

## SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

*Scelianoma elydimorpha*, a New Genus and New Species of Entimine Weevil from Southwestern Puerto Rico (Coleoptera: Curculionidae, Entiminae)

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*Dept. of Biology, PO Box 9012, Univ. of Puerto Rico, Mayagüez, PR 00681 USA**Edited by Takumasa Kondo – CORPOICA, Colombia**Neotropical Entomology 38(2):219-230 (2009)**Scelianoma elydimorpha*, Género Nuevo y Especie Nueva de Picudo Entimino del Suroeste de Puerto Rico (Coleoptera: Curculionidae, Entiminae)

RESUMEN - *Scelianoma elydimorpha* Franz & Girón, género nuevo y especie nueva, un picudo entimino endémico al sureste de Puerto Rico, se describe e ilustra en detalle, y se asigna a la tribu Eustylini (Curculionidae: Entiminae). *Scelianoma* se distingue de taxones relacionados por los siguientes rasgos diagnósticos: forma estrechamente elongada, relación largo-ancho 2.8-3.5; integumento con escamas densamente arregladas; pronoto sin esculturas conspicuas; metatibia del macho con fila de 5-7 dientes, cada diente con una seta espinosa; metatibia de la hembra sin dientes, pero con fila de setas largas y estrechamente deprimidas; corbela de la metatibia linear; hombros elitrales ausentes, élitros en vista lateral con perfil dorsal subplano, sin proyecciones cuticulares, declive elitral fuertemente angulado, ligeramente convexo (macho) hasta recto (hembra); y alas ausentes. Los élitros de *S. elydimorpha* son sexualmente dimórficos, atenuándose en machos a lo largo de los 5/6 posteriores pero en su mayor parte subparalelos en hembras, y las hembras tienen además dos filas de setas erectas a lo largo de cada lado méxico del declive. *Scelianoma elydimorpha* es común en las pendientes de piedra caliza del sur del bosque seco y bien preservado de Guánica. Los estadios inmaduros y las plantas hospederas no son conocidos.

PALABRAS CLAVE: Endemismo, Eustylini, Guánica, morfología, sistemática

ABSTRACT – *Scelianoma elydimorpha* Franz & Girón, new genus and new species, an entimine weevil endemic to southwestern Puerto Rico, is described and illustrated in detail, and assigned to the tribe Eustylini (Curculionidae: Entiminae). *Scelianoma* is distinguished from related taxa by the following diagnostic features: shape narrowly elongate, length/width ratio 2.8-3.5; integument with densely arranged scales; pronotum without conspicuous sculpturing; male metatibia with row of 5-7 teeth, each tooth with a spine-like seta; female metatibia lacking teeth, yet with row of long, narrowly depressed setae; metatibial corbel linear; elytral humeri absent, elytra in lateral view with dorsal outline subplane, lacking cuticular projections, posterior declivity strongly angulate, slightly convex (male) to rectate (female); and wings absent. The elytra of *S. elydimorpha* are sexually dimorphic, attenuating in males along the posterior 5/6 yet mostly subparallel in females, and the females furthermore have two rows of erect setae along each mesal side of the declivity. *Scelianoma elydimorpha* is common on the southern limestone slopes of the well-preserved Guánica dry forest. The immature stages and host plants are unknown.

KEY WORDS: Endemism, Eustylini, Guánica, morphology, systematics

The Puerto Rican fauna of broad-nosed weevils (Curculionidae: Entiminae *sensu* Alonso-Zarazaga & Lyal 1999) is only moderately diverse but nevertheless remains insufficiently studied. At present eight genera and 18 species of entimines are reported for Puerto Rico and adjacent islands (O'Brien & Wibmer 1982, 1984,

Wibmer & O'Brien 1989). Arguably the most infamous member among the native species is the citrus root weevil *Diaprepes abbreviatus* (L.), a significant pest of citrus trees and other cultivars in the Caribbean region and United States (*e.g.*, Wolcott 1936, Woodruff 1968, Simpson *et al* 1996). On the other hand, the most diverse taxon is *Lachnopus*

Schoenherr, with six described species including four species that are endemic to Puerto Rico, and several additional species that are undescribed (Wolcott 1948). Field work throughout western Puerto Rico has yielded new putative species pertaining to genera other than *Lachnopus*. Here we describe one such taxon from southwestern Puerto Rico that cannot be accommodated within any of the existing genera of Entiminae. This work is furthermore intended to lay a morphology-based foundation for a comprehensive revision of the Puerto Rican entiminae.

