence.

DESCRIPTION: Total length 1.7 mm, total width 0.9 mm, E.I.: 1.25. Habitus shortly oval, greatest width in the middle, elytra about three times as long as pronotum in dorsal view.

Head: Labrum, clypeus and frons brown. Irregular punctures very fine, interstices shiny without microsculpture. Eyes not emarginated anteriorly. Clypeus moderately large in longitudinal diameter, straight anteriorly, with blunt angles between lateral and anterior portion. Frontoclypeal suture not visible. Antennae nine-segmented. Temples, mentum, gula, submentum, cardo, and stipes dark brown, prementum and labial palpi yellow. Mentum flat, anterior portion not depressed mesally; lateral margins not fringed with fine setae, straight, with distinct anterior angles; anterior margin distinctly convex, not excised in the middle.

Thorax: Pronotum brown, slightly lighter than head, smooth, shiny, without microsculpture; irregular punctuation very fine, almost obsolete. Lateral margins without a bead, weakly convex, with equally rounded anterior and posterior angles. Transverse fold absent. Prosternum brown,

slightly bulged, very slightly projecting towards gula mesally. Hypomeron brown. Scutellar shield brown, smooth, finely punctured. Elytra brown like pronotum, elytral punctures comparatively coarse, with distinct subserial arrangement, finer on anterior portion, irregular on posterior portion. Interstices without microsculpture. Sharply impressed sutural stria present in less than posterior three fourths of elytra. Mesoventrite slightly bulged postero-mesally. Anapleural sutures S-shaped, anterior sections distinctly converging, narrowly reaching anterior margin of mesothorax. Epipleura, meso- and metaventrite dark brown.

Legs: Procoxae pubescent. Legs coloured like ventrites. Femoral hairlines distinct; on profemur pubescence on proximal three fourths, with convex hairline; mesofemur almost entirely pubescent except apical portion; on metafemur pubescence confined to anterior margin and proximal portion. Metatibia with weak spines on lateral margin; metatibial spurs moderately weak, the longer mesal spur not extending to halflength of tarsomere 2. Metatarsus about as long as metatibia.

Abdominal ventrites dark brown, entirely covered with dense hydrofuge pubescence.

DISCUSSION: The unusually regular serial punctation places this species apart from all other known species of *Anacaena*. This fact has already been discussed by d'ORCHYMONT (1933).

DISTRIBUTION: Peru.

Anacaena signaticollis FALL, 1924

Anacaena signaticollis FALL, 1924: 87.

TYPE LOCALITY: U.S.A., California, Pomona.

TYPE MATERIAL EXAMINED: *Anacaena signaticollis*: **Holotype** (MCZH): "Pom Cal / Mar 25. 93 \ TYPE signaticollis \ M.C.Z. Type 23996 [red label] \ H.C. Fall Collection".

ADDITIONAL MATERIAL EXAMINED: **CALIFORNIA**: 1 ex. (MCZH): "Pom Cal / 3. 23. 95 \ H.C. Fall Collection"; 1 ex. (EMB): Inyo Co., Fish Slough, 10 mi. N Bishop, 11.VI.1980, J.K. Liebherr, elev. 4200'; 1 ex. (EMB): Inyo Co., Tuttle Cr., 2' SW Lone Pine, 14.V.1969; 1 ex. (EMB): Inyo Co., "Deep Spgs. Vy. Antelope Spgs., el. 5000'", 16.XII.1978, J.K. Liebherr; 15 exs. (EMB): Inyo Co., "Deep Spgs. Vy. Antelope Spgs., 8' W Deep Spgs.", 16.XII.1978, J. Doyen; 3 exs. (EMB): Los Angeles Co., Tanbark Flat, 13.VII.1950, leg. P.D. Hurd; 2 exs. (EMB): Contra Costa Co., 7' SE Clayton, Perkins Gulch; 22.VII.1966, J. Doyen leg.; 2 exs. (EMB): San Diego Co., Borego, 25.IV.1955, leg. R. Schuster; 1 ex. (EMB): San Diego Co., Borego, 28.IV.1955, leg. R. Schuster; 24 exs. (EMB): San Diego Co., Lower Lake, Garnsey Ranch, 2.VII.1967, G.A. Marsh; 5 exs. (EMB): San Diego Co., Cottonwood Crk., 2' NW De Luz, 25.VII.1967; 1 ex. (EMB): San Diego Co., De Luz Crk., 0.8' S. De Luz, 25.VII.1967, A. Marsh leg.; 5 exs. (EMB): San Diego Co., 2' NW Fallbrook, Santa Margarita River, 25.VII.1967, G.A. Marsh leg.; 1 ex. (EMB): San Diego Co., Kitchen Crk., 2' N Hwy I-8, 12.VII.1980, G. Challet leg.; 1 ex. (NMW): San Diego Co., Kitchen Crk, 1100m, 28.IX.1998, leg. G. Wewalka; 3 exs. (NMW): San Diego Co., 55 km E San Diego, I-8 hwy., Cotton Wood Creek, 3500 ft., 28.IX.1998, leg. G. Wewalka; 3 exs. (EMB): Stanislaus Co., Del Puerto Cyn, at No Fork, Del Puerto Crk., 900–1000', 13.IV.1974, D. Whitman; 1 ex. (ZMUC): Stanislaus Co., Adobe Creek; 3.II.1948, "Sv.B.L."; 2 exs. (EMB): Sta. Clara Co., 26' SE Livermore ("Ala. Co."), 19.IX.1976, J.Doyen; 1 ex. (EMB): San Luis Obispo Co., "Los Padres N.F., Cerro Alto Cgd., E.Fk. Morro Cr., Hwy. 41 SW Atascadero", 18.III.1986, C.B. Barr; 1 ex. (EMB): Napa Co., Sage Cr. at Hwy. 128, 8' W jct. Hwy 121, 20.VI.1985, C.B. Barr; 2 exs. (EMB): Tuolumne Co., Stanislaus National Forest, Big Cr. at Hwy. 120, 5' E of Groveland, 29.III.1986, J.E. Barr; 1 ex. (EMB): Tuolumne Co., Swamp Lake, 11.IX.2002, leg. D. Post; 2 exs. (EMB): Alameda Co., Arroyo Mocho, 17' SE Livermore, 1.X.1976, Doyen & Rude leg. (#76J12); 1 ex. (EMB): Monterey Co., Paloma Creek, "4 air mi NE Arroyo Seco Guard Station 850'", 4.V.1975, S. Szerlip; 4 exs. (EMB): Monterey Co., Hwy. 1, 2' S Los Padres N. For., 20.IX.1978, G. Challet leg.; 1 ex. (EMB): Camp Pendleton, Oceanside Co., H.P.Chandler; 13 exs. (EMB): Orange Co., Moro Cny., 19.I. and 28.III.1967, leg. G.A. Marsh; 7 exs. (EMB): Orange Co., San Joaquin Hills Willow Canyon, Lower Ponds, 2.V.1974; 2 exs. (EMB): Orange Co., San Joaquin Hills Willow Cyn, 23.IV.1974; 1 ex. (EMB): Orange Co., Los Pinos Springs, Cleveland Nat. Forest, elev. 3400', 13.IV.1971; 1 ex. (EMB): Orange Co., Canada Gobernadora, Coto de Caza, 31.VIII.1972; 2 exs. (NMW): Orange Co., San Juan Creek, 500 m, 26.IX.1998, leg. Wewalka (1); 3 exs. (EMB): San Bernardino Co., Morave River, Añon Canyon, 17.III.1968, G.Challet leg.; 1 ex. (EMB): Mono Co., Hwy. 270, Clearwater Creek, near Bodie,

29.VII.1984, G.L. Challet leg.; 10 exs. (AEZS, NMW): Lake Co., Spring fed marsh; Hwy. 20, 16' E Clear Lake Oaks, 39°00'55"N / 122°25'59"W, 4.VIII.2001, 1700', A.E.Z. Short; 1 ex. (ZMUC): Lake Co. \ coll. Rivers; 12 exs. (AEZS, NMW): Colusa Co., Cook springs Rd. SW Ladoga Indian Creek, 1320' elev., 39°15'93"N / 122°30'38"W, 5.VIII.2001, A.E.Z. Short; 9 exs. (NMW, ISNB): Riverside, F.E. Winters; 49 exs. (NMW, ISNB): S. Barbara, F.E. Winters; 1 ex. (ISNB): Lower California, 19.VI.1907 \ coll. A. d'Orchymont; 2 exs. (ZMUC): Jacumba 17.VII.1940, L.C. Kuitert; 2 exs. (NMW): Shasta Co., N. Fork, Beegum Crk., 1900' elev., 6.VIII.2001, Campground, A.E.Z. Short. **NEW MEXICO:** 1 ex. (MCZH): New Mexico, Jemez Sp. \ H.C.Fall Collection; 1 ex. (ISNB): New Mexico, Jemez Spgs. \ coll. Winters. **ARIZONA:** 1 ex. (EMB): AR: Coconino Co., Coconino N.F., Chavez Crossing Cgd. S. Sedona Oak Creek, 20.VIII.1987, C.B. & J.E. Barr; 1 ex. (ZMUC): Oak Creek Can., 28.VI.1950, L.D. Beamer.; 1 ex. (NMW): Cochise Co., Chiricahua Mts: Rustler's Park, spring/creek, 4.VIII.2003, leg. A.E.Z. Short (AS-03-038). **MEXICO:** 19 exs. (EMB): Baja California, Sur, Sierra Laguna, "17' ENE Todos Santos, 6000'", 12.–18.XII.1979, leg. J. Doyen & W. Tschinkel; 8 exs. (EMB): Baja California, Sur, Sierra Laguna, 17' ENE Todos Santos, 6000', under streamside stones and debris, 12.–18.XII.1979, leg. J. Doyen & W. Tschinkel.

DIAGNOSIS: Body comparatively small, broadly rounded, not attenuated apically; clypeus and frons black, with small yellow preocular patches, eyes slightly emarginated anteriorly, pronotum largely yellowish brown with peculiarly shaped dark brown central patch, elytra darker brown with diffuse brightenings; clypeus rather large with very distinct anterolateral angles; antennae nine-segmented; maxillary palpi not stout, apical palpomere infuscated; punctation on head, pronotum, and elytra fine and dense; punctures on elytra irregular; mesoventrite with distinct median protuberance; procoxae pubescent with few spines; legs hardly brighter than ventrites; metafemoral pubescence extended with convex hairline; metatarsus shorter than metatibia.

DIFFERENTIAL DIAGNOSIS: Among the species with a short oval shape, apically broadly rounded elytra and comparatively short metatibia, *A. signaticollis* shows the greatest affinity with *A. parvula*; it differs from that species in the shape of the eyes, the size of the preocular patches, the shape of the dark central pronotal patch and the extension of the metafemoral pubescence.

DESCRIPTION: Total length 2.0–2.5 mm, total width 1.3–1.6 mm, E.I.: 1.1. Habitus (Fig. 9) short oval, evenly rounded, almost spherical, comparatively high convex, widest in midlength, broadly rounded apically; elytra not more than three times as long as pronotum in dorsal view.

Head (Figs. 15, 27, 37): Labrum, clypeus and frons black, with small yellow preocular patches, sometimes scarcely visible, not larger than one eye. Irregular punctures fine, densely and equidistantly distributed; diameters of punctures only slightly smaller than interstices; separate punctures along inner margin of eyes absent. Interstices shiny without microsculpture. Eyes slightly emarginated anteriorly by a very small extension of frons; dorsal portion of eyes spherical. Clypeus well developed in longitudinal diameter, anterior margin wider than lateral portion, very slightly concave, with blunt angles between lateral and anterior portion. Eyes widely separated. Frontoclypeal suture visible laterally. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus much longer than wide, as long as segments 3, 4, and 5 together, antennomere 3 half as long as pedicellus. Apical club segment almost spherical, about as long as wide. Maxillary palpi rather slender, palpomere 2 comparatively weakly inflated; palpomeres 1–3 yellow, palpomere 4 infuscated to a variable degree. Temples, mentum, gula, submentum, and maxillary palpus black, prementum and labial palpi light brown. Mentum ca. 1.8 times as wide as long, posterior portion flat, anterior portion distinctly depressed mesally, with almost equidistantly distributed fine setiferous punctures, microsculpture absent; lateral margins densely fringed with fine setae, convex, with distinct anterior angles; anterior margin convex, excised in the middle. Submentum with long fine setae. Labial palpi slender.

Thorax: Pronotum largely yellowish brown, with dark brown central patch divided into three sections by indentations, smooth, shiny, with fine, shallow, irregular, very densely spaced, equidistant punctures; interstices without microsculpture. Lateral margins with a weak bead, slightly convex, without distinct anterior and posterior angles. Transverse fold very distinct.

Prosternum and hypomeron brown. Prosternum flat, very slightly projecting towards gula mesally. Scutellar shield dark brown, smooth, with very fine punctures. Lateral margins of elytra evenly rounded. Elytra brown with variable, diffuse, indistinct, paler areas, mainly laterally, apically, and in some individuals also along sutural stria. Lighter coloured areas with dark patches shining through from ventral face of elytron. Elytral punctures very fine, completely irregularly and very densely distributed, diameter of punctures much smaller than interstices, with some coarser punctures laterally, arranged subserially; interstices without microsculpture. Sharply impressed sutural stria present in posterior two thirds of elytra. Mesoventrite with an acutely pointed median protuberance. Anapleural sutures sharply S-shaped, anterior sections only slightly converging, rather broadly reaching anterior margin of mesothorax (Fig. 48). Meso- and metaventrite brown, epipleura slightly lighter.

Legs (Fig. 60): Procoxae pubescent, with some indistinct spine-like setae on mesal face near trochanteral joint. Legs brown as ventrites, without brighter areas. Hydrofuge pubescence on ventral face of all femora covering at least four fifths, with distinct, convex hairline. Metatibia with moderately strong spines on lateral margin; metatibial spurs strong, the longer mesal spur extending to more than half length of tarsomere 2. Tarsi with few very inconspicuous longer hairs on dorsal face of tarsomeres. Metatarsus distinctly shorter than metatibia.

Abdominal ventrites dark brown, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 67): Phallobase slightly longer than parameres, manubrium indistinctly demarcated from phallobase. Parameres widest at base, slightly narrowed in midlength, widened and broadly rounded apically. Median lobe distinctly shorter than parameres, corona in apical position, basal apophyses narrow, with long extension into phallobase. Basis of apophyses connected with parameres by a small tooth.

DISCUSSION: Due to a similar colouration, this species was often misidentified as the Palearctic *A. bipustulata* (MARSHAM, 1802), or at least compared with this species. But the general shape of the body and the metafemoral pubescence show very distinct differences. There are no characters suggesting a closer relationship of *A. signaticollis* to any of the species of Central and South America.

DISTRIBUTION: Southwestern United States (California, Arizona, New Mexico) and Northern Mexico.

Anacaena solstitialis (KIRSCH, 1873)

Hydrobius solstitialis KIRSCH, 1873: 133.

Paracymus solstitialis (KIRSCH): ZAITZEV 1908: 380; generic assignment.

Anacaena solstitialis (KIRSCH, 1873), d'ORCHYMONT, 1933: 304; generic assignment.

Anacaena perplexa d'ORCHYMONT 1942: 39; junior synonym.

Anacaena perspicua d'ORCHYMONT 1942: 40; junior synonym.

TYPE LOCALITY: Peru, Pozuzu River.

TYPE MATERIAL EXAMINED: *Hydrobius solstitialis*: **Holotype** (MTD): "Pozuzu [river in Peru; see Kirsch 1873:122] M. Kirsch \ solstitialis Typus Kirsch [red label] \ A.d'Orchymont vid. 1926 – 27, *Anacaena solstitialis* Kirsch \ Staatliches Museum für Naturkunde Dresden \ *Anacaena solstitialis* (Kirsch) Det. P.J.Spangler".

