



Stegoelmis Hinton, 1939 (Coleoptera: Elmidae: Elminae) in Brazil: two new species and a key to the Brazilian species

ANDRÉ S. FERNANDES^{1,2,5}, MARIA INÊS S. PASSOS³ & NEUSA HAMADA⁴

¹Instituto de Pesquisas Ambientais e Ações Conservacionistas, CEP: 74805-370, Goiânia, GO, Brazil.

E-mail: andrelmis@gmail.com

²Institut de Biologia Evolutiva (CSIC-UPF), CEP: 37-49, 08003, Barcelona, Spain

³Universidade Federal do Estado do Rio de Janeiro, Departamento de Zoologia, Av. Pasteur, 458-4º andar, CEP: 22290-240, Rio de Janeiro, RJ, Brazil. E-mail: minespassos@gmail.com

⁴Instituto Nacional de Pesquisas da Amazônia, Divisão de Curso em Entomologia, Coordenação de Pesquisas em Entomologia, Caixa Postal 478, CEP: 69011-970 Manaus, AM, Brazil. E-mail: nhamada@inpa.gov.br

⁵Corresponding author

Abstract

Two new species of the genus *Stegoelmis* Hinton, 1939, *S. figueiredoensis* **sp. nov.** from Amazonas State, Brazil and *S. shepardi* **sp. nov.** from Roraima State, Brazil and Saint Laurent Du Maroni, French Guiana, are described and illustrated based on adult specimens. This work also provides a taxonomic key to males of *Stegoelmis* species known from Brazil.

Key words: aquatic insects, Neotropics, riffle beetle, *Stegoelmis*, taxonomy

Resumo

Duas novas espécies do gênero *Stegoelmis* Hinton, 1939, *S. figueiredoensis* **sp. nov.** do Estado do Amazonas, Brasil e *S. shepardi* **sp. nov.** do Estado de Roraima, Brasil e de Saint Laurent Du Maroni, Guiana Francesa, são descritas e ilustradas baseado em espécimes adultos. Este trabalho também traz uma chave taxonômica para os machos das espécies de *Stegoelmis* do Brasil.

Introduction

The Neotropical genus *Stegoelmis* Hinton, 1939 was erected based on *Stenelmis geayi* (Grouvelle, 1908) known from Ecuador, French Guiana, Guyana and Venezuela, and the species *Stegoelmis verrucata* Hinton, 1939 known from northern Brazil and French Guiana (Spangler, 1990). Later, Sanderson (1953) described *Stegoelmis hintoni*, which was placed by Spangler (1990) as a junior synonym of *S. geayi*. In his revision of the genus *Stegoelmis*, Spangler (1990) recognized two valid species and described another nine species. His review also provides a key to the known species, information about the biology and distribution of the species, and the description of the larvae of two *Stegoelmis* species.

The genus is currently known from Brazil, Colombia, Ecuador, French Guiana, Guiana, Paraguay, Peru and Venezuela. Of the eleven known species, only three were recorded from Brazil: *Stegoelmis verrucata* (Pará State), *Stegoelmis ica* Spangler, 1990 (Amazonas State) and *Stegoelmis stictoides* Spangler, 1990 (Amazonas State) (Fig. 1).

Stegoelmis can be distinguished from all other Elmidae genera by the combination of the following characteristics (Spangler, 1990): body robust, elongate and subparallel; dorsum and venter mostly covered with plastron; pronotum usually with gibbosities or protuberances and with a wide longitudinal impression; elytra usually with gibbosities or protuberances in humeral areas and subapically; epipleura vertical, when faced laterally.

In this paper we describe and illustrate two new species of *Stegoelmis* from northern South America, *S. figueiredoensis* **sp. nov.** found in Amazonas State, Brazil and *S. shepardi* **sp. nov.**, found in Roraima State, Brazil and Saint Laurent Du Maroni, French Guiana, bringing the number of *Stegoelmis* species in Brazil to five (Fig. 1). We also present a key for the Brazilian species of *Stegoelmis*.



FIGURE 1. Map showing the distribution of the Brazilian species of *Stegoelmis*.

Material and methods

The specimens of *S. figueiredoensis* **sp. nov.** were collected from two different Municipalities in Amazonas State, Manaus (using D-net on the substrates) and in Presidente Figueiredo (using light traps placed along streams). *Ste-*

goelmis shepardi **sp. nov.** specimens were collected in Boa Vista, Roraima State (collected manually). Also, we examined specimens of *S. shepardi* **sp. nov.**, from French Guiana, and *S. andersoni* Spangler, 1990, from Ecuador, deposited in the Essig Museum of Entomology. Morphological terminology follows Brown (1972) and Spangler (1990). Some of the specimens were dried and pinned, while the remaining specimens were preserved in 80% ethanol. Dissected genitalia were stored in microvials with glycerin and maintained with the same vial or pin as the body of the adult from which they were removed.