## Material and Methods

**Morphology.** The morphological terminology used is in accordance with Torre-Bueno (Nichols 1989), with additional terms employed for structures of the mouthparts (Ting 1936, Franz 2006) and the male and female terminalia (Howden 1995, Wanat 2007). The weevil specimens were examined with a Leica MZ16 stereomicroscope (magnification: 7-115x) and an Olympus BX41 compound microscope (magnification: 20-400x), each equipped with an ocular graticule for measurements of lengths and ratios. The overall length was measured in dorsal view, from the anterior margin of the eye to the posterior margin of the elytra; whereas the length of the rostrum was measured in lateral view, from its apex to the anterior margin of the eye. The number of measurements is written once in parentheses for all measurements of external structures; another separate number reflects the number of measurements for the length/width ratio of the median lobe.

The numbering of the segments of the abdominal venter reflects their homology within Curculionoidea (i.e., III-VII; see Thompson 1992). The morphological descriptions were prepared using the Description Language for Taxonomy software package (DELTA; Dallwitz *et al.* 2000). Features shared between the male and female are usually mentioned only once (in the male), as are similar traits on serially homologous structures such as the legs. The separation of generic and specific characters was solved pragmatically and in general accordance with Lanteri & del Río (2005) who limited the species description to features of the body surface.

The habitus pictures were taken with a Microptics XLT imaging system. Two images of the mandibles were produced with a JEOL 5410LV scanning electron microscope. All line drawings were prepared with a drawing tube attached to the stereomicroscope (external structures) or compound microscope (internal structures). The initial sketches were scanned and redrawn using an illustration software program, emphasizing features of diagnostic significance.

**Types.** The insect collection codens are adopted from Arnett *et al.* (1993), as follows:

AMNH – American Museum of Natural History, New York, New York (USA)

CMNC – Canadian Museum of Nature, Ottawa, Canada

CWOB – Charles W. O'Brien collection, Green Valley, Arizona (USA)

MEBT – Museum of Entomology and Tropical Biodiversity of the Mayagüez Campus, University of Puerto Rico, Río Piedras, Puerto Rico (USA)

MHND – Museo Nacional de Historia Natural, Santo Domingo, Dominican Republic

NMFC – Nico M. Franz collection, Mayagüez, Puerto Rico (USA)

NMNH – National Museum of Natural History, Washington, D.C. (USA)

UPRM – Invertebrate Collection, University of Puerto Rico, Mayagüez, Puerto Rico (USA)

## *Scelianoma* Franz & Girón, new genus

**Diagnosis.** *Scelianoma* has significant similarities with members of other Neotropical entiminae genera such as *Compsus* Schoenherr and *Exophthalmus* Schoenherr, and is therefore placed in the tribe Eustylini Lacordaire as circumscribed in Alonso-Zarazaga & Lyal (1999). Specifically, *Scelianoma* shares with most eustylines a suite of characters (cf. Girón Duque 2006); viz. integument dark-brown to black; rostrum with lateral margins subparallel, apically expanded near antennal insertion, with ventrolateral sulci present; antennal scape stout, subrectate, only apically expanded, passing in idealized position over ventral 1/2 of eye (Marshall 1922); funicle 7-segmented, club 4-segmented; eyes elliptical to semicircular, only slightly projected; anterolateral margins of pronotum subrectate, postocular lobe and postocular vibrissae absent; procoxal cavities contiguous; and metatibial corbel closed. However, *Scelianoma* may be separated from these and other eustylines and non-eustylines taxa by the following diagnostic features: shape narrowly elongate, length/width ratio 2.8-3.5; integument with densely and homogeneously arranged scales; rostrum with epistoma large, centrally concave, posteriorly with an inversely V-shaped carina, nasal plate distinctly depressed; funicular antennomere II slightly shorter than I; pronotum without carinate elevations or depressions; metendosternite strongly reduced, membranous; male metatibia with row of 5-7 cuticular teeth, each tooth distally with a spine-like seta; female metatibia lacking teeth, yet apical 3/5 of posteroventral margin with row of long, closely aligned, narrowly depressed, apically arcuate setae; metatibial corbel linear; elytral humeri absent, elytra in lateral view with dorsal outline subplane, lacking cuticular projections, posterior declivity distinct, strongly angulate, slightly convex (male) to rectate (female); wings absent. See discussion for further differences with related taxa.