Anacaena perplexa: **Holotype** (ISNB): "Environ de Rio de Janeiro [handwritten, mounted on a red label: "Coll R.I.Sc.N.B. / Brazil"] coll. d'Orchymont [white label, mounted on the same red label] \ A.d'Orchymont det. *Anacaena perplexa* m. \ Type [red label]". **Paratype** 1 ex. (ISNB): same data, except orange label: "Paratype".

Anacaena perspicua: **Holotype** (ISNB): "Environ de Rio de Janeiro [handwritten, mounted on a red label: "Coll R.I.Sc.N.B. / Brazil"] coll. d'Orchymont [white label, mounted on the same red label] \ A.d'Orchymont det. *Anacaena perspicua* m. \ Type [red label]".

ADDITIONAL MATERIAL EXAMINED: **MEXICO**: 1 ex. (ISNB): “Mexique Tabasco Teapa \ coll. d’Orchymont [two labels, mounted on a red collection label “Coll.R.I.Sc.N.B. Mexique”] \ *Hydrobius solstitialis* Kirsch \ [handwritten by d’Orchymont]”. **GUATEMALA**: 1 ex (NHM): “*Hydrobius debilis* var. D.S.Rio Naranjo, Guatemala \ Rio Naranjo, 450 ft., Champion \ Sharp Coll. 1905.-313. \ B.C.A.Col.I.2. *Hydrobius debilis* Sharp”. **COSTA RICA**: 28 exs. (INBIO, NMW, AEZS): Guanacaste Prov., nr. Carmona–Finca Agua Fria, Hg-light at Rio Carmona, 10°01'23"N / 85°14'22"W, 30 m a.s.l., 15.I.2003, leg. A.E.Z. Short, R.E. Roughley & W.Porras; 3 exs. (INBIO, NMW): Guanacaste Prov., nr. Carmona–Finca Agua Fria, Hg-light at Rio Carmona, 10°01'23"N / 85°14'22"W, 30 m a.s.l., 26.XI.2002, leg. W.Shepard & R.E. Roughley; 41 exs. (INBIO, NMW): Guanacaste Prov., Hwy. 1 at Rio Guacimal, 10°06.08'N / 84°52.31'W, 400 m a.s.l., 17.VI.2003, leg. A.E.Z. Short; 1 ex. (INBIO): Guanacaste Prov., Hwy. 1 at Rio Guacimal, 10°06.08'N / 84°52.31'W, 400 m a.s.l., 17.VI.2003, leg. A.E.Z. Short; 6 exs. (INBIO, NMW): Alajuela Prov., few km W of Florencia, margins/pools of small river, 15.I.2004, 200 m a.s.l., leg. A.E.Z. Short & D.J. Lebbin (AS-04-049); 1 ex. (INBIO): Alajuela Prov., Hwy. 4, 11.2 km SE San Rafael, 10°37.18'N / 84°44.37'W, 550 m a.s.l., stream in rock slot, 13.VI.2003, leg. A.E.Z. Short; 24 exs. (INBIO, NMW, AEZS): Alajuela Prov., nr. San Isidro, creek margin, 13.VI.2003, leg. A.E.Z. Short; 25 exs. (INBIO, NMW, AEZS): Heredia Prov., Sarapiquí margin, just E of Hwy. 4, 10°23.22'N / 84°08.20'W, 620 m a.s.l., 25.VI.2003, leg. A.E.Z. Short; 31 exs. (INBIO, NMW, AEZS): Puntarenas Prov., 1.2 km SE of Coronado waterfall, 18.VI.2003, leg. A.E.Z. Short; 13 exs. (INBIO, NMW): Puntarenas Prov., Rio Seco at Hwy. 1, N of Cirvelas, pools along river, 17.VI.2003, leg. A.E.Z. Short; 36 exs. (INBIO, NMW): Puntarenas Prov., Rio Conte, 18.3 km NW of Puerto Jimenez, Osa Peninsula, 18.VI.2003, leg. A.E.Z. Short; 1 ex. (NMW): Puntarenas Prov., Rio Tigre nr. Puerto Jimenez, 08°32.71'N / 83°20.00'W, black light, 18.VI.2003, leg. A.E.Z. Short; 11 exs. (INBIO, NMW): Puntarenas Prov., Quebrada Sabala–Osa Peninsula., creek margin, 19.VI.2003, leg. A.E.Z. Short; 11 exs. (INBIO, NMW, AEZS): Cartago Prov., Cimmarones at Rio Cimmarones, black lights, 23.XI.2002, leg. W. Shepard; 1 ex. (NMW): San José Prov., 19.1 km NE of Domatical on rt. 243, waterfall and seeps, 18.VI.2003, leg. A.E.Z. Short; 24 exs. (INBIO, NMW): Limon Prov., Home Creek margin nr. Puerto Viejo, 23.VI.2003, leg. A.E.Z. Short; 1 ex. (NMW): Limon Prov., Umg. Puerto Viejo, 29.5.1992, leg. Seifert (3). **PANAMA**: 1 ex (NHM): “var.? [left ex. of two] Tolé Panama \ Tolé, Panama, Champion \ Sharp Coll. 1905.-313. \ B.C.A.Col.I.2. *Hydrobius debilis* Sharp”. **BOLIVIA**: 18 exs. (NMW, AEZS): La Paz, Guanay Yungas Z. 92. **PERU**: 1 ex. (MTD): “Pozuzu M. Kirsch \ Staatliches Museum für Naturkunde Dresden”; 2 exs. (ZMUC): Dep. Huanuca, Vic. of Afilador, shady jungle, 670 m a.s.l., 10.–30.VI.1937, leg. F. Woitkowsky, 3766; 1 ex. (ZMUC): Vic. Sani Beni, brook and pools of Sani Beni, 840 m a.s.l., 31.VIII.1935, leg. F. Woitkowsky, 3560.

DIAGNOSIS: Body comparatively very small, distinctly attenuated apically; clypeus and frons black, pronotum and elytra bright yellowish brown, with variably shaped dark brown central patch on pronotum and often with dark brown stripes on elytra; clypeus moderately large with very blunt anterolateral angles; antennae nine-segmented; maxillary palpi moderately slender, with apical infuscation; punctuation on head and pronotum very fine, on elytra fine and subseriate; mesoventrite with a very low median protuberance; procoxae simply pubescent; legs largely brighter than ventrites; metafemoral pubescence reduced; metatarsus longer than metatibia.

DIFFERENTIAL DIAGNOSIS: *A. solstitialis* differs from the other species of the “*suturalis*-group” mainly by its bright elytral colouration, moreover from *A. schoedli* by its distinctly smaller size and its less distinct and less serial punctuation; from *A. hirsuta* by its flatter appearance and by the absence of the elytral pubescence, and by the absence of procoxal spines; from *A. attigua* additionally by the absence of lateral elytral impressions.

DESCRIPTION: Total length 1.4–1.9 mm, total width 0.7–1.1 mm, E.I.: 1.2–1.3. Habitus (Fig. 1) oblong oval, greatest width distinctly in front of the middle, shortly posterior to elytral base; posterior to shoulder regions gradually attenuated; elytra four times as long as pronotum in dorsal view.

Head (Figs. 28, 38): Labrum comparatively narrow. Labrum, clypeus and frons entirely black. Irregular punctures very fine, rather widely spaced; diameters of punctures much smaller than interstices, in some individuals denser towards elytral margins; some punctures with a very fine seta; a series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes not emarginated anteriorly, dorsal portion spherical. Clypeus moderately long in longitudinal diameter, very slightly excised anteriorly, with blunt angles between lateral and anterior portion. Frontoclypeal suture very weakly

impressed, not visible in some individuals. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus short and stout, shorter than segments 3, 4, and 5 together, antennomere 3 about as long as antennomere 4 and 5 together. Apical club segment oval, twice as long as wide. Maxillary palpi rather slender, palpomere 2 weakly inflated; palpomeres 1–3 yellow, palpomere 4 with terminal infuscation in about distal half. Temples, mentum, gula, submentum, cardo, and stipes black, prementum and labial palpi yellow. Mentum ca. 2.0 times as wide as long, posterior portion flat, anterior portion weakly depressed mesally, with few, equally distributed comparatively strong setiferous punctures; anteriorly with weakly impressed microsculpture; lateral margins sparsely fringed with fine setae, straight, parallel-sided with distinct anterior angles; anterior margin distinctly convex, not excised in the middle. Submentum with long fine setae. Labial palpi slender, elongated.

Thorax: Pronotum yellowish brown, in most individuals with very variably shaped dark brown central patch, mostly smaller than yellow margins; sometimes central patch very large with narrow lateral margins. Irregular punctation very fine, like on head, widely spaced, somewhat denser at lateral margins. Interstices smooth, shiny, without microsculpture. Lateral margins with very tender bead, weakly convex, with blunt posterior angles and more rounded anterior angles. Transverse fold absent. Prosternum and mesal portion of hypomeron brown, lateral portion of hypomeron much lighter, yellowish brown. Prosternum flat, very slightly projecting towards gula mesally. Scutellar shield dark brown, smooth, feebly punctured. Lateral margins of elytra, including pseudopleura, very shallowly impressed behind shoulder regions. Elytra yellowish brown with remarkably variable patterns of darker areas: Sometimes each puncture surrounded by a small dark brown area, resulting in a spotted appearance of the entire elytra; or large dark brown spots fused to longitudinal stripes; or combinations between smaller spots and longitudinal stripes; or a large dark brown area covering the elytral disc. Area between sutural stria and elytral suture bright. Elytral punctures fine, but coarser than on pronotum, with subserial arrangement, with an indistinct short longitudinal row of coarser punctures at lateral margins. Interstices without microsculpture. Sharply impressed sutural stria present in posterior three fourths of elytra. Mesoventrite simply bulged or with an inconspicuous, low tubercle postero-mesally, set with few long, fine setae. Anapleural sutures S-shaped, anterior sections distinctly converging, reaching anterior margin of mesothorax (Fig. 49). Meso- and metaventrite dark brown to almost black, epipleura light brown.

Legs (Fig. 55): Procoxae pubescent. Coxae, trochantera, and femora variably lighter brown, often only distal portion of femora somewhat brighter, tibiae and tarsi light brown, distinctly lighter than ventrites. Femoral hairlines distinct; profemur pubescent on proximal two thirds, with rounded hairline; mesofemur on proximal three fourths, with rounded hairline; on metafemur pubescence confined to anterior margin and proximal portion with concave hairline. Metatibia with moderately strong spines on lateral margin; metatibial spurs short and weak, the longer mesal spur not extending to half length of tarsomere 2. Pro-, meso-, and metatarsus with very long fine setae, arising distally from dorsal face of tarsomeres. Metatarsus slightly to distinctly longer than metatibia, in some individuals as long as metatibia.

Abdominal ventrites black, entirely covered with dense hydrofuge pubescence.

Aedeagus: Phallobase slightly longer than parameres, manubrium not distinctly demarcated from phallobase. Parameres narrowed apically, with convex lateral margins and almost straight mesal margins, apices pointed. Median lobe shorter than parameres, corona in subapical position, basal apophyses short, with very short extension into phallobase. Base of median lobe mesally connected with parameres.

DISCUSSION: D'ORCHYMONT (1942) placed *A. solstitialis* close to *A. perplexa* and *A. perspicua*, without referring to their relationship in his description of the two latter species, but

pointing out the resemblance of *A. perplexa* to *A. suturalis*. The three taxa (*A. solstitialis*, *A. perplexa*, and *A. perspicua*) differ mainly in the size of the mesal protuberance on the mesoventrite (comparatively small in *A. solstitialis*, forming a gibbosity in *A. perplexa*, transverse in *A. perspicua*), and the relative lengths of their metatibiae (longer in *A. perplexa*). Other differences, like punctuation and colour pattern, seem to be of minor importance, regarding the separation of these species. The high numbers of specimens collected recently in Central America demonstrate a high variability of colouration, size of the mesoventral protuberance and relative length of the metatarsus (compared to metatibia). The character states of the species described by d'ORCHYMONT, 1942 and KIRSCH, 1873 lie within the spectrum of this variability. This justifies synonymization.

The strong similarity of *A. solstitialis* to *A. suturalis*, which is also a very variable species, raises the question, if these taxa should be also treated as synonyms. The fact that they often occur at the same locality, and that they can always be clearly separated by their colouration, without intermediate forms, justifies the assumption of separate species.

DISTRIBUTION: Very widespread in the Neotropical Region, from Mexico in the north to Brazil in the south.

Anacaena suturalis (LECONTE, 1866)

Limnebius suturalis LECONTE, 1866: 366–367.

Hydrobius suturalis (LECONTE): HORN, 1873:136, generic assignment.

Creniphilus suturalis (LECONTE): Horn, 1890: 272, generic assignment.

Paracymus suturalis (LeConte): Zaitzev, 1908:380, generic assignment.

Crenitulus suturalis (LeConte): Winters, 1926: 54, generic assignment.

Anacaena suturalis (LECONTE): d'ORCHYMONT, 1933: 302, generic assignment.

Hydrobius debilis SHARP, 1882: 65, junior synonym.

Paracymus debilis (SHARP): ZAITZEV, 1908: 379, generic assignment.

Anacaena debilis (SHARP): d'ORCHYMONT, 1933: 305, generic assignment.

Anacaena moreirai d'ORCHYMONT, 1921: 245, junior synonym.

Anacaena pescheti d'ORCHYMONT, 1921: 247, junior synonym.

Paracymus attenuatus d'ORCHYMONT, 1921: 248, junior synonym.

Anacaena attenuata (d'ORCHYMONT, 1921), d'Orchymont 1933: 305, generic assignment.

Anacaena cordobana KNISCH, 1924: 122, junior synonym.

Anacaena morosa d'ORCHYMONT, 1942: 41, junior synonym.

Anacaena peta d'ORCHYMONT, 1942: 42, junior synonym.

Anacaena morula d'ORCHYMONT, 1942: 46, junior synonym.

Anacaena sternalis LEECH, 1948: 447, junior synonym.

TYPE LOCALITY: U.S.A., Pennsylvania.

TYPE MATERIAL EXAMINED: *Limnebius suturalis*: **Syntypes** 5 exs. (MCZH): The specimens are mounted on a point, with a blank round label mounted below, followed by a white and red coloured type label and a white determination label. A sampling label is absent. A male of the series is selected and hereby designated as **Lectotype**. The type label carries the writing "Type [white]", "3 / 3101 [handwritten, red]", the determination label "suturalis". A designation label is added: "Lectotypus / *Limnebius suturalis* / LeConte, 1866 / des. A.Komarek 2004". The remaining four specimens of the series are hereby designated as **Paralectotypes**. Their gender has not been determined. They differ on account to the numerals on the type labels and on the determination labels "2 / 3101 \ suturalis 2", "4 / 3101 \ suturalis 4" [this specimen is lacking head and pronotum], "5 / 3101 \ suturalis 5", "3101 \ suturalis [numeral absent]". The latter specimen carries an additional label with the illustration of a camera and the text "Jan. - Jul. 2004 / MCZ Image Database". The following designation labels are added to these specimens: "Lectotypus / *Limnebius suturalis* / LeConte, 1866 / des. A.Komarek 2004". LECONTE (1866: 367) mentions the collecting place of the type specimens as: "Pennsylvania, New York and Lake Superior".

