

**TWO NEW PERUVIAN SPECIES OF THE RIFFLE BEETLE GENUS  
*XENELMIS* (COLEOPTERA: ELMIDAE)**

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The riffle beetle genus *Xenelmis* Hinton is comprised of minute elmids, the adults of which are less than 2 mm in length and have robust body form. Nine species have been previously described; these are known from Central America (1 species), Brazil (7), Paraguay (1), northern Argentina (2) and Ecuador (1). Five of the Brazilian species are apparently restricted to that country, the other two species range into Paraguay and northern Argentina. With the exception of the Central American species, *X. bufo* (Sharp), adults of this genus are very rarely collected; the combined total of known specimens for the other eight species being less than 50 specimens (Hinton, 1946; Delève, 1968; Brown, 1970).

Described below are two new species of *Xenelmis* collected by W. E. Steiner in Peru. Both species are presently known only from holotype males. These specimens were collected from an open, sunlit section of a fairly rapid stream, about 2 m wide and 15-20 cm deep, on submerged, moss-covered rocks. The surrounding vegetation was dense, secondary-growth, montane rain forest. This stream, a tributary of the Rio Marcapata, is about one km north of the town of Quince Mil, at an elevation of about 900 m. A number of other elmids representing several genera were also taken at this site; individuals of these species were much more abundant than those of *Xenelmis*.

***Xenelmis leechi*, new species**  
(Figs. 1, 3)

*Type-data*.—Holotype male. Peru, Department of Cuzco, Quince Mil, 26-I-1979, W. E. Steiner, Jr. Deposited in the National Museum of Natural History, Smithsonian Institution; type no. 76696.

*Description*.—Holotype male 1.52 mm long, 0.92 mm wide. Body broadly obovate and strongly convex (Fig. 1). Cuticle feebly shining, dorsum and venter nearly black; pronotum with bronze cast; legs dark brown; antennae and palpi brown.

Head on each side with a row of low granules extending forward from near mid-dorsal line on vertex and terminating between upper margins of eyes; frons microreticulate and granulate, granules smaller than facets of

eyes, separated by 2–4 times granule diameter. Labrum with sculpture similar to frons.

*Pronotum* 0.56 mm long, 0.72 mm wide at base; disc rather evenly convex, sparsely, randomly granulate, granules smaller than facets of eyes, separated by about 4 times diameter of a granule; each granule with a small seta; lateral margins strongly granulate, granules contiguous or nearly so, subserial, twice size of those on remainder of pronotum; base trisinate. Dull lustre of pronotum especially well developed in basal half; a fine pin will make a scratch line in this surface.

*Elytra* 1.04 mm long, 0.92 mm wide (slightly before midlength); non-striate; serial punctures small, especially those of sutural row which are smaller than facets of eyes, separated by about 5 times diameter of a puncture; serial punctures becoming increasingly larger and more deeply impressed from suture toward lateral margin, punctures of row 4 slightly larger than facets of eyes; rows of punctures separated by about 5 times diameter of a puncture; intervals 5 and 7 each with a row of closely spaced granules which are distinctly larger than other granules on elytra; remaining intervals with small, random granules about equal in size to those on pronotal disc, but slightly denser; lateral margins granulate, forming a bead which is 3 times width of sublateral rows of granules; epipleura with sparse, random granules. Anterior margin of elytra very finely crenulate.

*Prosternum* 0.32 mm long; prosternal process 0.16 mm long, 0.30 mm wide; a low, indistinct ridge extending anteriorly from mesial margin of procoxa for half distance to anterior margin of prosternum, area between ridge and anterior margin rugulose, remainder of disc and process finely, irregularly punctate, with very short, sparse setae directed anteriorly, each seta arising from base of very small, nearly imperceptible granule; margins of prosternal process raised slightly. Mesosternum finely microreticulate, raised slightly behind prosternal process. Metasternum with a finely impressed median longitudinal line in posterior  $\frac{2}{3}$ ; anterior  $\frac{1}{6}$  with a distinctive transverse depression, middle  $\frac{1}{3}$  of which has a transverse groove; disc with shallow setiferous punctures equal in size to facets of eyes, separated by 1–4 times their diameter; sides of metasternum with dull lustre and small granules as on pronotum, dull lustre ending midway between middle of coxal cavities and median longitudinal line. Abdomen extremely finely microreticulate and with a dull lustre in all areas except intercoxal process of first sternum; sparsely granulate, granules similar to those of pronotal disc; granules of last sternum denser than those on other sterna; intercoxal process with anterior margin shallowly trisinate.