Depositories

INPA	Coleção de Invertebrados, Instituto Nacional de Pesquisas da Amazônia, Amazonas, Brazil
DZRJ	Coleção Entomológica José Alfredo Pinheiro Dutra, Departamento de Zoologia, Instituto de Biologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
NMNH	National Museum of Natural History, Smithsonian Institution, Washington D.C., United States of America
EMEC	Essig Museum of Entomology, University of California, Berkeley, California, United States of America

Results

Stegoelmis figueiredoensis **sp. nov.**

(Figs. 3–7)

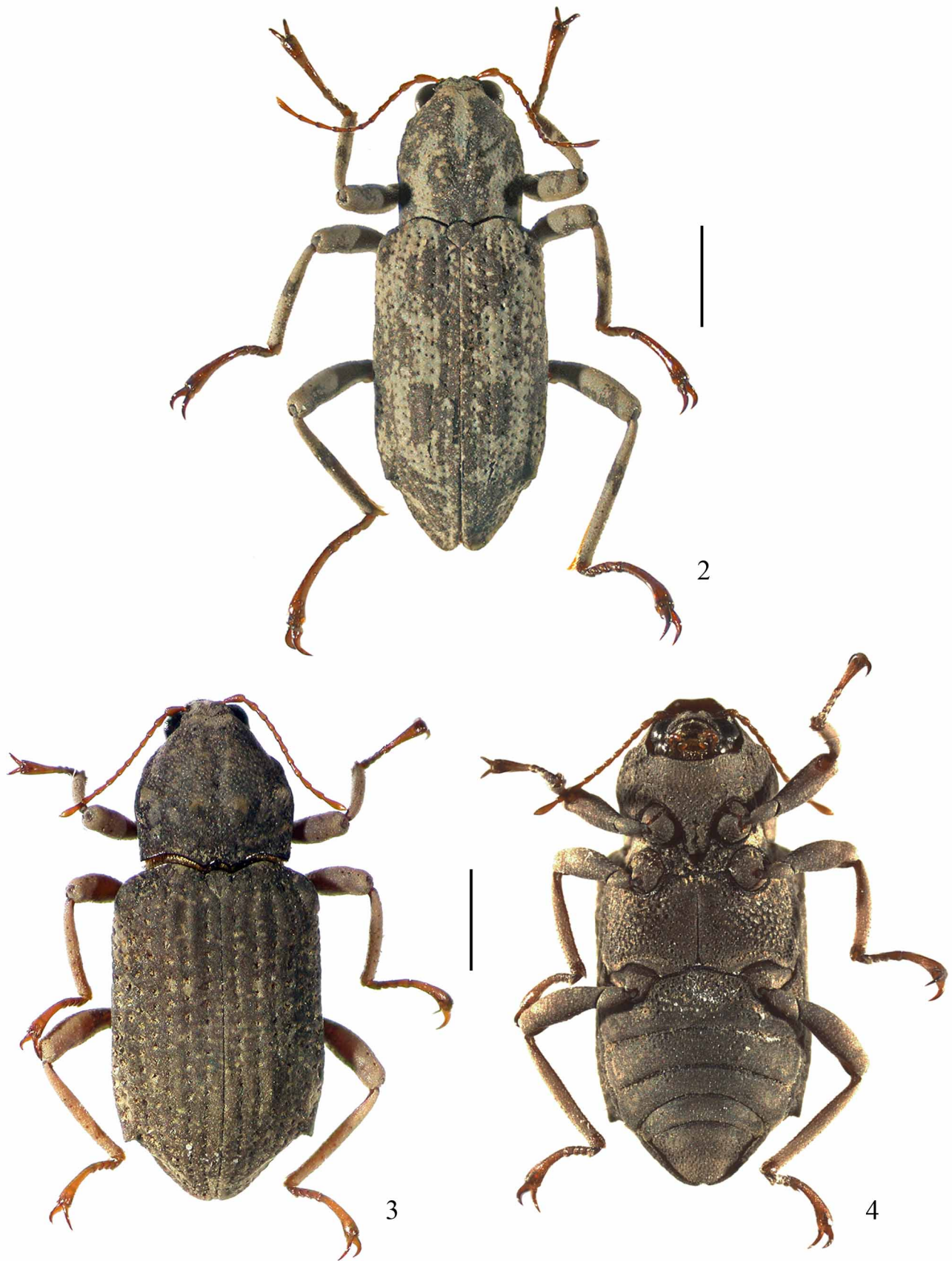
Diagnosis. Elytral apices rounded and not dehiscent; metatibial cleaning fringe of tomentum indistinct; hypomeron with punctures much coarser than those on pronotal disc; ventrite I with coarse punctures only across apical 2/3; parameres and median lobe long and slender, apex rounded.