Hydrobius debilis: **Syntypes** 2 exs. (MNH): The specimens are mounted on one card bearing the handwritten text: "Hydrobius debilis Types D.S., S.Geronimo. Guatemala-Champion". Below this card four additional labels are mounted: "Type [round label with red margin] \ San Geronimo, Vera Faz. Champion \ B.C.A.Col.I.2. Hydrobius

debilis Sharp \ *Anacaena debilis* (Shp.) det. PJSpangler 1966". The left specimen is glued with its ventral face to the card. This specimen is hereby designated and labelled as **Lectotype**. To the right side of the lectotype the parts of a dissected specimen are separately glued with their dorsal face on the card. This specimen is hereby designated and labelled as **Paralectotype**.

Anacaena moreirai: **Holotype** ♂ (ISNB): "Etat Rio Janeiro / Brésil 1903 / Carlos Moreira 6 \ coll. d'Orchymont [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil / Coll. A.d'Orchymont] \ A.d'Orchymont det. *Anacaena Moreirai* m. \ Type". **Paratypes**: 5 exs. (ISNB, NMW): same collecting data as Holotype, but type label "Paratype".

Anacaena pescheti: **Holotype** ♂ (ISNB): "Cochabamba (Boliv.) Germ. \ coll.A.d'Orchymont [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Bolivie] \ A. d'Orchymont det. *Anacaena peta* m. \ Holotype".

Anacaena attenuata: **Holotype** ♂ (ISNB): "Cochabamba (Boliv.) Germ. \ coll.d'Orch. m. [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Bolivie] \ A. d'Orchymont det. *Anacaena pescheti* m.".

Anacaena cordobana: **Holotype** ♂ (ISNB): "Alta Gracia / Córdoba, 31.XII.21 / C.B. [mounted on a red collection label: Coll R.I.Sc.N.B. / Argentine] \ Knisch det. 1923 / *Anacaena cordobana* m. \ coll. A.Knisch / Typus \ Type [red type labels]". **Paratypes**: 1 ♂ (ISNB): "Alta Gracia / Córdoba /31.XII.21 Bruch [mounted on a red collection label: Coll R.I.Sc.N.B. / Argentine] \ Knisch det. 1923 / *Anacaena cordobana* m. \ coll.A.Knisch / cotypus [red label] \ Paratype [orange label]"; 5 exs. (MASN) from the same locality (on account to KNISCH, 1924; not examined).

Anacaena morosa: **Holotype** ♂ (ISNB): "8.12.1925 / Brasil - S. Paulo [sic!] / Est. S. Paulo [mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil] \ Knisch det. 1926 / *Anacaena n.* sp. / pr. Pescheti O. \ A. d'Orchymont det. / *Anacena morosa* m. \ Holotype".

Anacaena peta: **Holotype** ♀ (ISNB): "Pérou / Prov. Huallaga / Rio Mixiollo 1200 m / G.A.Baer 7-8-1900 / coll. R. Peschet [two labels mounted on a red collection label: Coll. R.I.Sc.N.B. / Pérou] \ A. d'Orchymont det. / *Anacaena peta* m. \ Type". **Paratypes**: 2 ♀♀ (ISNB): same collecting data as Holotype, except type label "Paratype"; 2 ♀♀ (ISNB): "♀ \ Cochabamba (Boliv.) Germ. \ coll.A.d'Orchymont [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Bolivie] \ A. d'Orchymont det. *Anacaena peta* m. \ Paratype"; 3 ♀♀ (ISNB, NMW): "♀ \ Cochabamba (Bolivie) \ coll.A.d'Orchymont [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Bolivie] \ Paratype"; 1 ♂ (ISNB): "Blumenau \ coll. d'Orchymont [both labels mounted on a red collection label: Coll. R.I.Sc.N.B. / Brazil / Santa Catharina] \ *peta*? \ Paratype".

Anacaena morula: **Holotype** ♀ (ISNB): "♀ \ Brésil / Rio de Janeiro / Environs Oct. \ coll. d'Orchymont [both labels mounted on a red collection label: Coll R.I.Sc.N.B. / Brazil] \ A. d'Orchymont det. / *Anacena morula* m. \ Holotype". **Paratype** 1 ♀ (ISNB): same data, except "févr." instead of "Oct." and type label "Paratype".

Anacaena sternalis: **Holotype** ♂ (CASF): "San Jose / del Cabo \ 1660 \ C. W. Leng / Collection \ Holotype / Enochrus / sternalis / H.B.Leech [red type label] \ *Anacaena / sternalis / Leech / Holotype* \ California Academy of Sciences / Type No. 8136".

ADDITIONAL MATERIAL EXAMINED: **Associated with the type material**: 13 exs. (MNH; with the same handwriting as on Sharp's types, and with the following collection and determination labels: "Sharp Coll. 1905.-313. \ B.C.A.Col.I.2. *Hydrobius debilis* Sharp"); 2 exs.: "Hydrobius debilis D.S., Paso Antonio, Guat. Champion \ Paso Antonio 400 ft. Champion"; 2 exs.: "Hydrobius debilis D.S., Pantaleon 1700 ft., Guat. Champion \ Pantaleon 1700 ft., Champion"; 2 exs.: "Hydrobius debilis D.S., Coatepeque, 1300 ft., Guat. Champion"; 2 exs.: "Hydrobius debilis var. D.S., Cahabon, Guatemala, Champion \ Cahabon., Vera Paz, Champion"; 1 ex.: "debilis [the right one of two exs., mounted side by side] Tolé Panama \ Tolé, Panama, Champion"; 1 ex.: "Hydrobius debilis, Toxpam, Mexico, Sallé"; 1 ex.: "Hydrobius debilis San Joaquin, Vera Paz, Champion". **GEORGIA**: 2 exs. (MNH): Rabun County, Salmon Creek, "W of BRMSt.Pk.", 1.VII.1982, "FNYoung \ *Crenitulus suturalis* (LeC) Det. F.N.Young"; **VIRGINIA**: 14 exs. (AEZS, NMW): Dinwiddie Co., Cutbank Church "Rd-Crk.", 31.VII.2002, leg. A.E.Z. Short, Nr.I-85; **FLORIDA**: 6 exs. (ISNB): "Florida, coll. Hastings \ coll. d'Orchymont"; **KENTUCKY**: 2 exs. (ZMUC): Cumberland Co., Crocus Creek, on gravel bar, 7.VIII.1966, leg. Travis E.Brooks; **MARYLAND**: 1 ex. (NMW): Montgomery Co., 10 km NW Wash. D.C., Potomac River, Plummers Isl., black light, 23.VI.1998, leg. M.A. Jäch; **KANSAS**: 1 ex. (NMW): Douglas Co., Lone Star Lake Overflow, 17.VI.1986, Robert W. Brooks; **DELAWARE**: 2 exs. (AEZS): New Castle Co., Ashland, Red Clay Cr., 23.VII.2002, leg. A.E.Z. Short; **ARIZONA**: 3 exs. (NMW): Cochise Co., Turkey Creek Road; 7 mi W jctn. rt. 181, stream in road, 5.VIII.2003, leg. A.E.Z. Short (AS-03-044); 1 ex. (NMW): Cochise Co., nr. John Hand Campground, Cave Creek, 4.VIII.2003, leg. A.E.Z. Short (AS-03-034); 1 ex. (NMW): Santa Cruz Co., nr. Rt. 39, Sycamore Canyon, lights, 6.VIII.2003, leg. A.E.Z. Short (AS-03-053); **TEXAS**: Milam Co., Rt. 190, 4 mi. W of Gause, small creek, 30.VII.2003, leg. A.E.Z. Short (AS-03-001). **MEXICO**: 7 exs. (EMB): Mexico: Baja California. Sur, Todos Santos 10.IV.1947, leg. I. LaRivers \ "*Anacaena*

sternalis Leech Det. L.N.Bell I 1969"; 1 ex. (ZMUC): Acapulco, Gro., 18.VIII.1938, leg. L.J. Lipovsky; 1 ex. (ZMUC): Salto, 19.VI.1953, Univ. Kans. Mex. Expedition; 7 exs. (EMB): Mexico, Baja California. Sur, Todos Santos 10.IV.1947 leg. I. LaRivers; 1 ex. (ZMUC): Vera Cruz, leg. Höge, "Biol. C.Amer. / Don Godman & Salvin"; 5 exs. (ZMUC): Vera Cruz, leg. Höge, "Sharp coll. 1905-313 \ coll. A. d'Orchymont"; 2 exs. (ZMUC): Vera Cruz, leg. Höge, "coll.Knisch \ det. Kníž debilis"; 1 ex. (ZMUC): Córdova, Vera Cruz, "Coll. R. Peschet"; 3 exs. (ZMUC): "4 mi. West Ciudad Hidalgo Micho.", 6400 ft., 16.VII.52; 1 ex. (EMB): San José del Cabo, Baja California 11.–16.IX.1967, leg. J. Chemsak, A. & M. Michelbacher. **BELIZE**: 1 ex. (NMW): Cayo Dist., 16.6 km SE Belmopan, Caves Branch B light, 4.1.1996, leg. W.D. Shepard. **GUATEMALA**: 6 exs. (NMW): Alta Verapaz, 21.8 km E Cobán, env. Caquepec, 15°24.37'N / 90°11.20'W, 1950 m a.s.l., 8.4.1995, leg. J. Haft (3); 1 ex. (NMW): "S.Geronimo, Guatemala: Champion \ Hydrobius debilis \ Anacaena debilis (Sharp) Det. D.P. Wooldridge". **HONDURAS**: 1 ex. (EMB): Siguatepeque, at light, 10.–16.VIII.1978, leg. J.A. Chemsak, E.G. & J.M. Linsley. **NICARAGUA**: 4 exs. (EMB): Waspuk River, Musawas, 1.–4.XI.1955. **COSTA RICA**: 1 ex. (ZMUC): Costa Rica, La Cruze, leg T. Bisson, 26.II.91; 15 exs. (INBIO, NMW, AEZS): Costa Rica, Guanacaste Prov., nr. Carmona–Finca Agua Fria, Rio Carmona margin, 10°01'23"N / 85°14'22"W, 30 m a.s.l., 15.I.2003, leg. A.E.Z. Short, R.E. Roughley & W. Porras; 6 exs. (INBIO, NMW): Costa Rica, Guanacaste Prov., nr. Carmona–Finca Agua Fria, Hg-light at Rio Carmona, 10°01'23"N / 85°14'22"W, 30 m a.s.l., 15.I.2003, leg. A.E.Z. Short, R.E. Roughley & W. Porras; 2 exs. (INBIO): same locality, but 26.XI.2002, leg. W.Shepard & R.E. Roughley; 27 exs. (INBIO, NMW): Costa Rica, Guanacaste Prov., Hwy. 1 at Rio Guacimal, 10°06.08'N / 84°52.31'W, 400 m a.s.l., 17.VI.2003, leg. A.E.Z. Short; 12 exs. (INBIO, NMW): Costa Rica, Guanacaste Prov., Rio Animas at Rt. 4, 210 m a.s.l., detrital pools & backwater, 13.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-040); 18 exs. (INBIO, NMW): Costa Rica, Guanacaste Prov., 2 km S Comunidad, roadside pools, 16.VI.2003, leg. A.E.Z. Short; 2 exs. (INBIO, NMW): Costa Rica, Guanacaste Prov., pool along Hwy. 4, 11.2 km SE and 19.2 km NW Monterray, 10°38.91'N / 84°46.29'W, 420 m a.s.l., 13.VI.2003, leg. A.E.Z. Short; 2 ex. (INBIO, NMW): Costa Rica, Guanacaste Prov., 2 km S Comunidad, 10°31.60'N / 85°35.04'W, 280 m a.s.l., roadside pools, 16.VI.2003, leg. A.E.Z. Short; 1 ex. (INBIO): Costa Rica, Guanacaste Prv., nr. Carmona, Carmona–Bella Vista Rd, 9°58'20.7"N / 85°15'34.2"W, 465 m a.s.l., stream with pools, 16.I.2003, leg. A.E.Z. Short; 1 ex. (INBIO): Costa Rica, Guanacaste Prov., nr. Carmona, typha pond, 10°02'33.5"N / 85°13'48.8"W, 44 m a.s.l., 15.I.2003, leg. A.E.Z. Short, R.E. Roughley & W.Porras; 2 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., 7.9 km S San Miguel, 2580 m a.s.l., Rio Cariblanco, 25.VI.2003, leg. W.D. Shepard (WDS-A-1558); 1 ex. (EMB): Costa Rica, Guanacaste Prov., Volcan Miravalles, S. Slope, 3400–4200 m a.s.l., cow dung, 29.VI.1993, leg. J.Doyen & M.Caterino; 5 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., Ecco Colonia Lodge S of Rio San Lorenzo, UV light, 24.XI.2002, leg. W.D. Shepard; 2 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., 6.4 km W Los Lagos, Rio San Lorenzo, 2500 m a.s.l., 12.VI.2003, leg. W.D. Shepard (WDS-A-1533); 21 exs. (INBIO, NMW, AEZS): Costa Rica, Alajuela Prov., 4.1 km NW of Los Lagos, 780 m a.s.l., stream pools, 10.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-025); 1 ex. (INBIO): Costa Rica, Alajuela Prov., seeps on Rio San Lorenzo, 6.1 km N Los Lagos on Los Lagos–Colonia Rd., 10°13'39.6"N / 84°34'14.6"W, 870 m a.s.l., 12.I.2003, leg. A.E.Z. Short & R.E. Roughly (CR-03-04); 41 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., pools on Rio San Lorenzo, 6.1 km N Los Lagos, on Los Lagos–Colonia Rd., 10°13'39.6"N / 84°34'14.6"W, 870 m, 12.I.2003, leg. A.E.Z. Short & R.E. Roughly (CR-03-05); 14 exs. (INBIO, NMW, AEZS): Costa Rica, Alajuela Prov., Rio Cataratas, 3 km SE Los Lagos on San Ramon–Fortuna Rd., 10°12'53.3"N / 84°132'44.6"W, 756 m, 11.I.2003, leg. A.E.Z. Short; 37 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., 3 km SE Los Lagos, Rio Cataratas, at San Ramon–Fortuna Rd., 750 m a.s.l., waterfall and stream margin, 11.I.2003, A.E.Z. Short & R.E.Roughley (CR-03-01); 19 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., Rio San Lorenzo, 6.4 km from Los Lagos, 740 m a.s.l., seeps, A.E.Z. Short & D.J. Lebbin, 10.I.2004 (AS-04-024); 6 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., 7 km NE of Caño Negro, wet pasture by road, 60 m a.s.l., 14.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-041); 6 exs. (INBIO, NMW,AEZS): Costa Rica, Alajuela Prov., Caño Negro behind research station, margin of shallow lagoon, 14.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-044); 14 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., Caño Negro behind research station, margin of shallow lagoon, 15.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS.04.047); 22 exs. (INBIO, NMW, AEZS): Costa Rica, Alajuela Prov., few km W of Florencia, margins/pools of small river, 15.I.2004, 200 m a.s.l., leg. A.E.Z. Short & D.J. Lebbin (AS-04-049); 6 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., pools by road at Rio Desague, 1330 m a.s.l., 15.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-051); 6 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., 3.7 km N of Catarata del Toro, pools along creek, 1020 m a.s.l., 16.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-053); 9 exs. (INBIO, NMW, AEZS): Costa Rica, Alajuela Prov., 1 km S Cariblanco, wall seep, 870 m a.s.l., 6.I.2004, leg. A.E.Z. Short & D.J. Lebbin (AS-04-055); 23 exs. (INBIO, NMW, AEZS): Costa Rica, Alajuela Prov., Hwy. 4, 11.2 km SE San Rafael, 10°37.18'N / 84°44.37'W, 550 m a.s.l., stream in rock slot, 13.VI.2003, leg. A.E.Z. Short; 3 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., 9.4 km S Varablanca on rt. 126, 10°07.22'N / 84°09.82'W, 5640 m a.s.l., rock wall seep, 25.VI.2003, leg. A.E.Z. Short; 12 exs. (INBIO, NMW): Costa Rica, Alajuela Prov., nr. San Isidro, creek margin, 13.VI.2003, leg. A.E.Z. Short; 5 exs. (NMW, AEZS): Costa Rica, Alajuela Prov., Est. Biol. Alberto Brenes, 10°13'02"N / 84°35'51"W, 850 m a.s.l., seep at Rio Lorezito, 5.VII.1999, leg. M.A. Ivie; 1 ex. (NMW): Costa Rica, Alajuela