*Legs* without apparent modification. Cleaning fringes on the following surfaces: protibiae—anteromedial, occupying distal  $\frac{1}{2}$ ; mesotibiae—antero- and posteromedial, occupying distal  $\frac{1}{3}$  and  $\frac{1}{2}$  respectively; metatibiae—posteromedial, occupying distal  $\frac{2}{3}$ .

*Genitalia*.—Aedeagus as illustrated (Fig. 3).

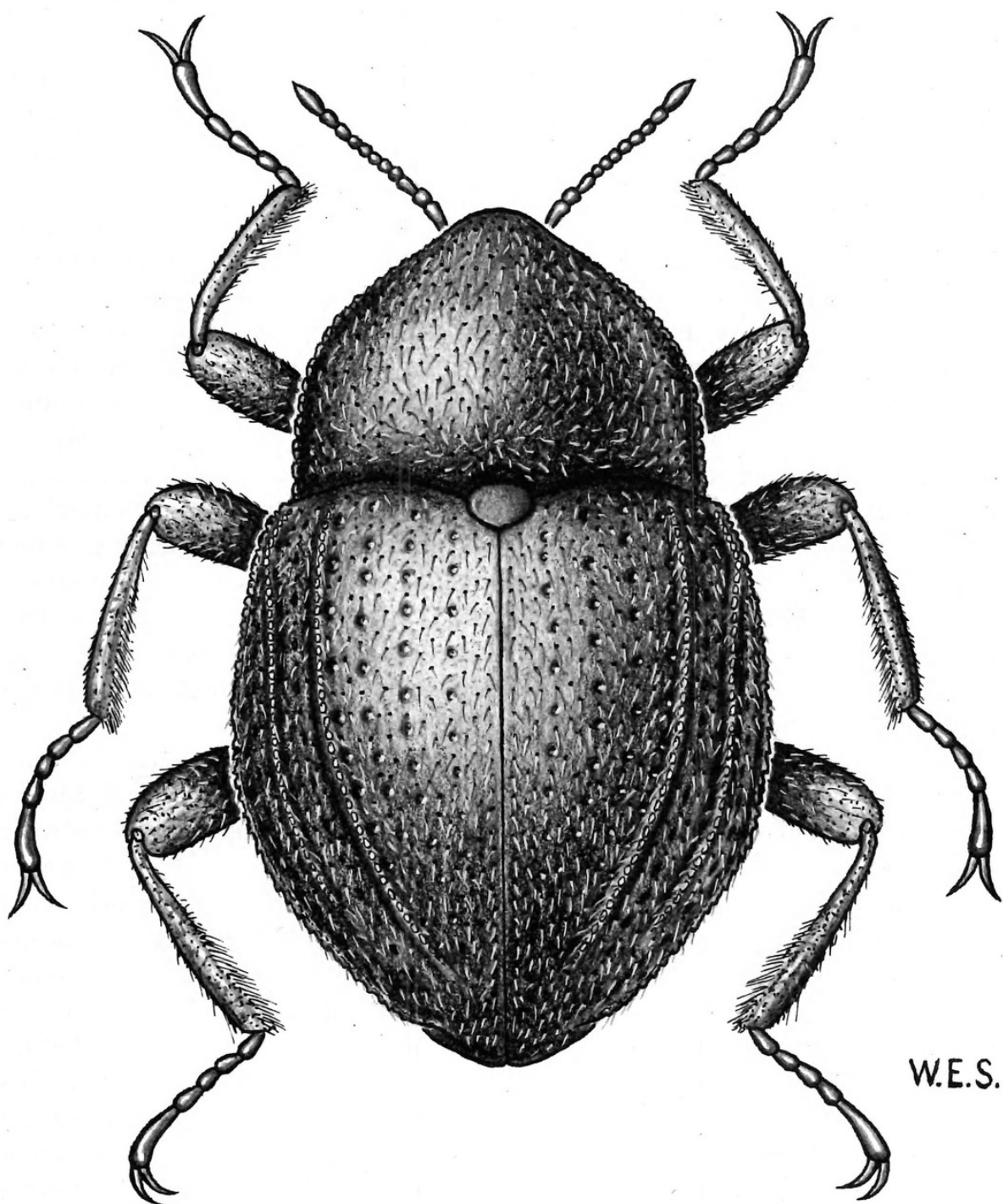


Fig. 1. *Xenelmis leechi* holotype, habitus (body length 1.52 mm).

*Distribution*.—Currently known only from the type-locality near Quince Mil, Department of Cuzco, Peru.

*Etymology*.—We are pleased to dedicate this new species to Hugh B. Leech, who has so greatly influenced the study of Coleoptera.