**Description – male.** Body length 9.83-13.73 mm, width 2.86-3.98 mm (N = 6); shape in dorsal view elongate (Fig 1A), length/width ratio 3.32-3.49, greatest width near anterior 1/6 of elytra; shape in lateral view slightly compressed (Fig 1B). Color of integument dark reddish brown to black; surface sculpture colliculate to rugulose, covered with setae and scales; setae sparsely arranged, homogeneous throughout, short and recurvate; scales densely arranged, homogeneous throughout, overlapping, short, subcircular, appressed, pale white to light reddish brown to brown.

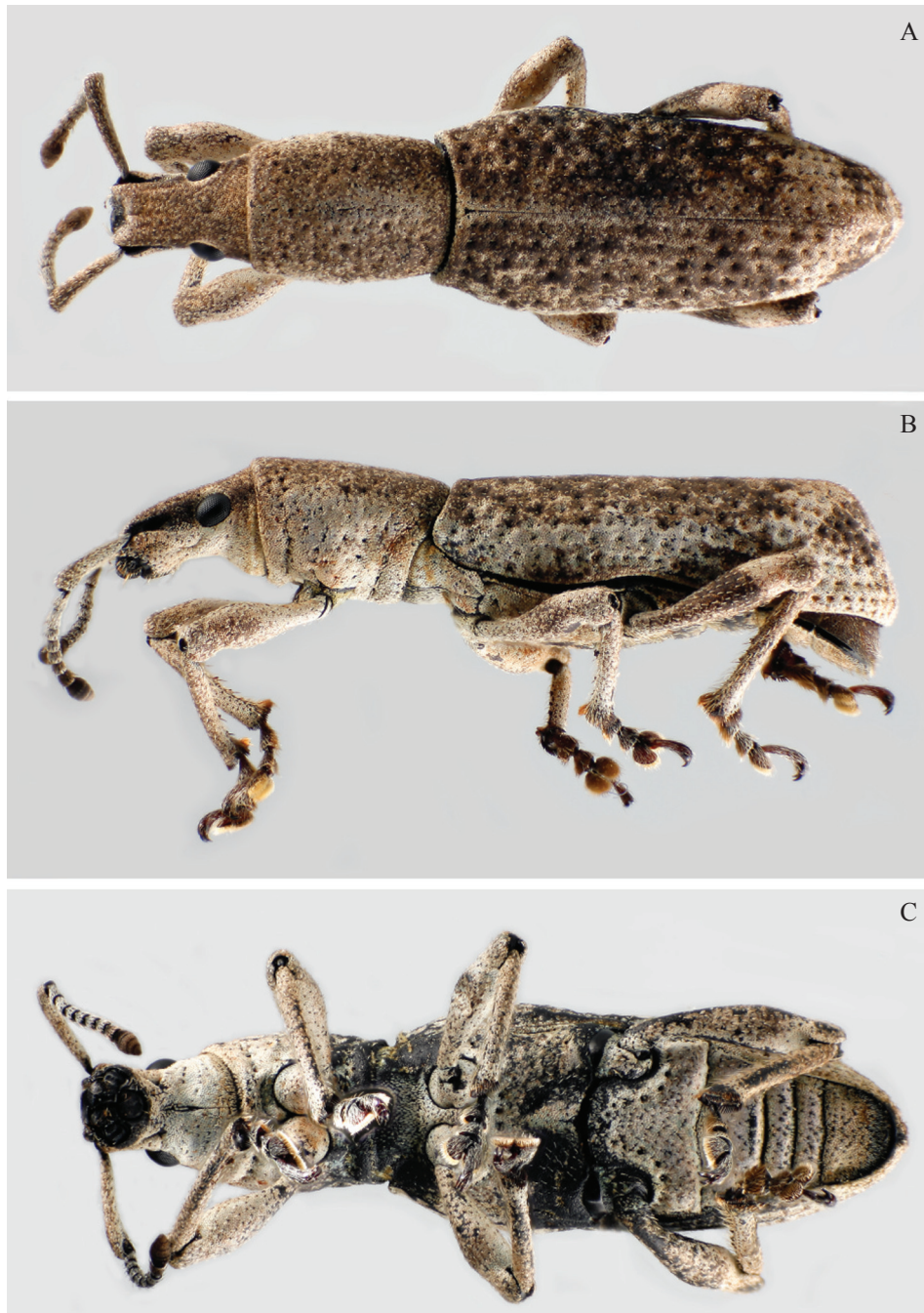


Fig 1 Habitus of *Scelianoma elydimorpha*, male; (A) dorsal view; (B) lateral view; (C) ventral view.