Prov., Est. Biol. Alberto Brenes, 10°13'02"N / 84°35'51"W, 850 m a.s.l., 29.VI.–6.VII. 1999, leg. M.A. Ivie; 1 ex. (NMW): Costa Rica, Alajuela Prov., Est. Biol. Alberto Brenes, 10°13'02"N / 84°35'51"W, 850 m a.s.l., at light, 3.–6.VII.1999, leg. M.A. Ivie; 1 ex. (EMB): Costa Rica, Alajuela prov., 8 rd. km W Atenas, 1000 m, 12.V.1985; 24 exs. (INBIO, NMW, AEZS): Costa Rica, Heredia Prov., Sarapiquí margin, just E of Hwy. 4, 10°23.22'N / 84°08.20'W, 620 m a.s.l., 25.VI.2003, leg. A.E.Z. Short; 1 ex. (INBIO): Costa Rica, Puntarenas Prov., 1.2 km SE of Coronado waterfall, 18.VI.2003, leg. A.E.Z. Short; 36 exs. (INBIO, NMW): Costa Rica, Puntarenas Prov., Rio Seco at Hwy. 1, N of Cirvelas, pools along river, 17.VI.2003, leg. A.E.Z. Short; 5 exs. (INBIO, NMW): Costa Rica, Puntarenas Prov., Rio Conte, 18.3 km NW of Puerto Jimenez, Osa Peninsula, 18.VI.2003, leg. A.E.Z. Short; 2 exs. (INBIO, NMW): Costa Rica, Puntarenas Prov., Quebrada Sabala–Osa Peninsula., creek margin, 19.VI.2003, leg. A.E.Z. Short; 25 exs. (INBIO, NMW, AEZS): Costa Rica, Puntarenas Prov., Las Cruces, Biological Station, Rio Jaba, 18.VI.2003, leg. A.E.Z. Short; 6 exs. (NMW): Costa Rica, Puntarenas Prov., Esquinas For., between biological station and lodge, 90 m, 9.VII.1996, leg. P. Sehnal (39); 2 exs. (EMB): Costa Rica, Puntarenas Prov., Monteverde, 1300 m a.s.l., 17.–20.V.1985, leg. J.T.Doyen; 11 exs. (INBIO, NMW, AEZS): Costa Rica, Cartago Prov., Cimmarones at Rio Cimmarones, black lights, 23.XI.2002, leg. W.D. Shepard; 1 ex. (NMW): Costa Rica, Cartago Prov., outside Tapanti Nat. Park, 4000 m a.s.l., black lights, 21.VI. 2003, leg. W.D. Shepard (WDS-T-167); 9 exs. (INBIO, NMW): Costa Rica, Cartago Prov., Tapanti Nat. Park, 1.6 km above gate, 4160 m a.s.l., unnamed stream, 22.VI.2003, leg. W.D. Shepard (WDS-A-1553); 13 exs. (INBIO, NMW): Costa Rica, Cartago Prov., Tapanti Nat. Park, pools along road, 22.VI.2003, leg. A.E.Z. Short; 42 exs. (INBIO, NMW, AEZS): Costa Rica, Cartago Prov., Tapanti Nat. Park, in rock seeps/waterfalls, 22.VI.2003, leg. A.E.Z. Short; 1 ex. (EMB): Costa Rica, Cartago Prov., Rio AQUIRES, nr. Santa Cruz, 1500 m a.s.l., 9 km NW Turrialba, 16.V.1985; 14 exs. (INBIO, NMW): Costa Rica, San José Prov., 19.1 km NE of Domatical on rt. 243, waterfall and seeps, 18.VI.2003, leg. A.E.Z. Short; 19 exs. (NMW): Costa Rica, San José Prov., Zurquí de Moravia, 10°03'N / 84°01'W, 1600 m a.s.l., cloud forest, malaise trap, IV.1996, J.A.Lizano; 9 exs. (NMW): Costa Rica, San José Prov., Zurquí de Moravia, 10°03'N / 84°01'W, 1600 m a.s.l., cloud forest, malaise trap, VI.1996, J.A.Lizano. **JAMAICA**: 6 exs. (ZMUC): Hope River, 26.V.1908, M. Cameron, B.M.1936–555 (M. Cameron Journal W1 817). **DOMINICAN REPUBLIC**: 4 exs. (NMW, AEZS): Dom. Rep., nr. Jarabacoa, creek margin 4.XI.2000, leg. A.E.Z. Short; 13 exs. (NMW, AEZS): Dom. Rep., nr. Hato Mayor, Creek off Rt. 103, 2.XI.2000, leg. A.E.Z. Short. **PERU**: 2 exs. (ISNB): Vic. Sani Beni, brook and pools of Sani Beni, 840 m a.s.l., 31.VIII.1935, leg. F. Woitkowsky, 3560. **BRAZIL**: 1 ex. (ISNB): Pernambuco, Piedade S. Recife (Mun. Taboacão), “Wassertümpel [= pond]” 23.XII.1934, O. Schubart; 4 exs. (ISNB): Pernambuco, Piedade S. Recife (Mun. Taboacão), 15.IV.1936, O. Schubart; 1 ex. (ISNB): Pernambuco, Cabo (Mun. Cabo), “Quelloch Wasser milchich [sic!] [= spring hole, milky water]” 23.XII.1934, O. Schubart; 14 exs. (ISNB): Pernambuco, Mun. Jaboatão, Piedade (Recife), 13.I.1935, O. Schubart (Br. 57); 1 ex. (ISNB): Pernambuco, Recife, 5.XI.1935, O. Schubart (Br. 435); 1 ex. (ISNB): Pernambuco, Recife, I.1938, O. Schubart (Br. 1221); 1 ex. (ISNB): Pernambuco, Olinda, “Graben [= ditch]”, 31.VIII.1935, O. Schubart (Br. 373); 4 exs. (ISNB): Pernambuco, Mun. ... [unreadable], Riacho Secco, 18.III.1936, O. Schubart (Br. 554); 1 ex. (ISNB): Pernambuco, Mun. São Bento, Capoeira, 20.III.1935, O. Schubart (Br. 563); 1 ex. (ISNB): Pernambuco, Mun. Paulista “au N. ruisselet [unreadable]”, 6.IV.1936, O. Schubart (Br. 610); 2 exs. (ISNB): Alagôas (Mun. Penedo), Riacho Tapuranga, 10.VII.1937, O. Schubart; 1 ex. (ISNB): Alagôas (Mun. S. Miguel), Rio Sumaúma, 11.VII.1937, O. Schubart; 1 ex. (ISNB): Pernambuco (Mun. Bôa Vista), Tatoba, “Resttümpel [= residual pool]”, 15.IX.1937, O. Schubart; 2 exs. (ISNB): Ceará, Riacho Cobra (Arara) 23.IX.1937, O. Schubart; 4 exs. (ISNB): Ceará, Rio Caras (Crato) 26.IX.1937, O. Schubart (Br.1122); 1 ex. (ISNB): Pernambuco (Triumpho), Riacho Brocotó, 2.X.1937, O. Schubart (Br.1168); 3 exs. (ISNB): Corumba-Matto Grosso \ coll. Knisch; 2 exs. (ISNB): Petropolis, IV.1850 \ coll. d'Orchymont; 2 exs. (ISNB): Rio de Janeiro, XII.1839 \ coll d'Orchymont; 3 exs. (ISNB): Santa Rita, VIII.1850 \ coll d'Orchymont; 1 ex. (ISNB): Boa Sorta, coll. F. Sahlberg. **PARAGUAY**: 1 ex. (NMW): Dep. Concepción, Arroyo La Paz, primary forest Cerrado, riparian gravel, 12.III.1999, leg. U. Drechsel; 2 exs. (NMW): Dep. Guaira, Calle Florida, 17.IX.1994, leg. U. Drechsel; 2 exs. (NMW): Dep. Paraguari, Sapucay, 12.VIII.1995, leg. U. Drechsel. **ARGENTINA**: 2 exs. (NMW): Provincia Córdoba, Sierra de Córdoba, left tributary to Rio Santa Rosa, 32°01'54" S / 64°43'17" W, ca. 900 m a.s.l., 14.2.2004, leg. R.G. Beutel & A. Komarek (6); 16 exs. (NMW, AEZS): Provincia Córdoba, arroyo Tegua, N Rio Quarto [city], near bridge on road from Córdoba to Rio Quarto, 32°42'31" S / 64°21'18" W, ca. 545 m a.s.l., 15.2.2004, leg. R.G. Beutel & A. Komarek (8); 16 exs. (NMW): Provincia Santiago del Estero, arroyo Casa del Tigre, ca. 5 km from Villa La Punta, 28°21'56" S / 64°50'21" W, 22.2.2004, leg. R.G. Beutel & A. Komarek (17); 33 exs. (NMW): Provincia Santiago del Estero, arroyo de la Cantera de Perez, near Villa La Punta, 28°22'03" S / 64°49'31" W, ca. 450 m a.s.l., 23.2.2004, leg. R.G. Beutel & A. Komarek (20).

DIAGNOSIS: Body comparatively very small to small, distinctly attenuated apically; clypeus, frons, pronotum and elytra black, often with very variable brown patches or brightenings on elytra; pronotum with yellow lateral margins, variably reaching anterior margin, elytra with very narrow yellow lateral margins; clypeus moderately large with very blunt anterolateral angles;

antennae nine-segmented, apical club segment enlarged; maxillary palpi slender with apical infuscation; punctation on head and pronotum very fine, on elytra fine and variably subseriate; mesoventrite flat or with variably sized median elevation; procoxae simply pubescent; legs brighter than ventrites; metafemoral pubescence reduced; metatarsus as long as or slightly longer than metatibia.

DIFFERENTIAL DIAGNOSIS: This species differs from *A. schoedli* by its smaller size, the less pronounced anterior yellow pronotal margin and the less serially arranged elytral punctures, from *A. hirsuta* mainly by the less convex appearance, the more slender maxillary palpi, the absence of procoxal spines and the absence of a dense elytral pubescence, from *A. attigua* mainly by the absence of procoxal spines and the absence of lateral elytral impressions, and from *A. solstitialis* by the colouration of the dorsal face.

DESCRIPTION: Total length 1.5–2.1 mm, total width 0.8–1.1 mm, E.I.: 1.2–1.4. Habitus (Fig. 2) oblong oval, greatest width and maximum convexity distinctly in front of the middle, shortly behind elytral base, at shoulder regions; gradually attenuated posterior to region of greatest width; elytra about four to five times as long as pronotum in dorsal view.

Head (Figs. 11, 26, 39): Labrum comparatively narrow. Labrum, clypeus and frons entirely black. Irregular punctures very fine, rather widely spaced, denser and somewhat coarser towards clypeal margins; diameters of punctures much smaller than interstices; in some individuals minute setae inserted in few punctures; a series of very fine densely arranged punctures present along inner margin of eyes. Interstices shiny without microsculpture. Eyes not emarginated anteriorly, dorsal portion appearing spherical. Clypeus moderately long in longitudinal diameter, very slightly excised anteriorly, with blunt angles between lateral and anterior portion. Frontoclypeal suture not or scarcely visible. Antennae nine-segmented; antennomeres 1–5 yellow, pedicellus short and stout, hardly as long as segments 3, 4, and 5 together, antennomere 3 as long as or longer than antennomere 4 and 5 together. Apical club segment oval, enlarged, up to twice as long as wide. Maxillary palpi comparatively slender, palpomere 2 inflated; palpomeres 1–3 yellow, palpomere 4 with very indistinctly demarcated terminal infuscation, in some individuals almost entirely darkened. Temples, mentum, gula, submentum, cardo, and stipes black, prementum and labial palpi yellow. Mentum ca. 1.6 times as wide as long, posterior portion flat, anterior portion distinctly depressed mesally, with equally distributed, comparatively strong setiferous punctures; in some individuals with weakly impressed microstructure; lateral margins sparsely fringed with fine setae, almost straight, parallel-sided with distinct anterior angles; anterior margin distinctly convex, weakly excised in the middle. Submentum with long, fine setae. Labial palpi slender, palpomere 2 and 3 of same length, together approximately as long as lateral margin of mentum.

Thorax: Pronotum often slightly brighter than head, with yellow lateral margins of variable width reaching anterior and posterior corners, sometimes reaching anterior margin; in some specimens, particularly those with brighter elytra, yellow lateral margin with a short extension towards dark central portion of pronotum. Irregular punctation very fine, even finer than on head, widely spaced on pronotal disc, punctures slightly coarser and denser towards lateral margins. Very fine setae inserted in some of the lateral punctures. Interstices smooth, shiny, without microsculpture. Lateral margins without a bead, weakly convex, with distinct, blunt posterior angles and more rounded anterior angles. Transverse fold absent. Prosternum dark brown to black, flat, very slightly projecting towards gula mesally. Lateral portion of hypomeron light brown, corresponding with yellow pronotal margins, mesal portion dark brown to black. Scutellar shield dark brown to black, smooth, feebly punctured. Lateral margins of elytra, including pseudepipleura, very shallowly impressed behind shoulder regions. Elytra very variably coloured: sometimes almost entirely black, with very indistinct yellow margins; or

indistinctly brightened apically; or with a distinct, variably sized lighter brown area apically. Elytral punctures fine, but coarser than on pronotum, with indistinct subserial arrangement, often finer on anterior portion, with longitudinal rows of coarser punctures towards lateral margins. Many punctures, mainly laterally and apically often with a fine inconspicuous seta. Interstices without microsculpture. Sharply impressed sutural stria present in posterior three fourths of elytra. Mesoventrite flat or with a bluntly pointed, variably sized, pubescent protuberance postero-mesally. Anapleural sutures S-shaped, anterior sections distinctly converging, reaching anterior margin of mesothorax (Fig. 50). Epipleura, meso- and metaventrite dark brown to black, epipleura lighter brown in some individuals.

Legs (Fig. 56): Procoxae pubescent, often with longer setae near trochanteral joint (visible when the profemur is reflexed), but devoid of spines or spine-like setae. Coxae, trochantera, and femora with a varying light brown colouration, often only distal portion of femora somewhat brighter, tibiae and tarsi light brown, distinctly lighter than ventrites. Femoral hairlines distinct; profemur pubescent on proximal three fourths, with convex hairline; mesofemur almost completely pubescent except apex; on metafemur pubescence confined to anterior margin and proximal portion with concave hairline. Metatibia with moderately strong spines on lateral margin; metatibial spurs short and weak, the longer mesal spur not extending to half length of tarsomere 2. Pro-, meso-, and metatarsus with very long fine setae, arising distally from dorsal face of tarsomeres. Metatarsus as long as or slightly longer than metatibia.

Abdominal ventrites black, entirely covered with dense hydrofuge pubescence.

Aedeagus (Fig. 65): Phallobase slightly longer than parameres, manubrium not distinctly demarcated from phallobase. Parameres narrowed apically, with convex lateral margins and almost straight mesal margins, apices pointed. Median lobe shorter than parameres, corona in subapical position, basal apophyses short, with very short extension into phallobase. Base of median lobe mesally connected with parameres.