Description. Holotype: male (Figs. 3–6). Length 4.2 mm, greatest width 1.88 mm. Body (Figs. 3, 4) robust, subparallel; body sparsely covered with fine, short, recumbent and pale setae; dorsal surface covered with punctures equal to the diameter of eye facets and spaced by two times their diameter; scutellum glabrous; ventral surface covered with punctures one to four times the diameter of eye facets, coarser on sides of prosternum, mesoventrite, sides of metaventrite, hypomeron, sides and anterior 2/3 of ventrite I; dorsum and venter covered with plastron.

Head (Figs. 3, 4): Short and deep longitudinal impression between bases of antennae. Eyes protuberant, laterally rounded, separated by a distance of 0.4 mm. Antenna with 11 segments, long and slender, first and last segments slightly swollen and twice as long as the remaining segments. Frontoclypeal suture present between bases of antennae. Clypeus rectangular, as long as and 1.5 times wider than labrum; anterior margin concave; lateral angles rounded. Labrum rectangular; anterior margin slightly convex; anterolateral angles rounded; row of moderately long pale setae on middle; row of short pale setae on anterior margin. Maxillary palpus with four segments; last segment swollen, as long as second and third segments combined. Labial palpus with three segments; last segment swollen, as long as the remaining segments combined. Gula narrower than submentum.

Color (Figs. 3, 4): Areas covered with plastron: cuticle grayish-brown and opaque, except legs (reddish-brown). Areas not covered with plastron: cuticle reddish-brown and shiny, except eyes (black).

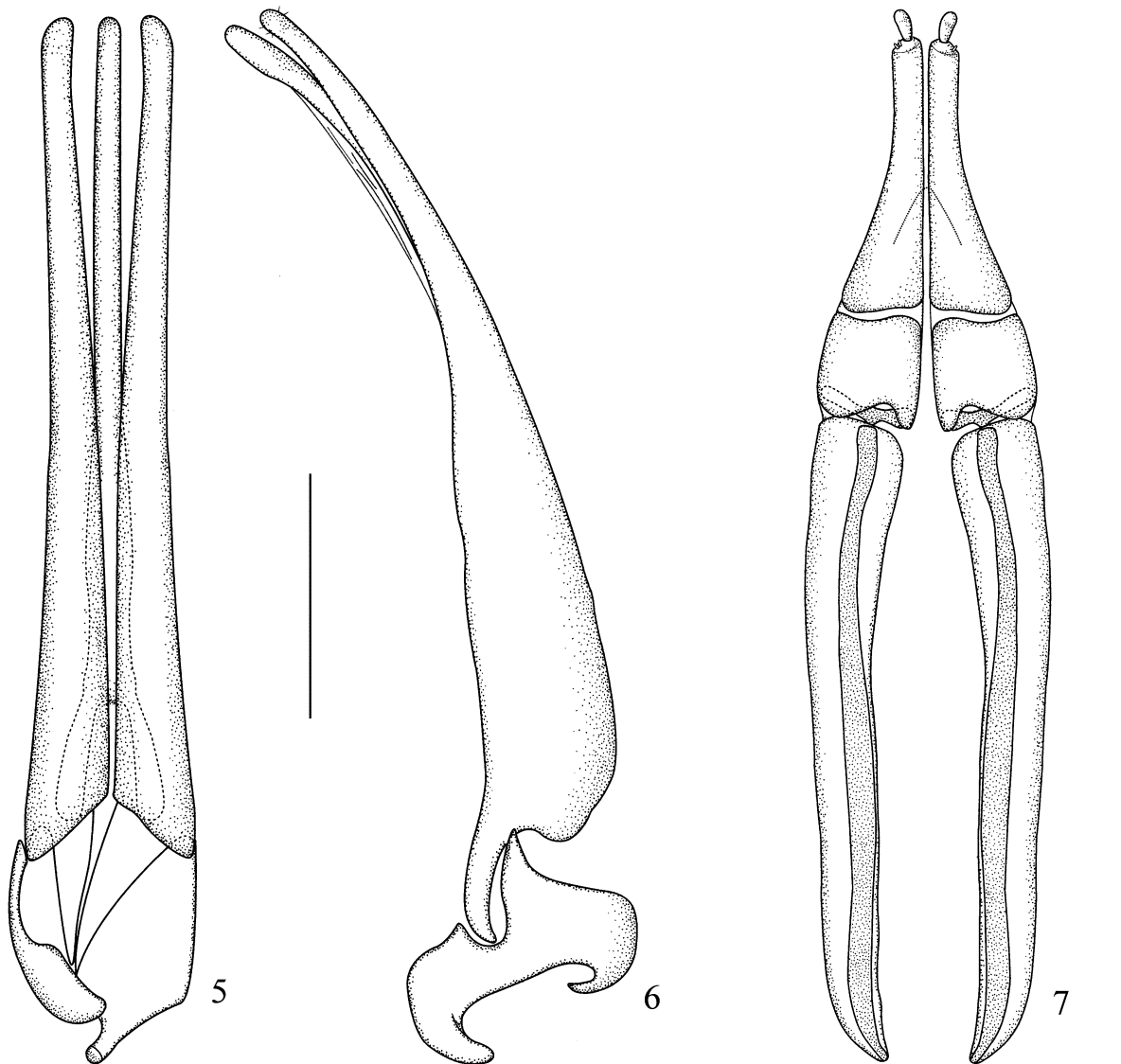
Thorax (Figs. 3, 4): Pronotum (Fig. 3) wider at base (1.36 mm) than long (1.1 mm); without carinae; impressions on disc (one deep longitudinal, median, from posterior to anterior margin); four gibbosities (two median, one on each side, on basal 2/5; two lateral, on each side, on basal 4/9); anterolateral angles rounded; concave at middle, extending over base of head; lateral margin feebly sinuate, smooth; posterior angles produced, acute; posterior margin with three arches, two broad, one on each side in front of elytron, and one narrow in front of scutellum. Elytra (Fig. 3) subparallel; longer (2.88 mm) than wide, (maximum width, at apical 1/3, 1.87 mm); humeral angle broadly rounded, tumid; without carinae; posterolateral angles with distinct acute protuberance, lateral margins smooth; apices rounded, not dehiscent; deep striae and punctures; disc with punctures separated by two to four times their diameters, half as wide as intervals between striae. Scutellum (Fig. 3) flat; subtriangular; longer than