Mouthparts. Mandibles (Figs 2A-B) equilateral; mesal surface of each mandible triangular, mesal margins elevated, carinate; lateral surface with scar corresponding to attachment point of deciduous mandibular process, position apicolateral, slightly projected; lateroventral surface covered exclusively with setae, with approximately 12 setae adjacent to scar.

Maxillae (Fig 2C) with cardo narrowly elongate and slightly arcuate, with short, sparsely arranged setae throughout. Stipes elongate, angulate, basal 1/2 aligned with longitudinal axis of maxilla, apical 1/2 directed mesally,

nearly extending to mesal margin of galeo-lacinal complex, apically widened, truncate; lateral margin of basal 1/2 with 4-5 setae of various lengths, apical 1/2 with densely arranged, relatively short setae, apical margin strigulate. Galeo-lacinal complex fused; mesal margin with nearly 10 very long setae along basal 1/2; subcentrally with two large, narrowly elongate, slightly arcuate, apically acute lacinial teeth; apical 1/3 densely setose, setae along apical margin longer and stouter. Palpiger trapezoidal; centrally with short, sparsely arranged setae. Maxillary palps 3 segmented; I nearly 1.5x as long as II, apically slightly expanded, oblique, apicolateral

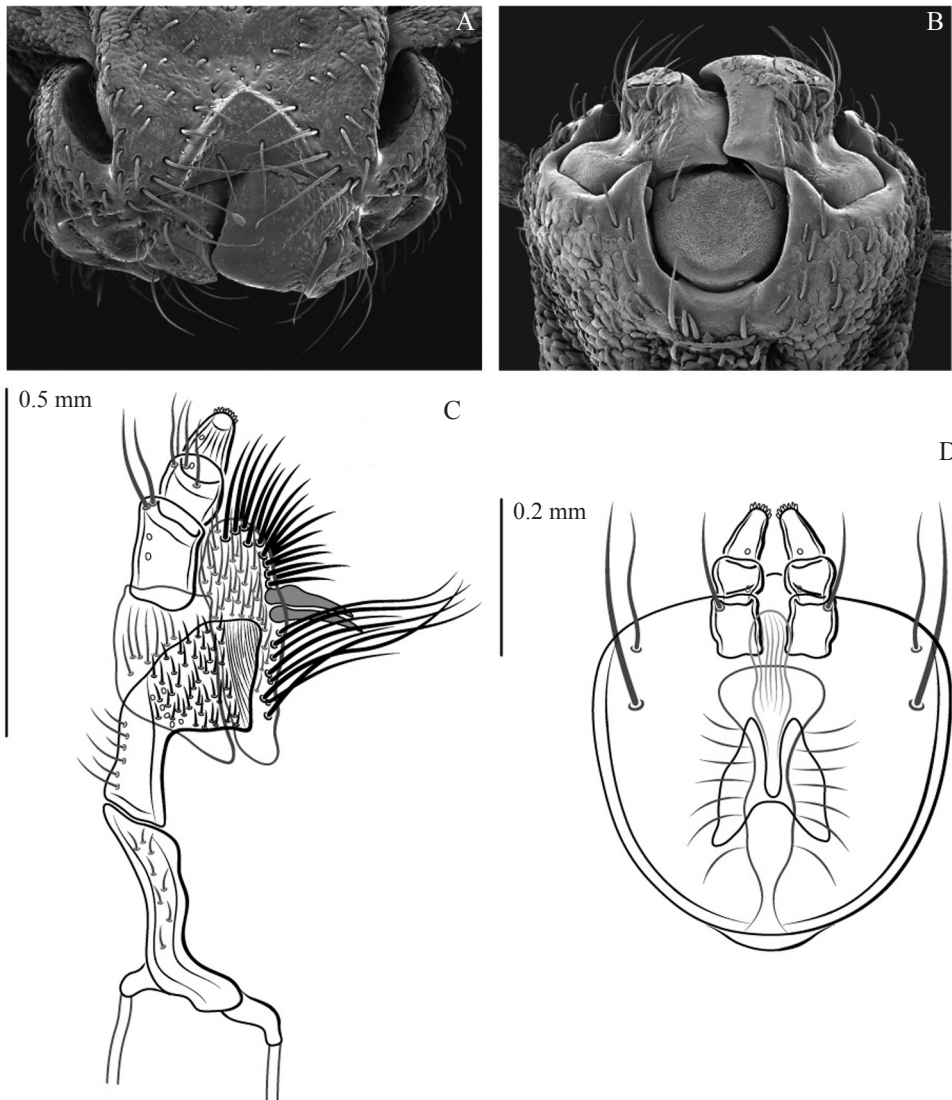


Fig 2 Mouthparts of *Scelianoma elydimorpha*; (A) mandible, dorsal view; (B) mandible, ventral view (with labium); (C) right maxilla, ventral view; (D) labium, dorsal view.

margin with two setae; II slightly longer than III, apical margin with three setae; III equilateral to elongate, with several longitudinal sulci, apically convex, papillate.

Labium (Figs 2B,D) with prementum in ventral view entirely covering maxillary palps; shape escudate to subcircular; lateral margins subparallel, slightly arcuate; apical margin slightly arcuate, medially slightly projected; each apicolateral edge with one longer ventral seta + one shorter dorsal seta; prementum in dorsal view with median tendon large, extending along basal 3/4. Labial palps 3 segmented; I slightly longer than II, apicolateral margin with 1 seta; II slightly shorter than III; III elongate, with several longitudinal sulci, apically convex, papillate.

Rostrum. Length 1.16-1.86 mm, rostrum/pronotum length/width ratio 0.4-0.46, rostrum length/width ratio 0.94-1.15. Rostrum in dorsal view subquadrate (Fig 3A), anteriorly widened; dorsolateral margins subparallel throughout, weakly carinate; apical margin emarginate, weakly incised, with 5-8 long setae on each side of epistoma; epistoma