DISCUSSION: The high variability of *A. debilis* regarding “size, colour and sculpture of the upper surface” has been stated early by SHARP (1882), but was overlooked by subsequent authors establishing new species. d’ORCHYMONT (1933) was the first to emphasize the morphological similarity of *A. suturalis* and *A. debilis*, though still separating them by the punctuation of head and pronotum (d’ORCHYMONT 1942). The type specimens of *Limnebius suturalis* and *Hydrobius debilis* differ in size, *H. debilis* being much smaller, while the punctuation and colouration of the dorsal parts are almost identical. On account to different authors (LECONTE 1866, SHARP 1882, HORN 1873, 1890, d’ORCHYMONT 1933, 1942, LEECH 1948) these two species were assumed to differ in the following features: punctuation on pronotum and elytra (very fine in *A. debilis*, almost obsolete in *A. suturalis*), yellow border on anterior margin of pronotum (absent in *A. debilis*, present in *A. suturalis*), protuberance on mesoventrite (almost absent to distinct in *A. debilis*, distinct in *A. suturalis*), pubescence on proximal portion of metafemur (present in *A. debilis*, absent in *A. suturalis*). The large series collected recently in Central America confirms SHARP’s assumption of the high variability: all transitions between the hitherto assumed differentiating features of *A. debilis* and *A. suturalis* can be found. The same is the case in a number of species which were originally described on the basis of small series of type specimens or only the holotype. The genital morphology of these species does not show any differences. The following critical evaluation will elucidate the reasons for the synonymization of these species with *A. suturalis* in this revision:

Three very similar species, *A. moreirai*, *A. pescheti*, and *Paracymus attenuatus* were described by d’ORCHYMONT (1921), who compared *A. moreirai* with *Hydrobius solstitialis* and *H. punctatus*, and *Paracymus attenuatus* with *Hydrobius debilis*. At this time the generic delimitations were even less clear than they are today. When d’ORCHYMONT transferred the latter

four species to *Anacaena* together with *Crenitulus suturalis*, he affirmed the high degree of similarity between all these species including *A. cordobana*. The original description of *A. moreirai* completely fits to *A. debilis* and *A. suturalis*. It is not perceivable that the metafemoral pubescence should be less reduced in *A. moreirai* than in *A. debilis* and *A. suturalis*, as stated by d'ORCHYMONT (1942: 35). Comparing *Paracymus attenuatus* with *P. debilis*, d'ORCHYMONT (1921) describes *P. debilis* as shorter and comparatively broader, with a more distinctly demarcated yellow pronotal border, a metatarsus which is shorter than the metatibia, and a maxillary palpomere 3 which is almost entirely infuscated. I agree with d'ORCHYMONT's description of *Paracymus attenuatus*, except for the metatarsus, which is in fact about as long as the metatibia. However, in all other characters listed above *A. attenuata* falls within the spectrum of variability of *A. suturalis*. I also agree with d'ORCHYMONT that *A. attenuata* is closely related to *A. attigua*, which actually deserves specific rank (see description of *A. attigua*). The two type specimens of *Anacaena attenuata* are apparently very dark specimens of *A. suturalis*, with an average sized protuberance on the mesoventrite, and comparatively short metatarsus, compared to the average metatarsal length of *A. suturalis*.

The original description of *A. pescheti* is mainly based on features distinguishing it from *A. moreirai*. Only a single damaged type specimen of *A. pescheti* is known. The differences in the elytral punctation (more serially in *A. moreirai*) and in the metafemoral pubescence (less reduced in *A. moreirai*) are recognisable but very subtle. Both features lie within the limits of *A. suturalis*. Other differences observed by d'ORCHYMONT (1921), like body shape (more parallel-sided behind shoulder regions in *A. moreirai*), and ventral pubescence (sparser in *A. pescheti*) cannot be confirmed.

In his description of *A. peta*, d'ORCHYMONT (1942) considered almost only differential features to *A. pescheti*: the differences in body shape (*A. peta* is described to be larger), of the protuberance on the mesoventrite (less strong in *A. peta*), and of the punctation (pronotal punctures finer, elytral punctures denser and slightly more serial in *A. peta*) could not be confirmed.

A. morosa is described by d'ORCHYMONT (1942) mainly by comparing the single type specimen with specimens of *A. pescheti*, *A. attenuata*, *A. attigua*, *A. debilis*, and *A. moreirai*. He considered *A. morosa* as most similar to *A. moreirai*. I agree that the lateral elytral impression is by far less distinct than in *A. attigua* (but not much less than in *A. attenuata*). Differences in the length of the labial palpomeres (shorter in *A. morosa* than in *A. pescheti*) are not perceptible; in the contrary, palpomere 3 is slightly larger than palpomere 2 in *A. morosa*, versus shorter and more slender in *A. pescheti*; in total the labial palps are comparatively long as it is also described and perceptible in *A. suturalis*. Differences in the metatarsal length (shorter than in *A. pescheti*, due to a comparatively shorter second metatarsomere) are hardly perceptible. Differences between *A. morosa* and *A. moreirai* concerning the elytral punctation (less regularly and with less coarser punctures in *A. morosa*) and in the metafemoral pubescence (less reduced in *A. moreirai*) are very subtle and lie within the spectrum of variability, as does the shape of the protuberance on the mesoventrite. All other features described by d'ORCHYMONT (1942) for *A. morosa* coincide with those of *A. suturalis*.

The specific rank of *A. morula* is based on morphological differences between this species and *A. morosa*: d'ORCHYMONT (1942) pointed out the following characteristics of *A. morula*: body shorter oval, the labial palps very short and slender, their apical two segments of unequal length, the apical maxillary palpomere not infuscated, the protuberance on the mesoventrite of slightly different shape, the elytral punctures finer, denser, and less serial, and the metafemoral pubescence restricted to the anterior rim. I agree with d'ORCHYMONT that the labial palps are comparatively short and slender (the palpomeres 2 and 3 are of equal length) and that the

maxillary palpomere 4 is not darkened apically. The elytral punctures are hardly serial in the paratype, and only weakly serial in the holotype. In contrast to d'ORCHYMONT the body shape is attenuated towards the elytral apex, and the protuberance is shaped as a weakly pronounced bulge like in *A. morosa*; the metafemoral pubescence is distinct on the proximal portion of the metafemur in both species. In total the differences between the type specimens of *A. morosa* and *A. morula* do not justify specific ranks.

KNISCH's (1924) description of *A. cordobana* fits perfectly with *A. debilis* and *A. suturalis*. The author places *A. cordobana* close to *A. moreirai* and *A. pescheti*, though having doubts about the specific delimitation of the latter. D'ORCHYMONT (1942) questioned the specific rank of this species, too. However, to him *A. cordobana* appeared most similar to *A. debilis*. He described the elytral punctation as denser and more deeply impressed in *A. cordobana*. This could not be confirmed in the present study. There is actually no morphological feature, including the aedeagus, justifying the specific rank of *A. cordobana*.

LEECH (1948) emphasizes that the only character by which *A. sternalis* may be distinguished from *A. suturalis* is the size of the protuberance on the mesoventrite. The great variability of this character in *A. suturalis* shown by the new material justifies the synonymization.

DISTRIBUTION: *Anacaena suturalis* is a very widely distributed species, occurring from Canada in the north (HORN 1873, 1890) to Argentina in the south.

Key to the Neotropical species of *Anacaena*

- | | | |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1 | Body form attenuated apically; apical antennal club segment elongated, longer than wide; antennae nine-segmented (<i>suturalis</i> -group) | 2 |
| - | Body form broadly rounded, not attenuated apically; apical antennal club segment not longer than wide; antennae seven- or nine-segmented. | 6 |
| 2 | Procoxae with spine-like setae..... | 3 |
| - | Procoxae without spine-like setae. | 4 |
| 3 | Pronotum and elytra not pubescent; elytra with distinct lateral impressions..... | <i>attigua</i> |
| - | Pronotum and elytra distinctly pubescent; elytra without distinct lateral impressions..... | <i>hirsuta</i> |
| 4 | Pronotum largely yellow or yellowish brown with darker brown central patch..... | <i>solstitialis</i> |
| - | Pronotum largely black with narrow lateral yellow margin. | 5 |
| 5 | Total length 2.0–2.5 mm; elytral punctures coarser, distinctly subseriate..... | <i>schoedli</i> |
| - | Total length 1.5–2.1 mm; elytral punctures finer, not distinctly subseriate. | <i>suturalis</i> |
| 6 | Elytral punctures comparatively coarse, distinctly subseriate; mesoventrite without significant median protuberance; metatarsus as long as metatibia. | <i>punctata</i> |
| - | Elytral punctures mostly fine, if moderately coarse, then irregular without subseriate arrangement; mesoventrite with significant median protuberance; metatarsus shorter than metatibia. | 7 |
| 7 | Clypeus with distinct yellow preocular patches; pronotum largely yellowish with dark central patch. | 8 |
| - | Clypeus without distinct yellow preocular patches; pronotum brown or black, without dark central patch..... | 9 |
| 8 | Eyes distinctly emarginated anteriorly; antennae seven-segmented; procoxa not set with spine-like setae; metafemoral pubescence reduced; pronotal patch not divided into three sections..... | <i>parvula</i> |

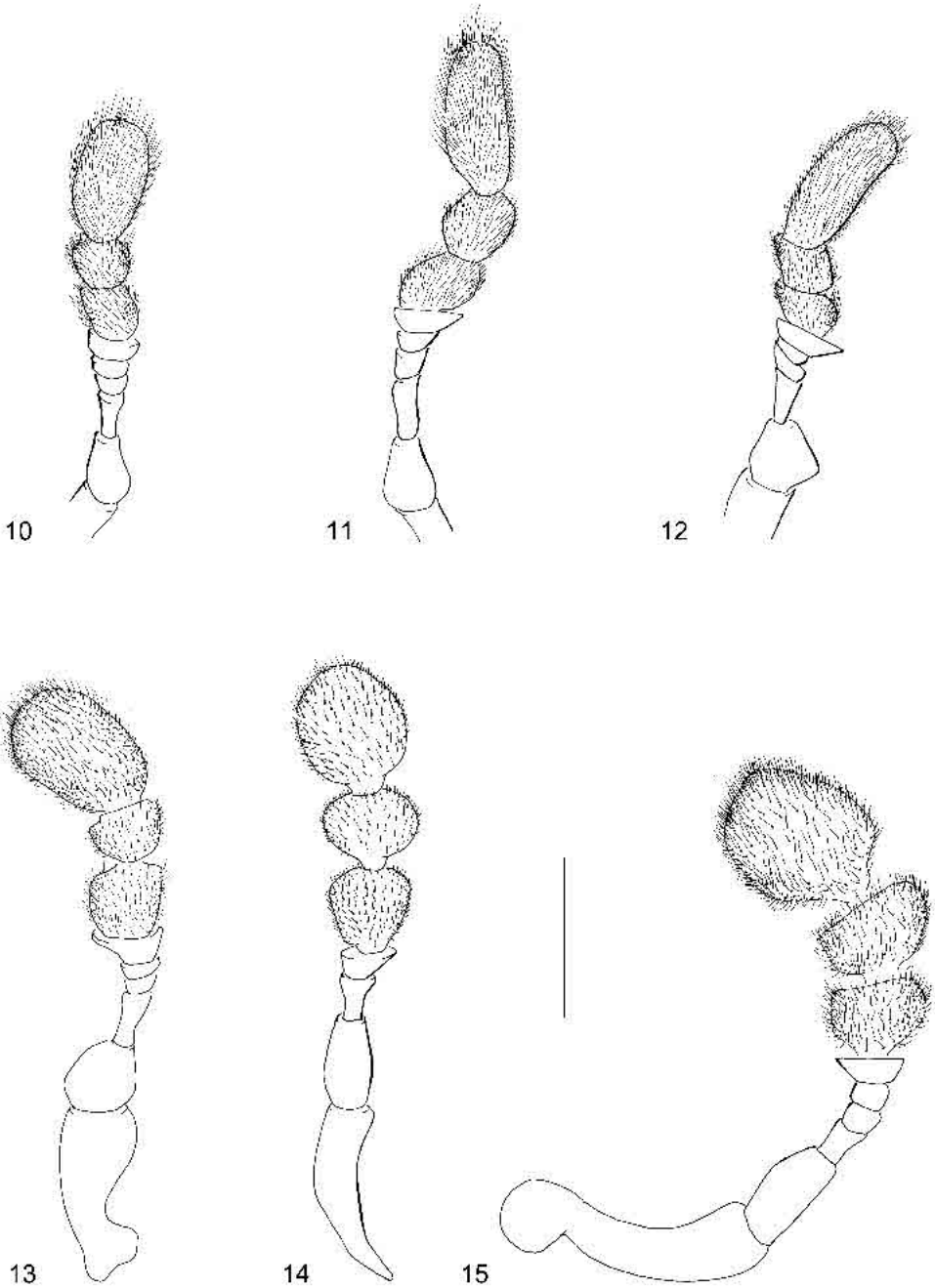
- Eyes very weakly emarginated anteriorly; antennae nine-segmented; procoxa set with spine-like setae; metafemoral pubescence extended; pronotal patch divided into three sections..... *signaticollis*
- 9 Metafemur nearly entirely pubescent ventrally. 10
- Metafemoral pubescence reduced to anterior margin and proximal portion. 11
- 10 Clypeus and frons black, without lighter areas..... *coruscalis*
- Clypeus and frons brown, clypeus variably lighter than frons. *corumbana*
- 11 Eyes distinctly emarginated anteriorly, antennae seven-segmented, elytral punctures moderately coarse..... *limostra*
- Eyes not emarginated anteriorly, antennae nine-segmented, elytral punctures very fine..... 12
- 12 Head, pronotum and elytra black; body length 1.8–2.2 mm. *perpenna*
- Head, pronotum and elytra brown; body length 1.6 mm. *perparva*

Discussion of the “suturalis-group”