FIGURES 2–4. *Stegoelmis shepardi* sp. nov.; 2) Dorsal habitus. *Stegoelmis figueiredoensis* sp. nov.; 3) Dorsal habitus. 4) Ventral habitus. Scale bars: 1.0 mm.

wide; wider at base; anterior margin convex; posterior angle acute. Prosternum (Fig. 4) with anterior margin sinuate, concave at middle; anterolateral angles rounded; without impressions or carinae. Prosternal process longer (0.41 mm) than wide at middle (0.19 mm); extending beyond anterior coxae; narrowed to apex; lateral margin broadly concave, apex truncate. Mesoventrite (Fig. 4) shorter (0.40 mm) than wide between coxae (0.51 mm); shorter than prosternum; anterior margin concave; posterior margin between mesocoxae convex. Metaventrite (Fig. 4) with median, longitudinal impression extending until apical 2/7; anterior margin between mesocoxae concave; posterior margin between metacoxae convex; posterior portion in front of metacoxae with transverse arched impression. Legs (Figs. 3, 4) long, robust; pro- and mesocoxae globular; protibiae with two (anterior and internal margins) short fringes of tomentum on apices; meso- and metatibiae with one (internal margin) short fringe of tomentum on apices; last tarsal segment longer than remaining segments combined; tarsal claws without basal teeth.

Abdomen (Fig. 4): Longer (1.83 mm) than wide (maximum width, ventrite I, 1.68 mm). Ventrite I (Fig. 4) with anterior margin between metacoxae sinuate; without carinae or impressions; disc depressed on anterior 1/2. Ventrite III (Fig. 3) with rounded posterolateral projection. Ventrite V (Fig. 4) without posterolateral toothlike projection; posterior margin convex, with short setae.



FIGURES 5–7. *Stegoelmis figueiredoensis* sp. nov.; 5) Male genitalia, dorsal view. 6) Male genitalia, lateral view. 7) Female genitalia, ventral view. Scale bars: 0.25 mm.

Male Genitalia (Figs. 5, 6): Paramere (Figs. 5, 6) long, as long as median lobe; in dorsal view (Fig. 4) elongate; external lateral margin broadly and feebly concave; internal lateral margin broadly and feebly convex; base oblique and truncate, with external angles produced; apical 1/15 moderately curved to median lobe; apex rounded; in lateral view (Fig. 6) curved to venter; gradually narrowed to apex; basal falciform projection on ventral margin; apex rounded with very short setae. Median lobe (Figs. 5, 6) long, more than three times the length of basal lobe; in dorsal view (Fig. 5), lateral margin straight; apex rounded; in lateral view (Fig. 6) curved to venter; apical portion expanded ventrally; apex rounded.

Plastron: Completely covering dorsal and ventral surface, except: antennae; eyes; clipeo; labrum; middle of metaventricle; apex of tibiae; tarsus.

Female. Externally similar to male.

Female Genitalia (Fig. 7): Coxites with 2/5 the length of the styli; in dorsal view: about as long as wide. Styli elongate; in dorsal view: basal segment narrowed from base until basal 3/5; apex of each basal segment truncate, with two minute stout setae on the apical surface; apical segment narrow, subclavate and with 1/9 the length of the basal segment.

Intraspecific variation. Size (n = 8): length 3.90 – 4.44 mm, maximum width 1.80 – 1.91 mm. Color: small variation on tonality. Morphology: shape of prosternal process apices vary from truncate to feebly sinuate.