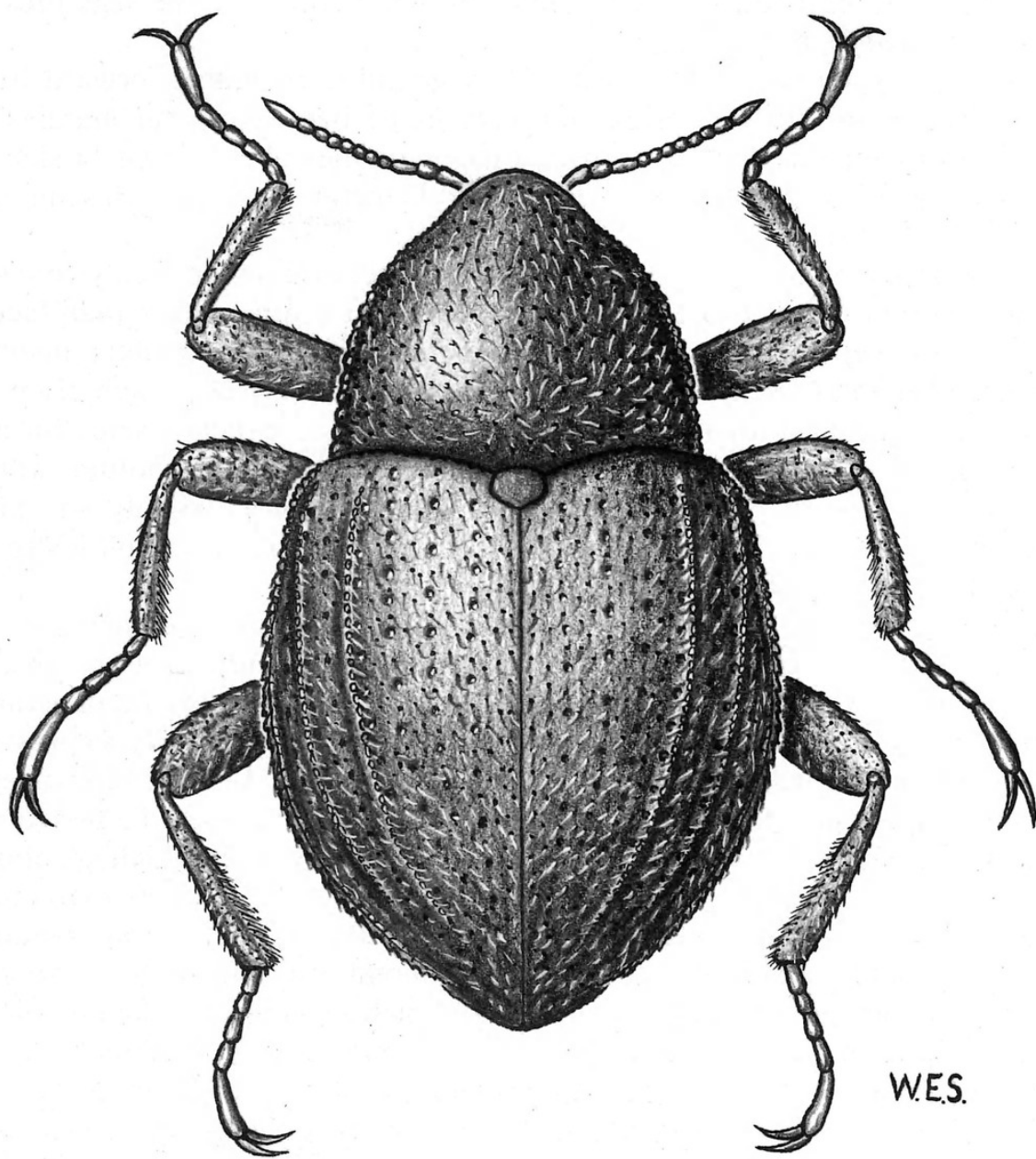


Fig. 2. *Xenelmis marcapata* holotype, habitus (body length 1.36 mm).

***Xenelmis marcapata*, new species**  
(Figs. 2, 4)

*Type-data*.—Holotype male. Peru, Department of Cuzco, Quince Mil, 26-I-1979, W. E. Steiner, Jr. Deposited in the National Museum of Natural History, Smithsonian Institution; type no. 76697.

*Description*: Holotype male 1.36 mm long, 0.84 mm wide. Body broadly obovate and strongly convex (Fig. 2). Cuticle feebly shining, pronotum with