large, centrally concave, posteriorly projected, with a large, inversely V-shaped carina, orientation slightly angulate to rostrum; nasal plate distinctly depressed, partially covered with scales. Dorsal surface of rostrum plane to slightly convex; dorsal median sulcus present, extending from apical margin of rostrum to posterior margin of eyes; dorsolateral sulci present, extending from antennal insertion to anterior margin of eyes; ventrolateral margins subrectate, anteriorly diverging. Rostrum in lateral view apically gradually expanded (Fig 3B); mandibular incision shallow, forming broad band surrounding mandible; ventrolateral sulci present; ventral median sulcus present; antennal insertion near anterior 1/3; scrobe slightly arcuate; initiating in apicodorsal region, terminating in basilateral region, anteriorly of eye; scrobe deep, posteriorly covered with scales.

Antennae 12-segmented; scape extending to region between posterior margin of eye and anterolateral margin of pronotum, passing (in idealized position) over ventral 1/2 of eye; stout, subrectate, apically gradually expanded,



Fig 3 Head of *Scelianoma elydimorpha*, male; (A) dorsal view; (B) lateral view.

clavate; funicle 7-segmented, slightly longer than scape, stout; funicular segments progressing from elongate to equilateral, clavate, covered exclusively with setae; II slightly shorter than I; club 4 segmented, similar in length to funicular segments VI-VII, nearly 2x longer than wide, dark brown to black; I long; II, III & IV each shorter, similar in length; IV conical, apically tapered; I-IV with fine, densely arranged, appressed setation.

Head. Eye small, elliptical to semicircular (oriented horizontally), ventral margin subrectate; weakly projected, convex; separated from anterolateral margin of pronotum by distance similar to smallest diameter of eye; position lateral; interocular distance nearly 1.5x as long as maximum width of eye. Head in dorsal view with lateral margins subrectate, posteriorly slightly diverging (Fig 3); anterodorsal margins surrounding eye impressed; rostrum/head transition in lateral view contiguous (plane to slightly convex); frons subplane, with central puncture (apodeme, chitinous ingrowth for muscle attachment).

Thorax. Pronotum in dorsal view elongate (Fig 1A), length/width ratio 1.28-1.41; pronotum/elytra length ratio 0.42-0.44; greatest width near anterior 2/5; dorsal surface slightly convex, punctate, scales homogeneously appressed; anterodorsal margin similar in width to posterodorsal margin; lateral margins slightly arcuate, expanded along anterior 1/2; pronotum in lateral view tubular; anterolateral margin subrectate, without postocular lobe, postocular vibrissae absent.