Type locality. Sossego da Pantera, Igarapé da Onça Stream, Km 20, Amazonas State Highway 240 (AM-240), Presidente Figueiredo Municipality, Amazonas State, Brazil (2°0'52"S, 60°6'43"W).

Type series. Holotype (Male): BRAZIL: Amazonas: Presidente Figueiredo, Km 20, AM-240, Sossego da Pantera, Igarapé da Onça Stream, 2°0'52"S, 60°6'43"W, Pennsylvania light trap, with white light. A. M. O. Pes *leg.* 3 – 5/viii/2000 (INPA). Paratypes: 2 females, same data as holotype (INPA); 1 male, same data as holotype (NMNH); 1 male, same data as holotype except 'Km 13, AM-240, Sr. Clovis Propriety, 2°02'02"S, 59°51'47"W, D-Net, A. S. Fernandes *leg.* 22/x/2008' (DZRJ); 1 female, same data as holotype except 'Km 13, AM-240, Sr. Clovis Propriety 2°02'02"S, 59°51'47"W, D-Net, A. S. Fernandes *leg.* 22/x/2008' (NMNH); 1 female, same data as holotype except 'Km 13, AM-240, Sr. Clovis Propriety 2°02'02"S, 59°51'47"W, D-Net, A. S. Fernandes *leg.* 22/x/2008' (DZRJ).

Habitat. The specimens were collected with light traps and D-Nets along second-order streams with bedrock streambeds, in fragments of *terra firme* (upland) forest in northern Brazil. *Stegoelmis figueirensis* **sp. nov.** specimens were found in riffles on leaf packs in depths of less than 30 cm in shaded areas.

Etymology. The species epithet (*figueirensis*) is a reference to Presidente Figueiredo municipality, where the holotype was found.

Comparative notes. From the known species of *Stegoelmis*, *S. figueirensis* **sp. nov.** is closer to *S. selva* Spangler 1990, *S. tuberosa*, Spangler 1990, *S. verrucata* and *S. fera* Spangler, 1990 by having rounded and not dehiscent elytral apices (Fig. 2) (Spangler, 1990).

Stegoelmis figueirensis **sp. nov.** can be distinguished from *S. selva* by the presence of a deep transversal impression between bases of antennae (absent in *S. selva*) and by the absence of a dense fringe of long golden setae on the apex of ventrite V of males (Fig. 4) (present in *S. selva*). *Stegoelmis figueirensis* can be distinguished from *S. tuberosa*, *S. verrucata* and *S. fera* by the presence of coarse punctures occupying the apical 2/3 of ventrite I (Fig. 4) (occupying apical 1/3 in *S. tuberosa* and occupying ventrites I and II in *S. verrucata* and *S. fera*). *Stegoelmis figueirensis* also can be distinguished from *S. verrucata* by the hypomeron with denser and coarser punctures than those of pronotum (punctures of hypomeron as coarse as those of pronotum in *S. verrucata*).

Stegoelmis figueirensis **sp. nov.** can be distinguished from all known species of *Stegoelmis* by the morphology of the male genitalia (Figs. 5, 6): parameres separated in dorsal view (fused on base in *S. tuberosa*); median lobe gradually narrowed to apex and apex rounded in ventral view (abruptly narrowed on apex and apex acute in *S. verrucata*); apices of parameres rounded and curved to median lobe (apices acute and straight in *S. fera*).

Stegoelmis shepardii **sp. nov.**

(Figs. 2, 8, 9, 10)

Diagnosis. General dorsal color pattern light grey, with lighter areas being very light and darker areas being not too dark; elytral apices slightly prolonged and dehiscent; protibial cleaning fringe of tomentum as short as first tarsal segment; metatibial cleaning fringe of tomentum long and slender, occupying apical 1/4; row of moderately long hairlike setae on outer margin of paramere with each setae having almost same size and restricted to apical 1/4.

Description. Holotype: male (Figs. 2, 8, 9). Length 4.6 mm, greatest width 1.78 mm. Body (Fig. 2) robust, subparallel; body sparsely covered with fine, short, recumbent and pale setae; dorsal surface covered with punctures with the diameter of eye facets and spaced by two times their diameter; scutellum glabrous; ventral surface covered with punctures one to four times the diameter of eye facets, coarser on sides of prosternum, mesoventrite, sides of metaventrite, hypomeron, and becoming progressively smaller from ventrite I to ventrite V; dorsum and venter covered with plastron.

Head (Fig. 2): With short and deep longitudinal impression between base of antennae. Eyes protuberant, laterally rounded, separated by a distance of 0.38 mm. Antenna with 11 segments, long and slender, first and last segments slightly swollen and twice as long as the remaining segments. Frontoclypeal suture present between bases of antennae. Clypeus rectangular, as long as and 1.5 times wider than labrum; anterior margin concave; lateral angles rounded. Labrum rectangular; anterior margin slightly convex; anterolateral angles rounded; row of moderately long pale setae on middle; row of short pale setae on anterior margin. Maxillary palpus with four segments; last segment feebly swollen, shorter than second and third segments combined. Labial palpus with three segments; last segment swollen, as long as the remaining segments combined. Gula narrower than submentum.