slight bronze cast, dorsum and venter brown to rufopiceous; legs brown; antennae and palpi testaceous.

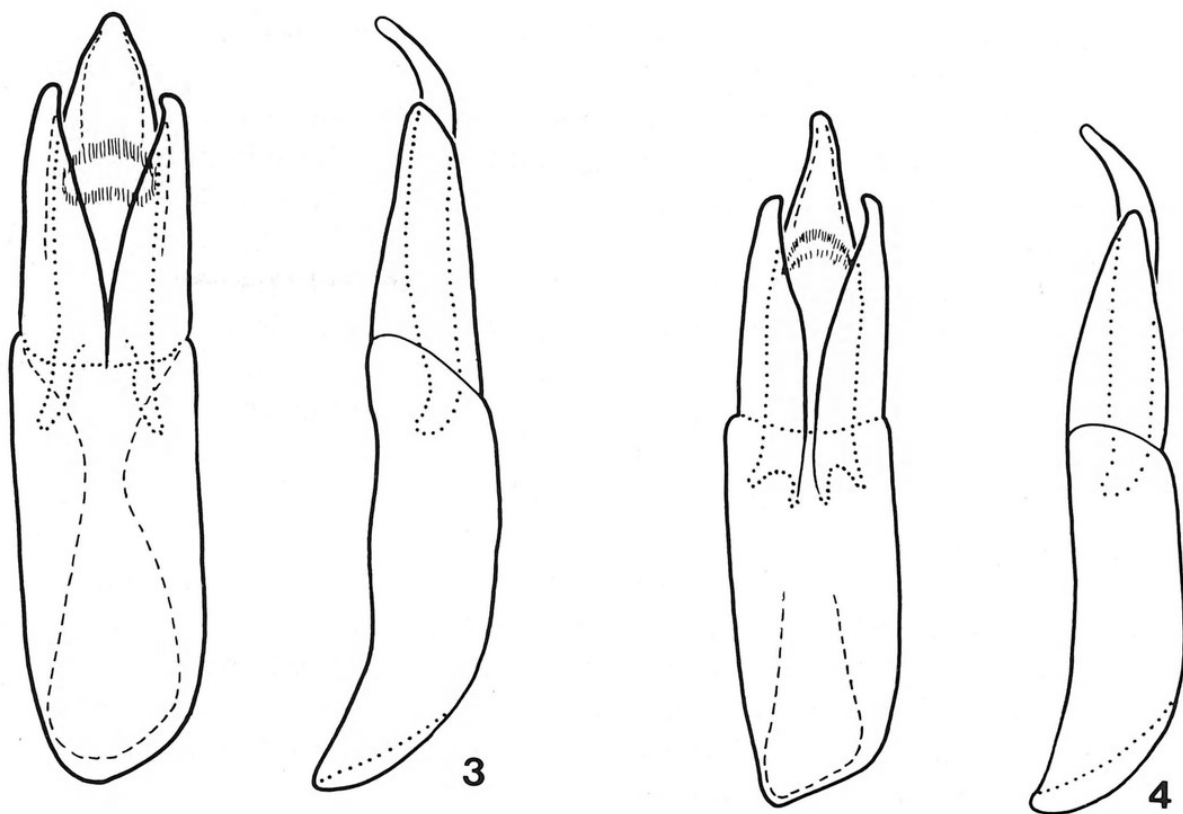
*Head* on each side with a row of low granules extending forward from near mid-dorsal line on vertex and terminating between upper margins of eyes; frons microreticulate and granulate, granules about equal in size to facets of eyes, separated by 1–2 times their diameter. Labrum with sculpture similar to frons.