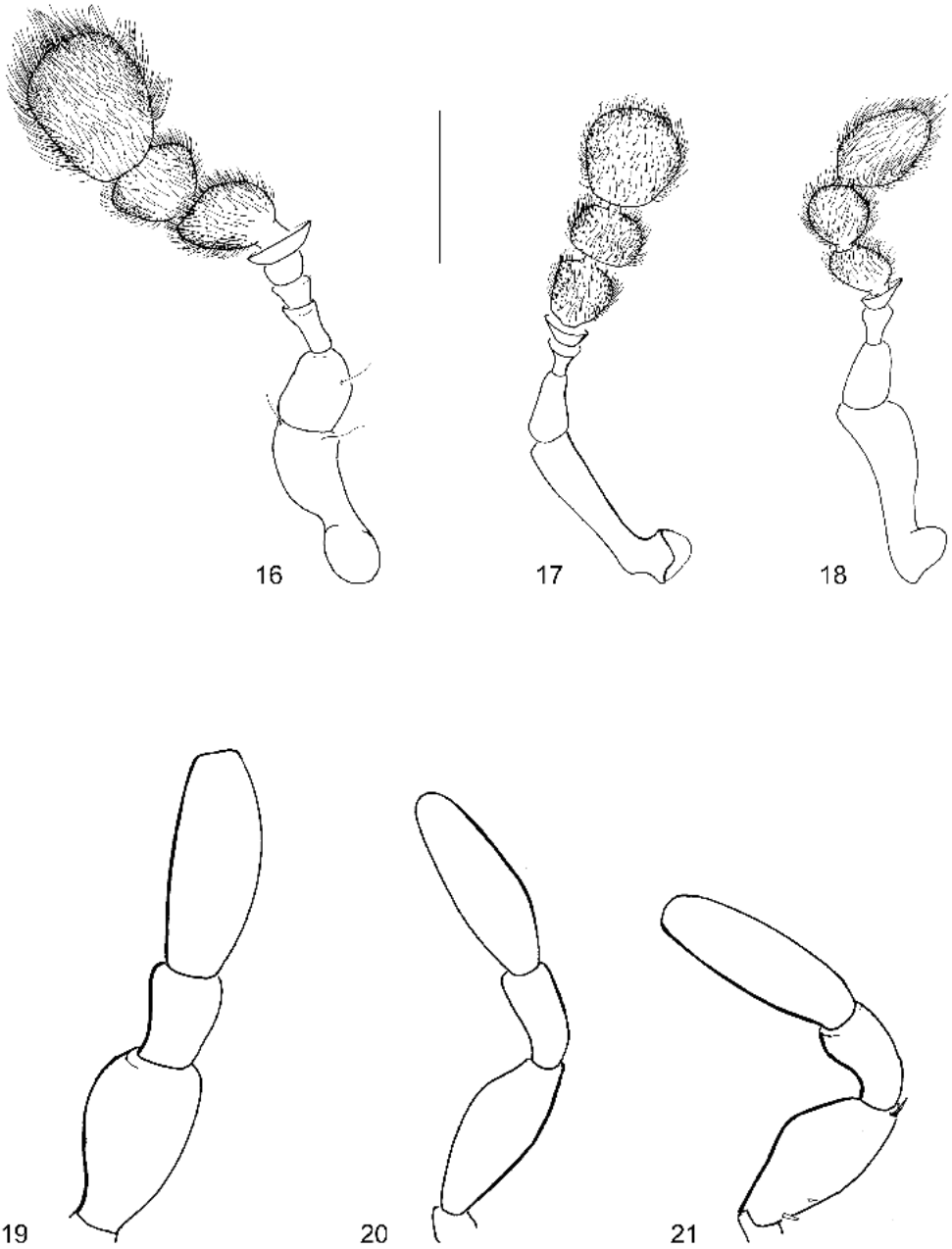
Anacaena suturalis, *A. solstitialis*, and *A. attigua* show conspicuous morphological similarities (d'ORCHYMONT 1942), shared also by the herein described *A. schoedli* and *A. hirsuta*. These species are therefore summarized as “*suturalis*-group”. The peculiarities of *A. suturalis* have already been observed by WINTERS (1926) who established the genus *Crenitulus* to separate *A. suturalis* from similar genera like *Crenitis* and *Anacaena*. This genus was synonymized with *Anacaena* by d'ORCHYMONT (1933), who pointed out the high degree of similarity to the other hitherto known species of *Anacaena*. The common features of the “*suturalis*-group” are the following: a similar comparatively narrow body-shape, with the elytra significantly attenuated apically, an elongated apical antennomere, a parallel-sided mentum sparsely set with lateral setae, more or less subserially arranged elytral punctures, anapleural sutures reaching rather narrowly the anterior mesothoracic margin, the reduced metafemoral pubescence, comparatively long metatibiae (except in *A. attigua* and *A. schoedli*), and a very similar aedeagus. The resemblance of the aedeagus is also shared by *A. perpenna* which might therefore be closely related to the “*suturalis*-group”. However, this assumption is not supported by other features. The great affinity suggests that the species assigned to the “*suturalis*-group” may form a clade. However, the monophyly has to be confirmed in a cladistic analysis. To raise the “*suturalis*-group” to subgeneric rank would be an inadequate approach, as this would likely create a paraphyletic subgenus *Anacaena* s.str. To introduce new taxa solely based on autapomorphies, without considering the monophyly of the remaining species, is still rather common in taxonomical work, but should be strictly avoided.

Zusammenfassung

Die Arten der Gattung *Anacaena* aus der neotropischen Region werden revidiert. Zwei neue Arten, *A. hirsuta* sp.n. und *A. schoedli* sp.n. werden beschrieben. Alle bisher bekannten neotropischen Arten der Gattung *Anacaena* werden beschrieben, einschließlich *A. signaticollis*, einer nearktischen Art, die jedoch auch in Mexiko vorkommt. Zwölf Arten werden synonymisiert, *A. attenuata*, *A. cordobana*, *A. debilis*, *A. moreirai*, *A. morosa*, *A. morula*, *A. pescheti*, *A. peta*, und *A. sternalis* mit *A. suturalis*, *A. bireducta* mit *A. parvula*, sowie *A. perplexa* und *A. perspicua* mit *A. solstitialis*. Fünf Arten, *A. attenuata*, *A. solstitialis*, *A. suturalis*, *A. schoedli* und *Anacaena hirsuta* werden unter dem Namen “*suturalis*-Gruppe” zusammengefasst. Für die Arten *A. debilis* und *A. suturalis* werden Lectotypen und Paralectotypen festgelegt. Ein Artenschlüssel für die *Anacaena*-Arten aus der Neotropischen Region ist inkludiert.

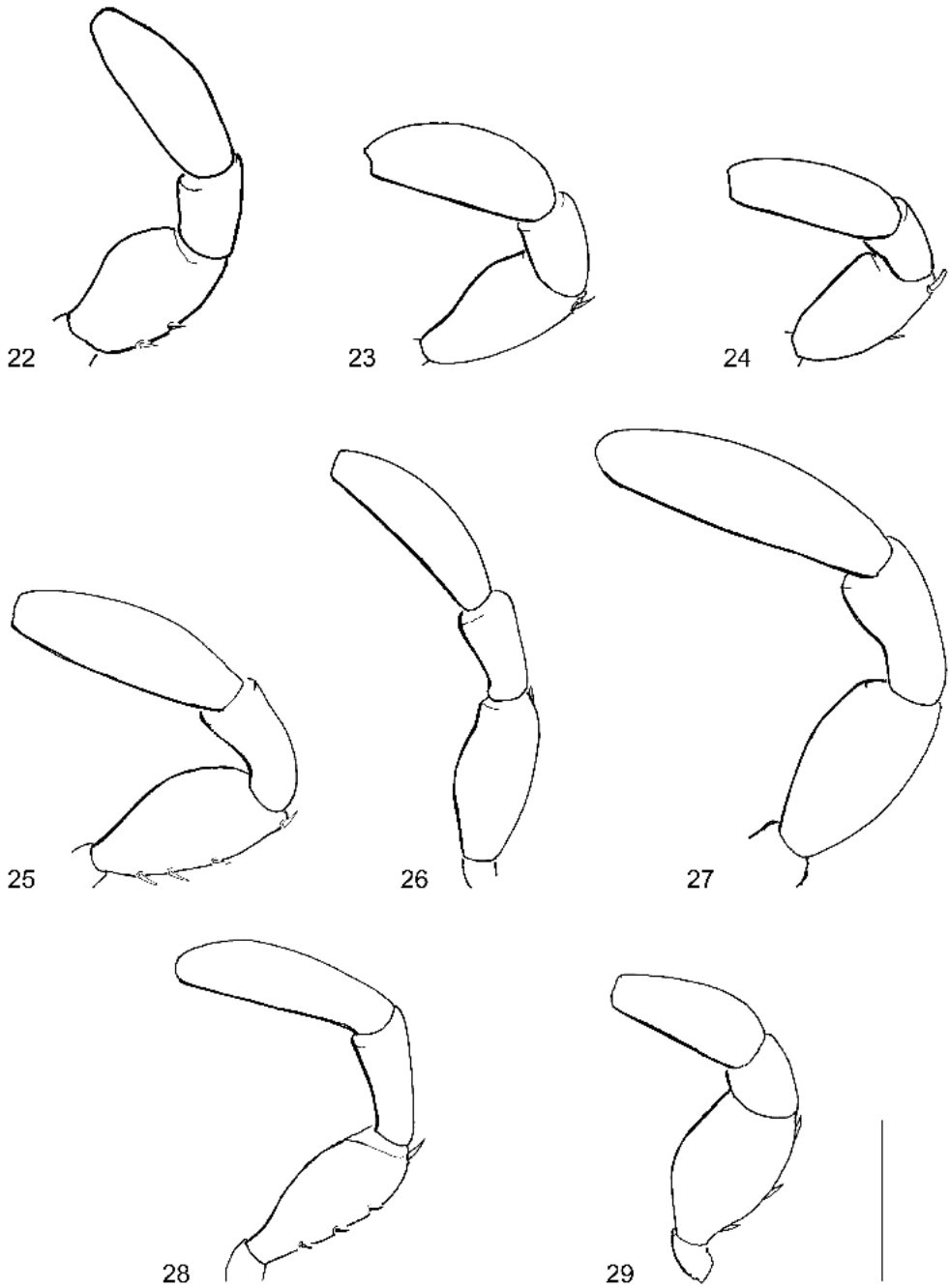


Figs. 10–15: Antenna of 10) *Anacaena solstitialis*, 11) *A. suturalis*, 12) *A. hirsuta*, 13) *A. perpenna*, 14) *A. parvula*, 15) *A. signaticollis*. Scale bar = 0.1 mm.

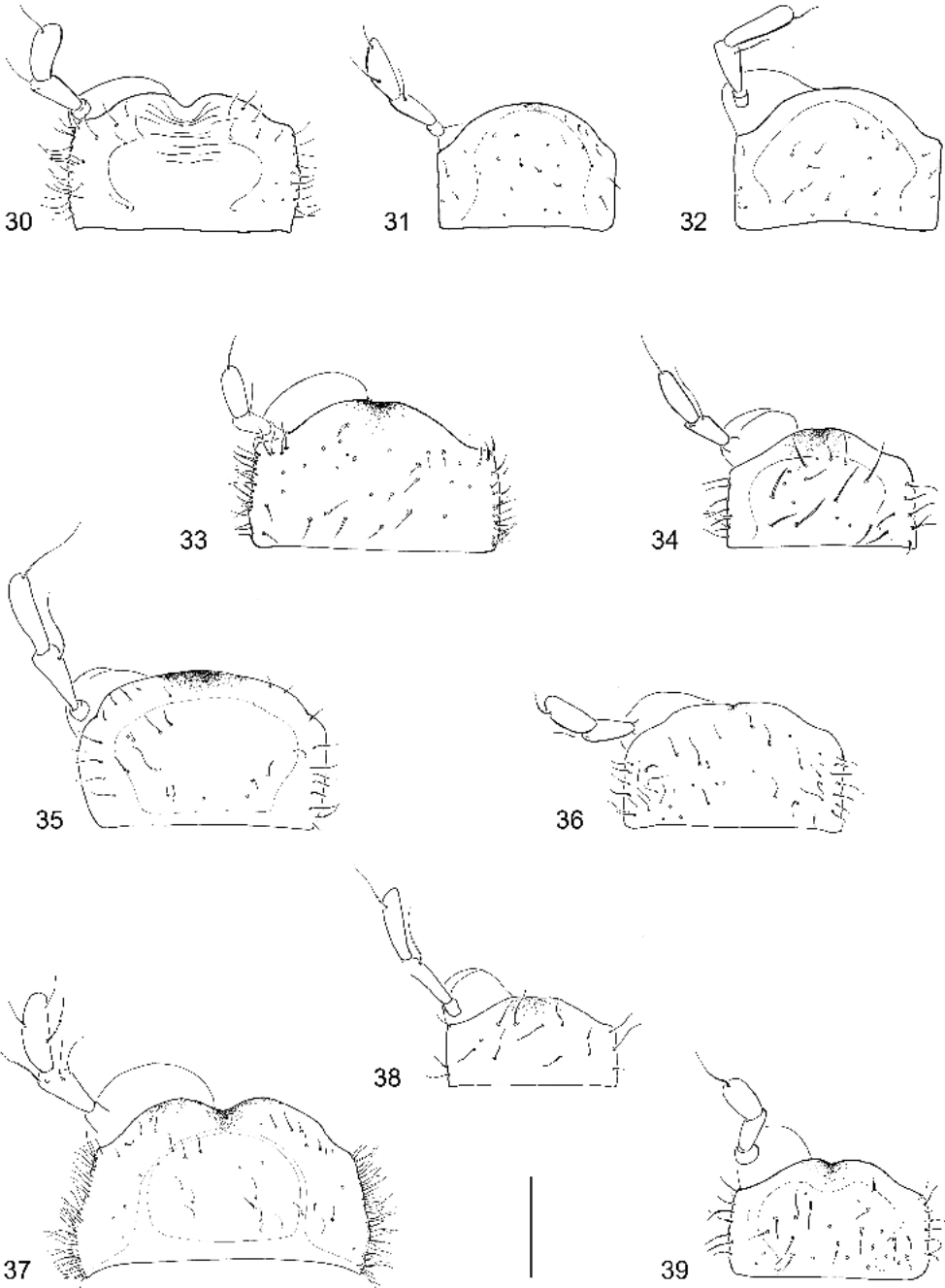


Figs. 16–18: Antenna: 16) *Anacaena attigua*, 17) *A. corumbana*, 18) *A. coruscalis*. Scale bar = 0.1 mm.

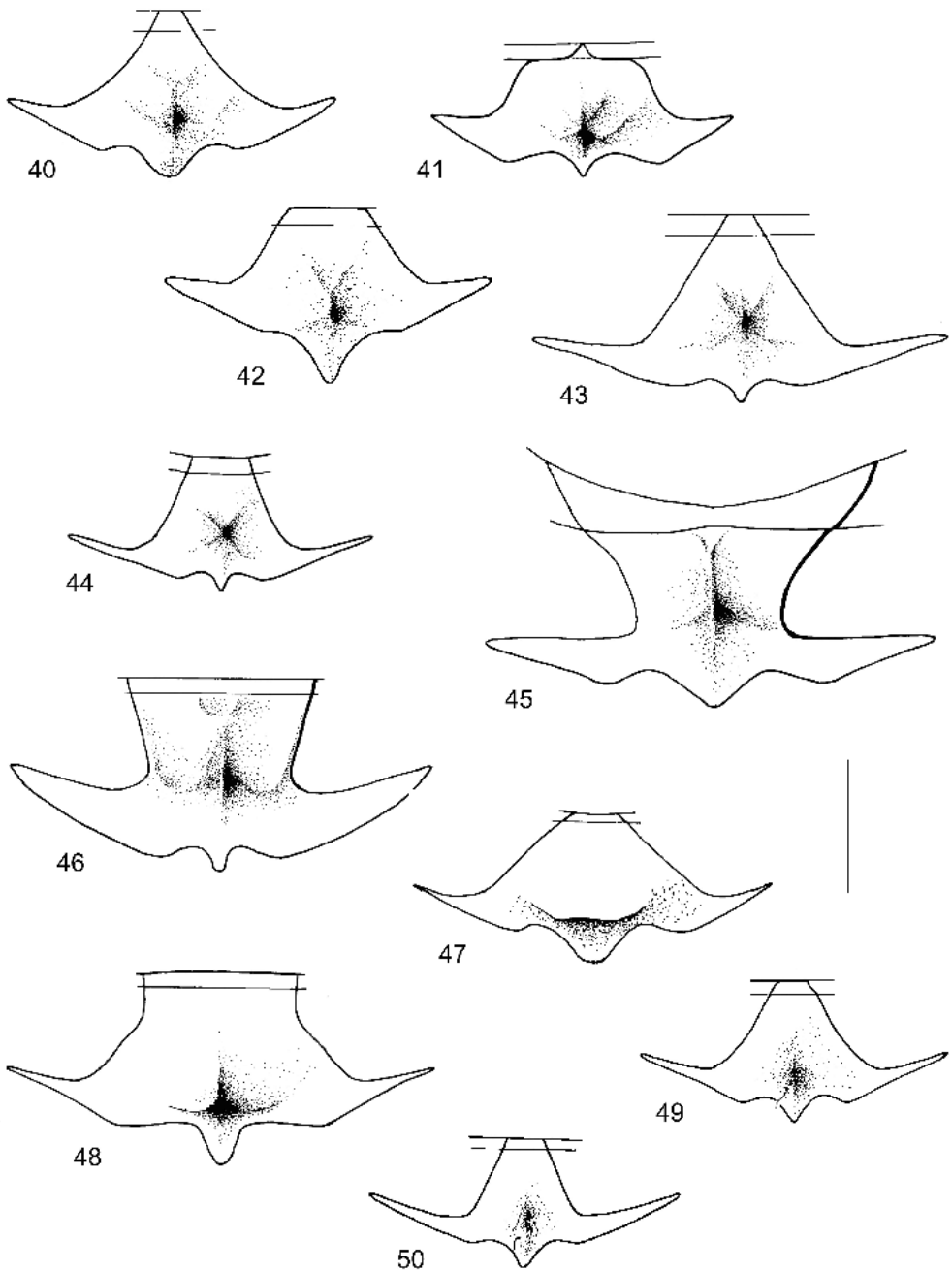
Figs. 19–21: Maxillary palpomere: 19) *Anacaena attigua*, 20) *A. corumbana*, 21) *A. coruscalis*. Scale bar = 0.1 mm.