Color (Figs. 2): Areas covered with plastron on dorsum and legs: mottled light grey and grayish-brown; forming an inverted Y in light grey on pronotum and a big I in grayish-brown on middle of elytra. Areas covered with plastron on venter: cuticle grayish-brown and opaque. Areas not covered with plastron: cuticle redish-brown and shiny, except eyes (black).

Thorax (Figs. 2): Pronotum (Fig. 2) longer (1.33 mm) than wider at base (1.22 mm); without carinae; impressions on disc (one deep longitudinal, median, from posterior to anterior margin); gibbositities (two median, one on each side, on basal 2/5; two lateral, on each side, on middlelength); anterolateral angles rounded; concave at middle, extending over base of head; lateral margin almost straight on basal 1/2 and then feebly sinuate, smooth; posterior angles produced, acute; posterior margin with three arches, two broad, one on each side in front of the elytron, and one narrow in front of scutellum. Elytra (Fig. 2) subparallel; longer (3.4 mm) than wide, (maximum width, at apical 1/3, 1.69 mm); humeral angle broadly rounded, tumid; without carinae; posterolateral angles with small acute protuberance, lateral margins smooth; apices rounded, dehiscent; deep striae and punctures; disc with punctures separated by two to four times their diameters, half as wide as intervals between striae. Scutellum (Fig. 2) flat; subrectangular; longer than wide; wider at basal 2/5; anterior margin convex; posterior angle acute. Prosternum with anterior margin sinuate, concave at middle; anterolateral angles rounded; without impressions or carinae. Prosternal process longer (0.54 mm) than wide at middle (0.16 mm); extending beyond anterior coxae; with a narrow, moderately deep median longitudinal impression; narrowed to apex; lateral margin broadly concave, apex truncate. Mesoventrite shorter (0.44 mm) than wide between coxae (0.56 mm); shorter than prosternum; anterior margin concave; posterior margin between mesocoxae convex. Metaventrite with median, longitudinal impression extending until apical 2/5; anterior margin between mesocoxae concave; posterior margin between metacoxae convex; posterior portion in front of metacoxae with transverse arched impression. Legs (Figs. 2, 3) long, robust; pro- and mesocoxae globular; protibiae with two (anterior and internal margins) short fringes of tomentum on apices; mesotibiae with one (internal margin) short fringe of tomentum, as short as first tarsal segment; and metatibiae with one (internal margin) long and slender, occupying apical 1/4; last tarsal segment longer than remaining segments combined; tarsal claws without basal teeth.

Abdomen: Longer (1.99 mm) than wide (maximum width, ventrite I, 1.69 mm). Ventrite I with anterior margin between metacoxae sinuate; without carinae or impressions; disc depressed on anterior 1/2. Ventrite III with rounded posterolateral projection. Ventrite V without posterolateral toothlike projection; posterior margin convex, with short setae.

Male Genitalia (Figs. 8, 9): Paramere (Figs. 8, 9) long, longer than median lobe; in dorsal view (Fig. 8) elongate; external lateral margin almost straight on basal 3/5 and then broadly sinuous; internal lateral margin broadly and feebly convex on basal 2/7 and then broadly concave until middle length; posterior 1/2 feebly, broadly sinuous and feebly turned diagonally to external margin; base broadly rounded; apical 1/9 feebly curved to external margin; row of moderately long hairlike setae occupying apical 1/4, with almost same size among each other; apex slender and rounded; in lateral view (Fig. 9) slightly curved to venter; ventral and dorsal margins parallel on basal 2/7 and then gradually narrowed to apex; basal acute projection on ventral margin; apex subacute. Median lobe (Figs. 8) long, almost three times the length of basal lobe; in dorsal view (Fig. 8), gradually narrowed to apex; lateral margin straight; apex slender and rounded; in lateral view straight and flattened ventrally until basal 9/10; apical portion expanded ventrally; apex rounded.

Plastron: Completely covering dorsal and ventral surface, except: antennae; eyes; clipeo; labrum; middle of metaventrete; apex of tibiae; tarsus.