*Pronotum* 0.50 mm long, 0.62 mm wide at base; disc rather evenly convex, with random, rather evenly spaced granules which are smaller than facets of eyes and separated by about 3 times the diameter of a granule; a distinctive, golden adpressed seta emerging from mesial margin of each granule; seta length equal to distance separating granules; in general, setae form a pattern as each is directed toward most elevated region of pronotum, which is median basal  $\frac{1}{3}$ . Lateral margins granulate but not strongly so, each granule about equal in size to eye facet, usually contiguous. Dull lustre of pronotum weakly developed.

*Elytra* 0.98 mm long, 0.84 mm wide (slightly before midlength); non-striate; serial punctures small, especially those of sutural row which are smaller than eye facets, separated by about 5 times diameter of a puncture; serial punctures becoming increasingly larger and more deeply impressed from suture toward lateral margin; punctures of row 4 about size of eye facets; rows of punctures separated by about 5 times diameter of a puncture; intervals 5 and 7 each with a row of closely spaced granules which are about twice as large as other granules on elytron; remaining intervals extremely finely microreticulate (much less so than head) and with small, random granules about equal in size to those on pronotal disc, but slightly sparser; lateral margins granulate, forming a bead which is only very slightly wider than width of sublateral rows of granules; epipleura with a distinct row of elongate granules along ventral edge adjacent to metasternum, granules similar in size to those of sublateral rows, separated by their lengths, remainder of epipleura with random, sparse granules. Anterior margin of elytra very finely crenulate.

*Prosternum* 0.28 mm long; prosternal process 0.12 mm long, 0.30 mm wide, margins slightly raised; a low, indistinct ridge extending anteriorly from mesial margin of procoxa for half distance to anterior margin of prosternum; area between ridge and anterior margin, and remainder of disc, smooth, with small, sparse setae arising from tiny granules. Mesosternum finely microreticulate, raised slightly behind prosternal process. Metasternum with a finely impressed, median longitudinal line in posterior  $\frac{2}{3}$ ; a distinct transverse depression occupying anterior  $\frac{1}{5}$ , middle  $\frac{1}{3}$  of which has a transverse groove; disc with shallow setiferous punctures equal in size to facets of eyes, separated by 1–3 times their diameters; dull lustre on sides of metasternum, disc without dull lustre. Abdomen extremely finely micro-





Figs. 3, 4. Aedeagi of *Xenelmis*. Holotypes, dorsal and lateral aspects. Fig. 3, *X. leechi*, new species. Fig. 4, *X. marcapata* new species.

reticulate and with a dull lustre in all areas except intercoxal process of first sternum; granules small, size equal to meshes of microreticulation, sparse on middle  $\frac{3}{5}$  of sterna 1–4, lacking, or nearly so, on lateral  $\frac{1}{5}$ ; granules of sternum 5 twice as dense as those on other segments.