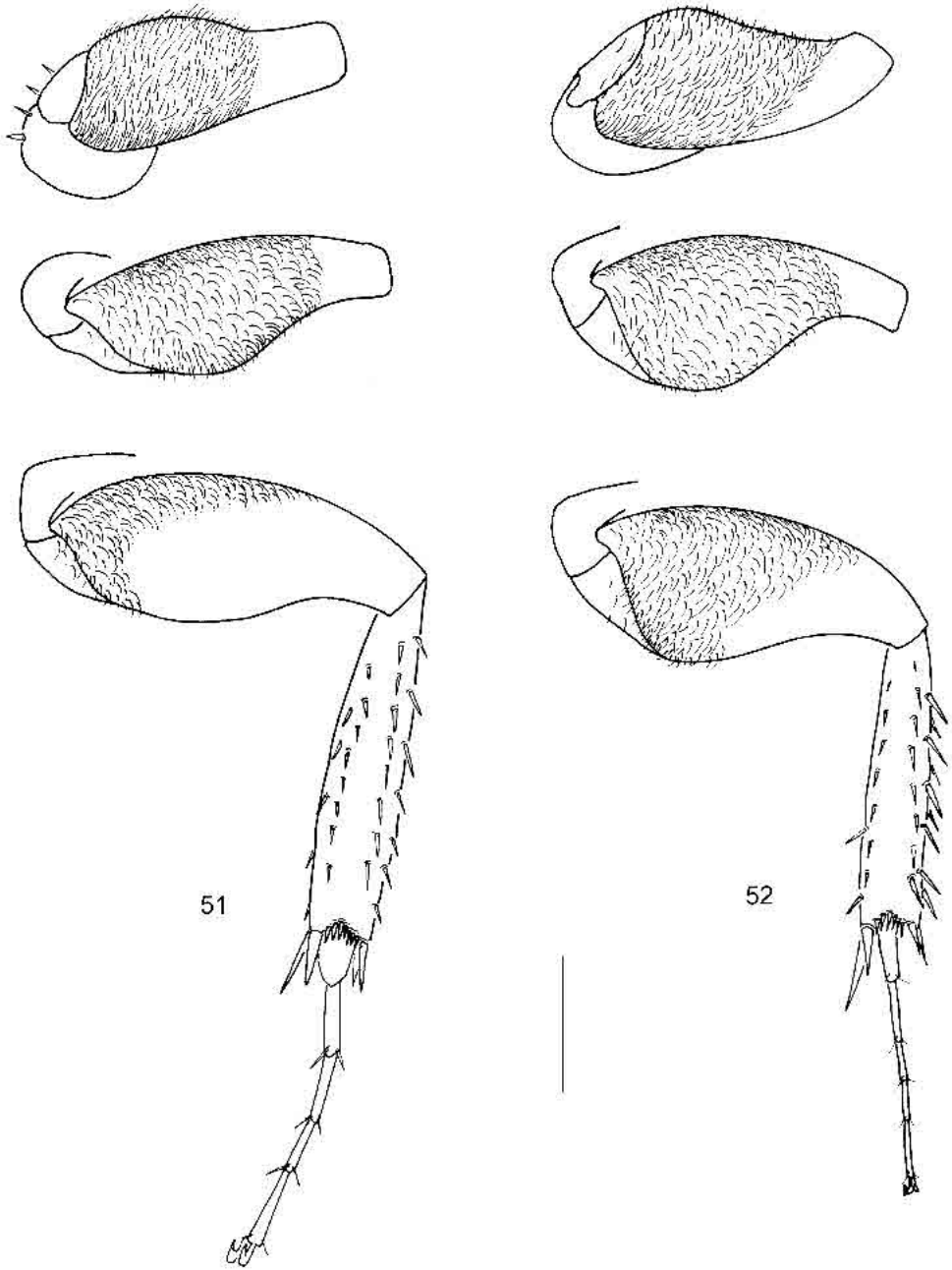
Figs. 22–29: Maxillary palpomere: 22) *Anacaena schoedli*, 23) *A. hirsuta*, male, 24) *A. hirsuta*, female, 25) *A. parvula*, 26) *A. suturalis*, 27) *A. signaticollis*, 28) *A. solstitialis*, 29) *A. perpenna*. Scale bar = 0.1 mm.



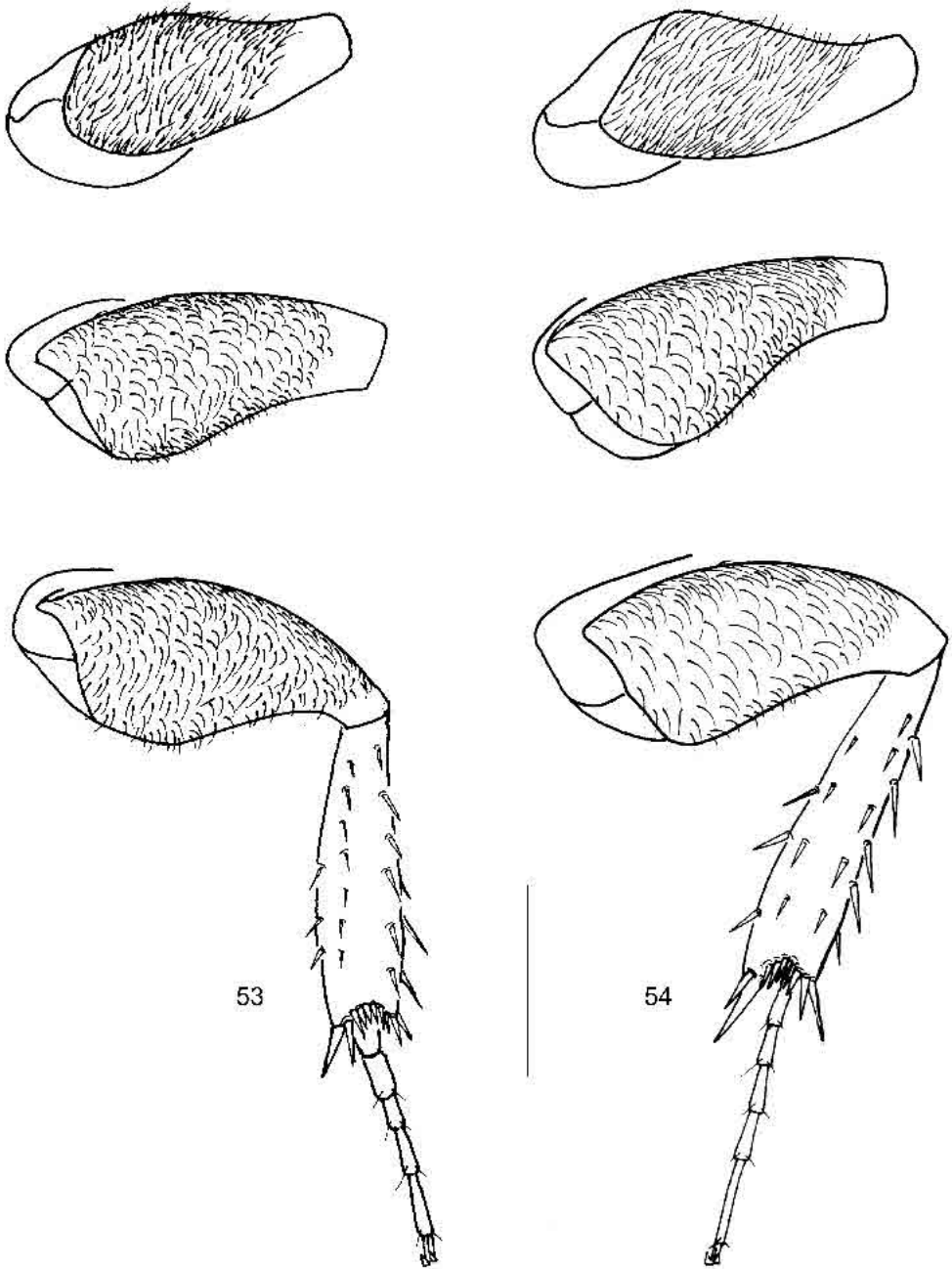
Figs. 30–39: Mentum and labium, ventral face: 30) *Anacaena attigua*, 31) *A. corumbana*, 32) *A. coruscalis*, 33) *A. schoedli*, 34) *A. hirsuta*, 35) *A. parvula*, 36) *A. perpenna*, 37) *A. signaticollis*, 38) *A. solstitialis*, 39) *A. suturalis*. Scale bar = 0.1 mm.



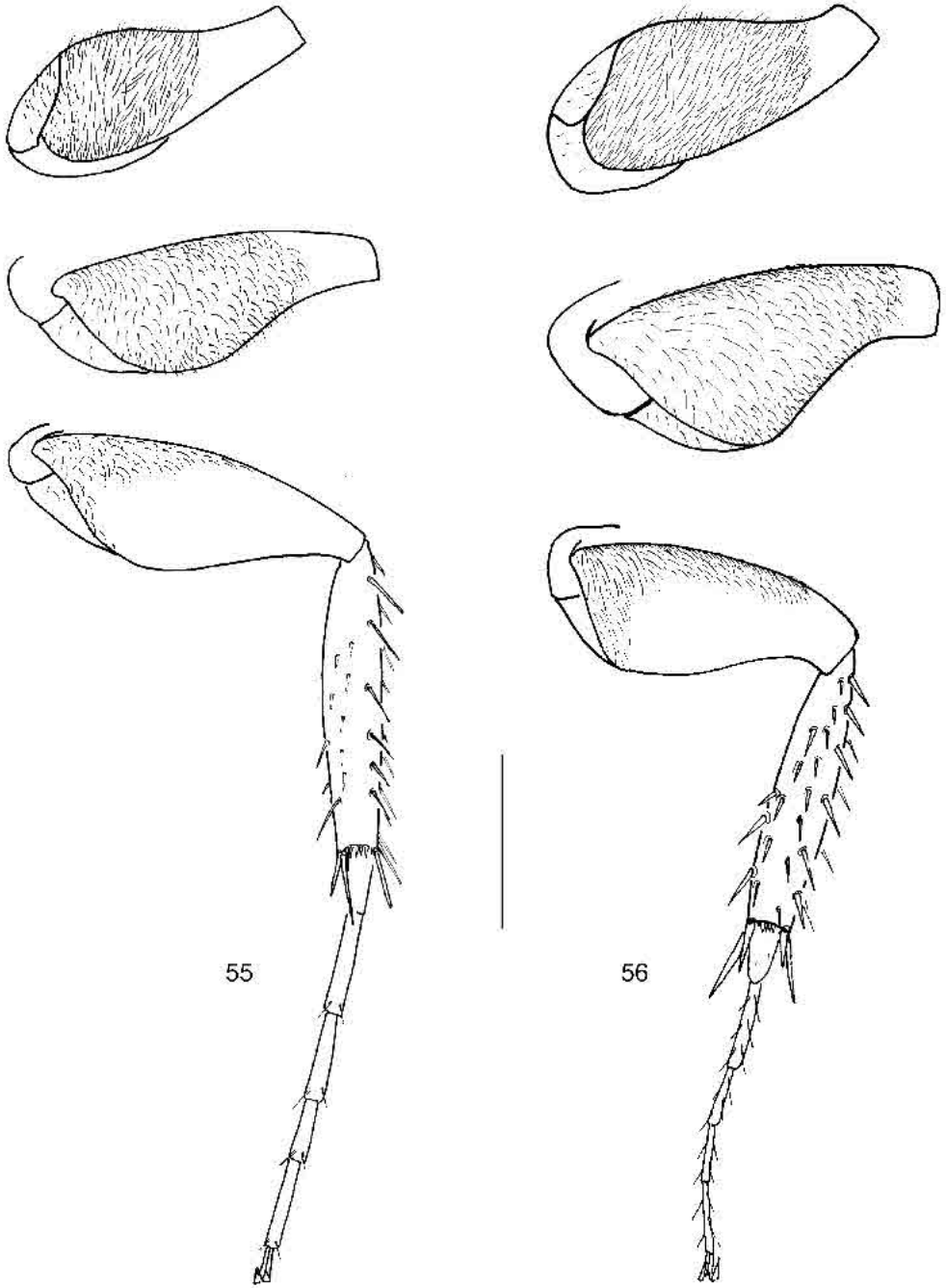
Figs. 40–50: Mesoventrites: 40) *Anacaena attigua*, 41) *A. corumbana*, 42) *A. coruscalis*, 43) *A. schoedli*, 44) *A. hirsuta*, 45) *A. limostr*a, 46) *A. parvula*, 47) *A. perpenna*, 48) *A. signaticollis*, 49) *A. solstitialis*, 50) *A. suturalis*. Scale bar = 0.2 mm.