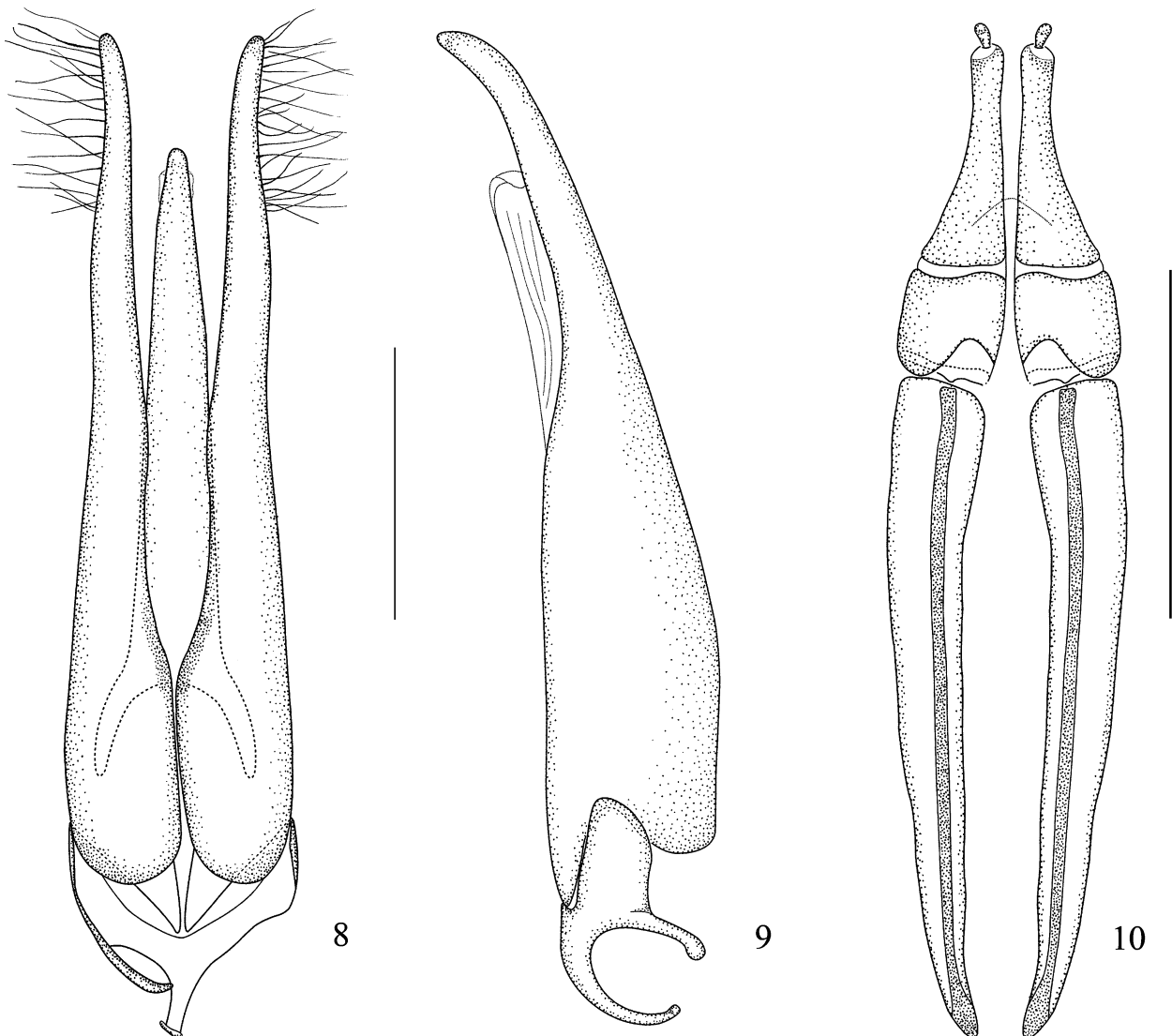
Female. Externally similar to male, except for the absence of a long and slender cleaning fringe of tomentum on metatibiae.

Female Genitalia (Fig. 10): Coxites with 1/2 the length of the styli; in dorsal view: slightly longer than wide. Styli elongate; in dorsal view: basal segment narrowed from base until basal 2/3; apex of each basal segment truncate; apical segment narrow, subclavate and with 1/9 the length of the basal segment.

Intraspecific variation. Size (n = 11): length 4.45–4.72 mm, maximum width 1.65 – 1.80 mm. Color: small variation on tonality. Morphology: shape of prosternal process apices vary from truncate to feebly sinuate.

Type locality. Cauamé River, Boa Vista Municipality, Roraima State, Brazil (2°52'06"S, 60°44'24"W).

Type series. Holotype (Male): BRAZIL: Roraima: Boa Vista, Cauamé River, 2°52'06"S, 60°44'24"W, D-Net, A. S. Fernandes & L. Fusari *leg.*, 28/v/2009 (INPA); 1 male, same data (INPA); 1 female, same data (INPA); 1 male, same data (DZRJ); 1 male, same data (NMNH); 1 male, French Guiana: 20 km E of Saint Laurent Du Maroni, M. Snizek *leg.*, 12/viii/2006 (INPA); 1 female, same data (INPA); 2 male, same data (EMEC); 2 female, same data (EMEC).



FIGURES 8–10. *Stegoelmis shepardi* sp. nov.; 8) Male genitalia, dorsal view. 9) Male genitalia, lateral view. 10) Female genitalia, ventral view. Scale bars: 0.25 mm.