*Legs* without apparent modification. Cleaning fringes on the following surfaces: protibiae—anteromedial, occupying distal  $\frac{1}{2}$ ; mesotibiae—antero- (less distinct) and posteromedial, occupying distal  $\frac{1}{3}$  and  $\frac{1}{2}$  respectively; metatibiae—posteromedial, occupying distal  $\frac{2}{3}$ .

*Genitalia*.—Aedeagus as illustrated (Fig. 4).

*Distribution*.—Currently known only from the type-locality near Quince Mil, Department of Cuzco, Peru.

*Etymology*.—*marcapata*, a noun in apposition, refers to the Rio Marcapata. The stream at the type-locality is a tributary of this river.

Hinton (1946) published a key to the species of *Xenelmis* known at that time. This key was modified by Brown (1970) for inclusion of his new species, *X. laura* from Brazil, but *X. rufipes* Delève 1968 from Ecuador was not included in that key. The two new species from Peru described herein, plus *X. rufipes* Delève, may be distinguished by replacing couplet 4 of Brown's (1970) key with the following couplets:

1. Elytra with a conspicuous row of coarse granules on basal three-fifths of third interval ..... 2  
 Elytra without a row of coarse granules on third interval ..... 3
2. Male with last metatarsomere broadly dilated and densely pubescent beneath; aedeagus as illustrated (Fig. 1 in Hinton, 1940); Mato Grosso, Brazil ..... *X. tarsalis* Hinton  
 Male with last metatarsomere not dilated nor densely pubescent beneath; aedeagus as illustrated (Fig. 19 in Delève, 1968); Ecuador ..... *X. rufipes* Delève
3. Head on each side with a row of granules extending forward from near mid-dorsal line on vertex and terminating near base of antenna; aedeagus as illustrated (Figs. 193, 194 in Hinton, 1940); Central America ..... *X. bufo* (Sharp)  
 Head with rows of granules short, not reaching bases of antennae, terminating between upper margins of eyes; Peru ..... 4
4. Larger (1.56 mm), broader, more markedly sculptured species (Fig. 1); integument rugulose between anterior margin of prosternum and mesial margin of procoxae; metasternum with dull lustre except on median longitudinal  $\frac{1}{2}$  of disc; abdominal sterna 1–4 with well-developed granules laterally; aedeagus as illustrated (Fig. 3) ..... *Xenelmis leechi* new species  
 Smaller (1.36 mm), narrower, less markedly sculptured species (Fig. 2); integument smooth between anterior margin of prosternum and mesial margin of procoxae; metasternal disc lacking dull lustre as seen laterally; abdominal sterna 1–4 agranulate laterally; aedeagus as illustrated (Fig. 4) ..... *Xenelmis marcapata* new species

#### Literature Cited

- Hinton, H. E. 1946. A key to the species of *Xenelmis* Hinton, with descriptions of three new species (Col., Elmidae). Entomol. Mon. Mag., 82:237–241.
- Delève, J. 1968. IV.—Coleoptera Elminthidae. Mission zoologique belge aux îles Galapagos et en Ecuador (N. et J. Leleup, 1964–1965), 1:211–272.
- Brown, H. P. 1970. Neotropical dryopoids I. *Xenelmis laura*, a new species from Brazil (Coleoptera: Elmidae). Coleop. Bull., 24(3):61–65.



Perkins, Philip D. and Steiner, Warren E. 1981. "Two new Peruvian species of the riffle beetle genus *Xenelmis* (Coleoptera: Elmidae)." *The Pan-Pacific entomologist* 57(1), 306–312.

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