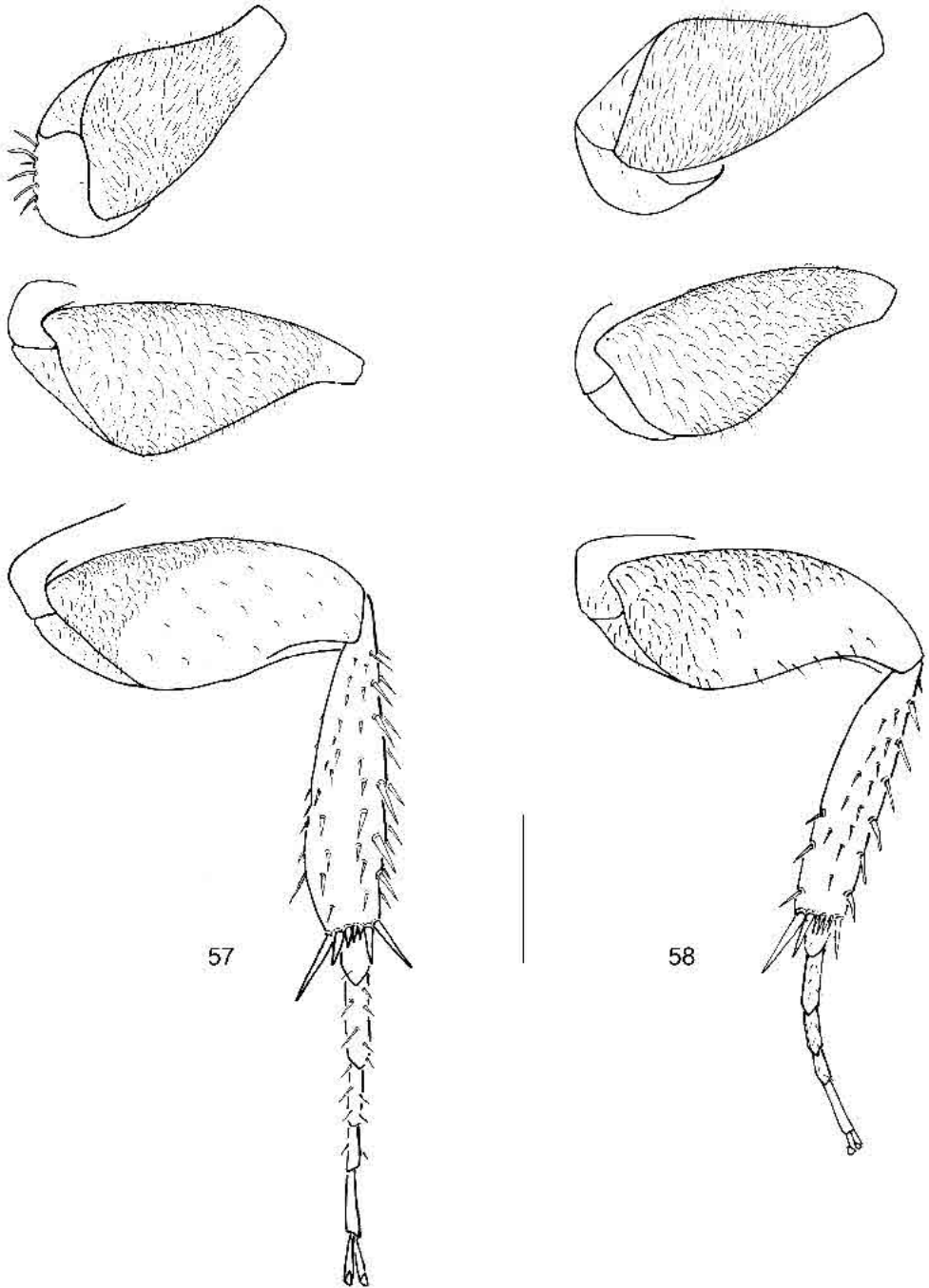
Figs. 51–52: Pro-, mesofemur, and hind leg, ventral face: 51) *Anacaena attigua*, 52) *A. limostra*. Scale bar = 0.2 mm.



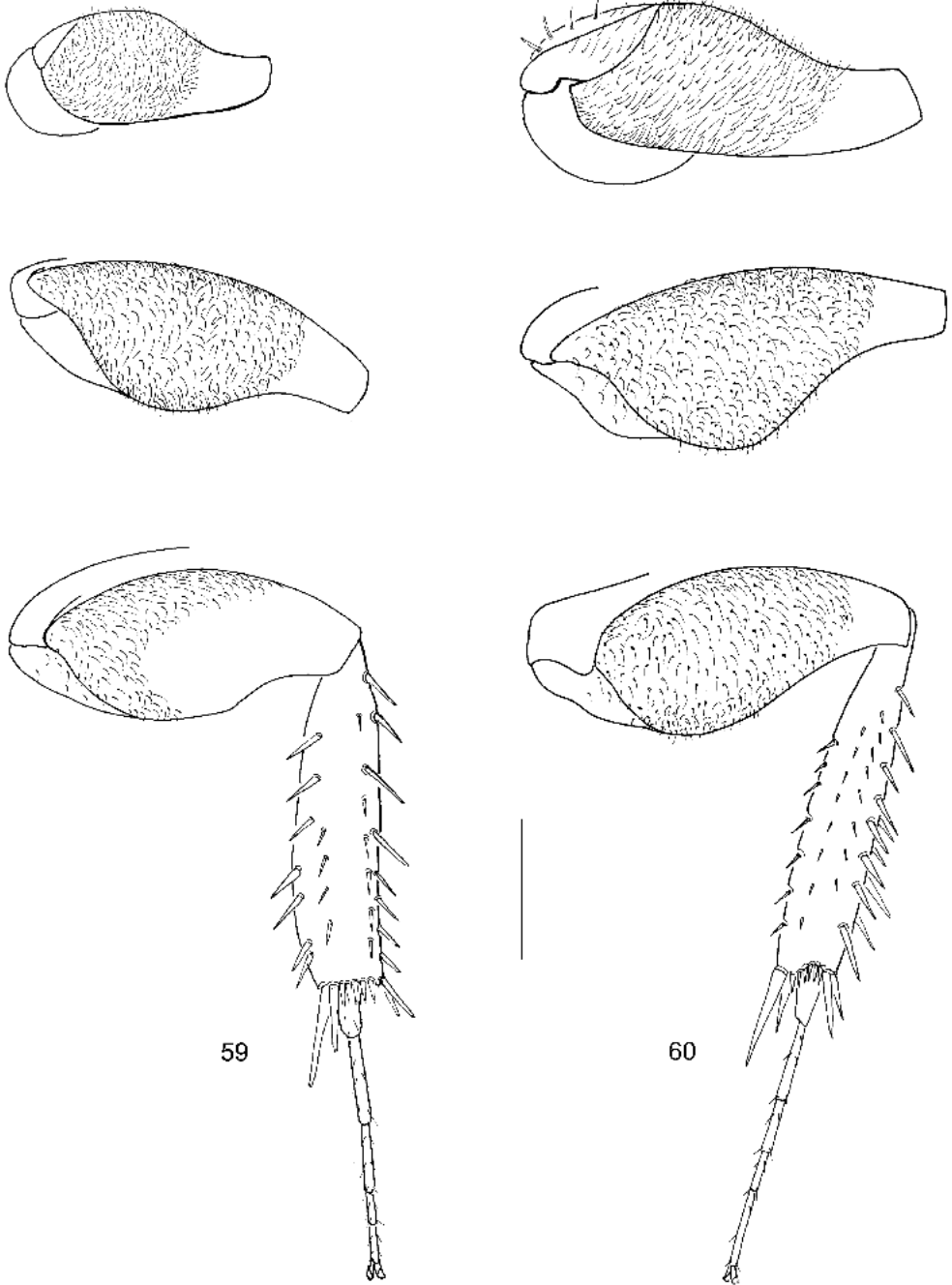
Figs. 53–54: Pro-, mesofemur, and hind leg, ventral face: 53) *Anacaena corumbana*, 54) *A. coruscalis*. Scale bar = 0.2 mm.



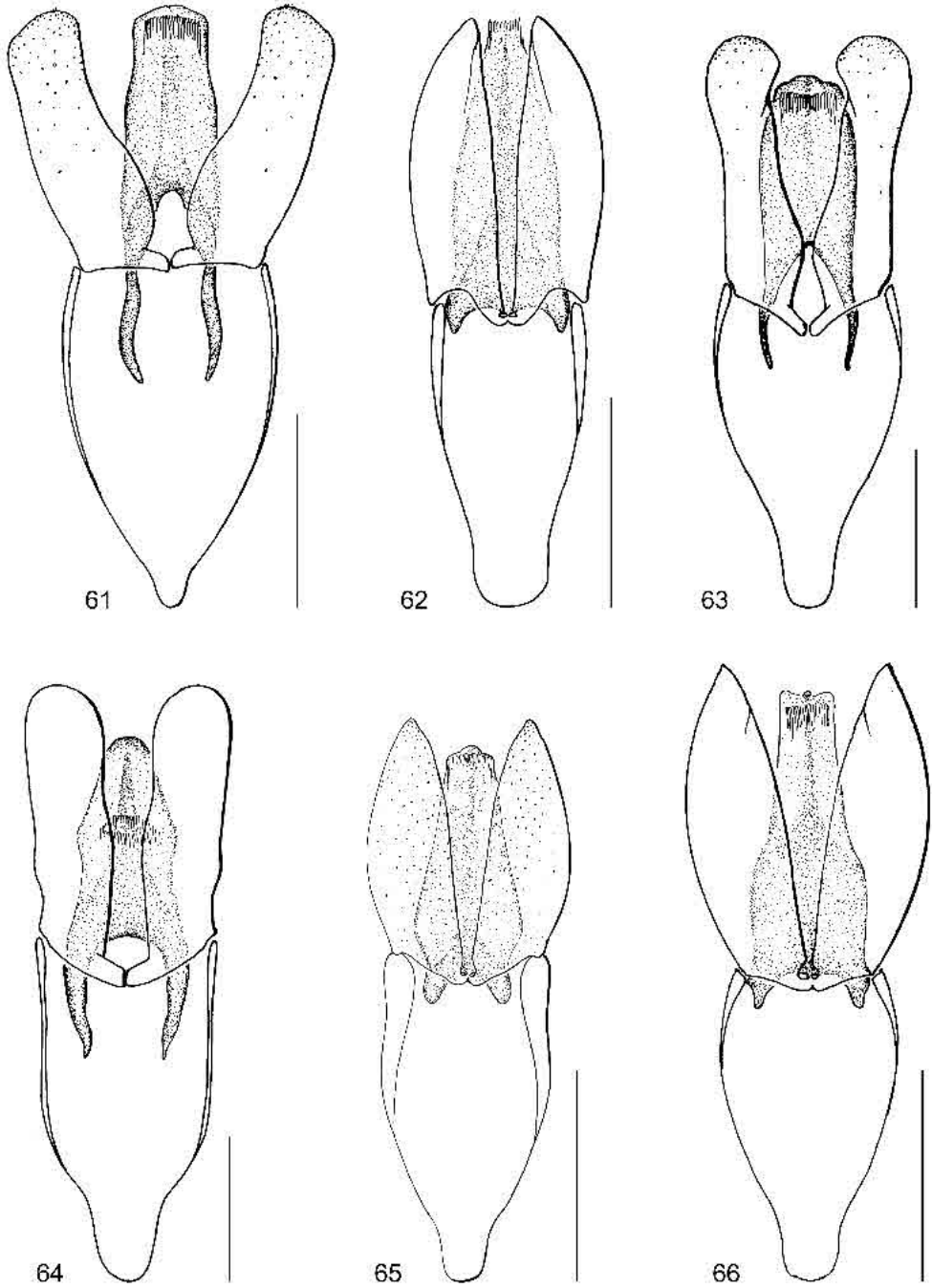
Figs. 55–56: Pro-, mesofemur, and hind leg, ventral face: 55) *Anacaena solstitialis*, 56) *A. suturalis*. Scale bar = 0.2 mm.



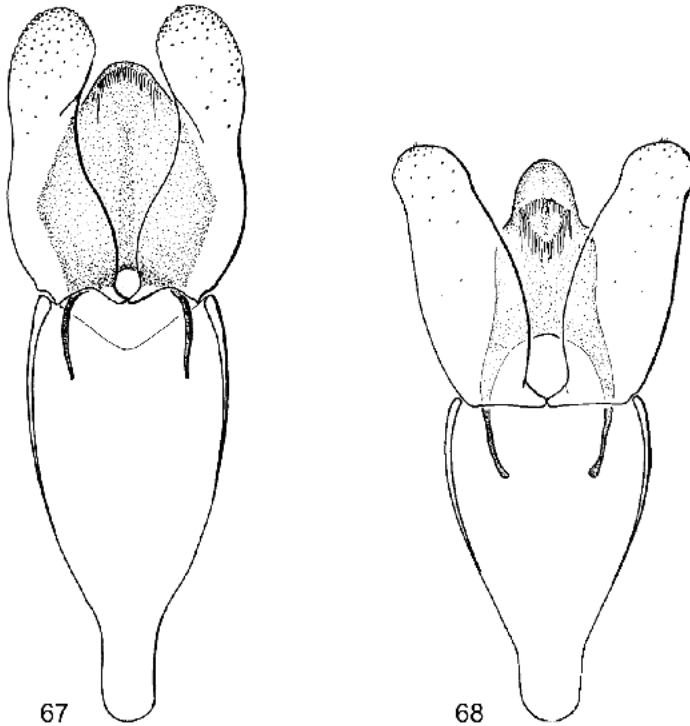
Figs. 57–58: Pro-, mesofemur, and hind leg, ventral face: 57) *Anacaena hirsuta*, 58) *A. parvula*. Scale bar = 0.2 mm.



Figs. 59–60: Pro-, mesofemur, and hind leg, ventral face: 59) *Anacaena perpenna*, 60) *A. signaticollis*.
Scale bar = 0.2 mm.



Figs. 61–66: Aedeagus: 61) *Anacaena corumbana*, 62) *A. attigua*, 63) *A. coruscalis*, 64) *A. limostrata*, 65) *A. suturalis*, 66) *A. perpenna*. Scale bars = 0.1 mm.



Figs. 67–68: Aedeagus: 67) *Anacaena signaticollis*, 68) *A. parvula*. Scale bar = 0.1 mm.

References

- FALL, H.C. 1924: New species of North American Hydrobiini. – *Journal of the New York Entomological Society* 32: 85–89.
- HORN, G.H. 1873: Revision of the genera and species of the tribe Hydrobiini. – *Proceedings of the American Philosophical Society* 13: 118–137.
- HORN, G.H. 1890: Notes on some Hydrobiini of Boreal America. – *Transactions of the American Entomological Society* XVII: 237–278.
- KIRSCH, T.F.W. 1873: Beiträge zur Kenntniß der Peruanischen Käferfauna auf Dr. Abendroth's Sammlungen basirt. – *Berliner Entomologische Zeitschrift* 17: 121–152.
- KNISCH, A. 1924: Neue neotropische Palpicornier (Col. Hydrophilidae. – Op. 16.). – *Wiener Entomologische Zeitung* 41: 114–140.
- KOMAREK, A. 2004: Taxonomic revision of *Anacaena*. I. Afrotropical Species (Hydrophilidae). – *Koleopterologische Rundschau* 74: 303–349.
- LECONTE, J.L. 1866: Additions to the coleopterous fauna of the United States. No. 1. – *Proceedings of the Academy of Natural Sciences of Philadelphia* (1866): 361–394.

- LEECH, H.B. 1948: Contributions toward a knowledge of the Insect fauna of Lower California. No. 11. Coleoptera: Haliplidae, Dytiscidae, Gyrinidae, Hydrophilidae, Limnebiidae. – Proceedings of the California Academy of Sciences (4. ser.) 24: 375–483.
- ORCHYMONT, A. d' 1921: Palpicornia de l'Amérique du sud. – Annales de la Société entomologique de Belgique 61: 244–255.
- ORCHYMONT, A. d' 1933: Contribution à l'étude des Palpicornia. VIII. – Bulletin et Annales de la Société entomologique de Belgique 73: 271–314, pl. 5.
- ORCHYMONT, A. d' 1938: Contribution à l'étude des Palpicornia. XI. – Bulletin et Annales de la Société entomologique de Belgique 78: 261–270.
- ORCHYMONT, A. d' 1942: Contribution à l'étude de la tribu Hydrobiini Bedel, spécialement de sa sous-tribu Hydrobiae (Palpicornia-Hydrophilidae). – Mémoires du Musée royale d'Histoire naturelle de Belgique 2 (24): 1–68.
- SHARP, D. 1882: Insecta. Coleoptera. Vol. 1, part 2 (Haliplidae, Dytiscidae, Gyrinidae, Hydrophilidae, Heteroceridae, Parnidae, Georissidae, Cyathoceridae, Staphylinidae.). – in: Godman, F.D. & Salvin, O. (eds.): *Biologia Centrali-Americana* (16). – London: Taylor and Francis, xv+824 pp.
- WINTERS, F.C. 1926: Notes on the Hydrobiini (Coleoptera - Hydrophilidae) of Boreal America. – *The Pan-Pacific Entomologist* 3: 49–58.
- ZAITZEV, F.A. 1908: Catalogue des Coléoptères aquatiques des familles Dryopidae, Georyssidae, Cyathoceridae, Heteroceridae et Hydrophilidae. – *Horae Societatis entomologicae Rossiae* 38: 283–420.

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