Habitat. Specimens of *S. shepardi* **sp. nov.** were collected on decaying wood debris and leaf packs submerged about 50cm of depth in an unshaded area of Cauamé River.

Etymology. The species epithet (*shepardi*) was given after Dr. William D. Shepard for his invaluable help during our studies of Neotropical Elmidae.

Comparative notes. From the known species of *Stegoelmis*, *S. shepardi* **sp. nov.** is closer to *S. andersoni*, *S. crinita* Spangler, 1990, *S. ennsi* Spangler, 1990, *S. stictoides*, *S. ica*, *S. geayi* and *S. sticta* Spangler, 1990 by having elytral apices not rounded and dehiscent (Fig. 2) (Spangler, 1990).

Stegoelmis shepardi **sp. nov.** can be distinguished from *S. ennsi*, *S. stictoides*, *S. ica*, *S. geayi* and *S. sticta* by the presence of medial dense cleaning fringe of long hairlike setae on metatibiae (Fig. 2) (short and sparse cleaning fringe on metatibiae of those species). *Stegoelmis shepardi* can be distinguished from *S. crinita* by the cleaning fringe occupying at least 1/4 of metatibiae (restrict to apical 1/8 in *S. crinita*); can be distinguished from *S. andersoni* by the general color pattern of dorsum, being light grey (Fig. 2) (dorsum dark grey in *S. andersoni*), by the length of mesotibial cleaning fringe of hairlike setae, being as long as the first tarsal segment (as long as the first two tarsal segments in *S. andersoni*) and by the metatibial cleaning fringe of hairlike setae, occupying the apical 1/4 of metatibiae (occupying apical 1/2 and being slightly denser and wider in *S. andersoni*).

Stegoelmis shepardi **sp. nov.** can be distinguished from all known species of *Stegoelmis* by the morphology of the male genitalia (Figs. 8, 9): parameres with outer lateral margin slightly sinuate (Fig. 8) (almost straight in *S. andersoni*, *S. stictoides* and *S. ica*); row of setae on outer margin of paramere with each seta having almost the same size and restricted to apical 1/4 (Fig. 8) (row with setae getting longer gradually and occupying apical 1/2).

Key to males of the Brazilian species of *Stegoelmis* (Elmidae: Elminae).

- | | | |
|---|---|---|
| 1 | Elytral apices rounded and not dehiscent (Fig. 2) | 2 |
| - | Elytral apices not rounded and dehiscent (Fig. 1) | 3 |
| 2 | Hypomeron with punctures about as dense as those of pronotal disc, ventrites I and II with entire surface densely and coarsely punctuate | <i>S. verrucata</i> |
| - | Hypomeron with punctures denser and coarser than those of pronotal disc, only ventrite I with surface of apical 2/3 densely and coarsely punctuate (Fig. 3) | <i>S. figueiredoensis</i> sp. nov. |
| 3 | Metatibiae with long, distinct, apicomedial cleaning fringe of dense, golden, hairlike setae on apical 1/4 (Fig. 1) | <i>S. shepardi</i> sp. nov. |
| - | Metatibiae with very short, indistinct, apicomedial cleaning fringe of sparse, golden, hairlike setae (Fig. 2) | 4 |
| 4 | Distinct, deep and long longitudinal pronotal impression | <i>S. ica</i> |
| - | Indistinct, shallow and short longitudinal pronotal impression | <i>S. stictoides</i> |

Acknowledgements

We are grateful to A. M. O. Pes for collecting specimens of *S. figueiredoensis* **sp. nov.** Sincere thanks goes to W. D. Shepard and C. B. Barr who sent us specimens of *S. andersoni* and *S. shepardi* **sp. nov.** from the Essig Museum of Entomology, University of California. Financial support was provided by the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Ministério da Ciência e Tecnologia (MCT), Brazil, and research projects supported by the Programa de Apoio aos Núcleos de Excelência (PRONEX)-CNPq-Fundação de Amparo à Pesquisa do Estado do Amazonas (FAPEAM) and Instituto Nacional de Pesquisas da Amazônia-MCT.

References

- Brown, H.P. (1972) Aquatic Dryopoid Beetles (Coleoptera) of the United States. Biota of Freshwater ecosystems, Identification Manual No. 6. U.S. Environmental Protection Agency, Ohio, 82pp.
- Hinton, H.E. (1939) On Some New Genera and Species of Neotropical Dryopoidea (Coleoptera). *Transactions of the Royal Entomological Society of London*, 89 (3), 23–45.
- Sanderson, M.W. (1953) New species and a new genus of New World Elmidae with supplemental keys. *The Coleopterists Bulletin*, 7, 33–40.
- Spangler, P.J. (1990) A revision of the Neotropical aquatic beetle genus *Stegoelmis* (Coleoptera: Elmidae). *Smithsonian Contributions to Zoology*, 479, 52pp.