Metascutum partially covered with plumose-scopiform scales. Scutellum exposed by elytra; very small, triangular, proximal 1/2 (facing anteriorly) covered with scales, distal 1/2 (facing dorsally) glabrate. Epipleura with mesepisternum triangular, fused with mesepimeron; mesepimeron triangular; metepisternum linear; metepimeron entirely covered by elytron.

Prosternum (including hypomeron) nearly 2x as long as mesosternum (Fig 1C), anterior margin slightly emarginate; prosternum with one transverse sulcus extending between anterior margin and procoxal cavities, anterior and posterior intercoxal projections elevated, with one transverse sulcus

extending between procoxal cavities and posterior margin; procoxal cavities inserted near anterior 2/5, contiguous. Mesosternum nearly 2/3 as long as metasternum, strongly inflected in relation to pro-, and metasternum; anterior 1/2 covered with elliptical, plumose-scopiform scales; mesocoxal cavities separated by distance nearly 1/3 as long as width of each mesocoxal cavity. Metasternum transverse, centrally slightly concave, laterally angulate-convex, median sulcus obscure; metacoxal cavities separated by distance slightly longer than width of each metacoxal cavity.

Metendosternite strongly reduced to small, triangularly shaped membrane.

Legs. Prothoracic legs slightly longer than mesothoracic legs, slender, dark reddish brown to black. Procoxa large, conical, apically narrowed, most proximal scales plumose-scopiform. Protrochanter transverse, apically obliquely truncate. Profemur slightly shorter than pronotum, profemur/pronotum length ratio 0.84-0.93, slender, in cross-section compressed, clavate, greatest width near apical 2/5, ventral margin inermous. Protibia similar in length to slightly longer than profemur, protibia/profemur length ratio 1.00-1.09, slender, apically slightly expanded. Ventral margin of protibia with several rows of long, suberect, sparsely arranged, aurate setae; armed: with row of 5-7 cuticular teeth, teeth triangular, apically narrowly truncate, proximal 1-2 teeth small, distal 4-5 teeth large, each large tooth on distal side with one large, obliquely oriented, reddish brown, spine-like seta (see Fig 4A [metatibia]). Protibial apex with anterior margin slightly arcuate, setal comb absent, spinal comb present; ventral edge uncinete, uncus similar in length to tarsal claw, apically narrowly truncate; uncus surrounded and surpassed by two or three small groups of modified, suberect, reddish brown setae of various lengths; posterior side of uncus with small region of densely arranged, appressed, reddish brown setae. Protarsus 5-segmented, nearly 2/3 as long as protibia; tarsomere I elongate; tarsomere II transverse; protarsal claw single, separate, simple. Mesothoracic legs shorter than metathoracic legs; mesocoxa globular; mesofemur shorter than metafemur; mesotibia shorter than metatibia.

Metacoxa in outline conical to semicircular; metatibia



Fig 4 Metatibiae of *Scelianoma elydimorpha*; (A) male; (B) female, with magnified ventral view of modified apical setae.

with numerous small, regularly arranged tubercles along ventral side, each tubercle distally with one large, suberect, slightly recurvate seta. Metatibial apex with anterior margin slightly arcuate (Fig 4A); setal comb present, consisting of two rows, setae dorsally short and stout, ventrally long and slender, orientation angulate to longitudinal axis of metatibia; surface surrounding tarsal condyle glabrate; metatibial corbel present, elongate-linear, closed, glabrate.

Elytra. Outline in dorsal view elongate (Fig 1A), length/width ratio 2.15-2.35, widest near anterior 1/6; anterior margins jointly slightly wider than posterior margin of pronotum; humeri absent (indistinct); lateral margins slightly angulate: diverging along anterior 1/6, subrectate and slightly converging along posterior 5/6; posterior margins narrowly arcuate. Elytra in lateral view with dorsal outline subplane, posterior declivity distinct, strongly angulate, slightly convex (Fig 1B). Elytra with nine complete striae and one incomplete stria; striae slightly wider than intervals; stria X centrally indistinct, merging with IX near anterior 2/5 and near posterior 1/6; strial punctures subcircular, relatively deep, separated by distance similar to width of each puncture, dark reddish brown to black, centrally with one subcircular scale; strial intervals slightly convex.

Wings. Absent.

Abdomen. Venter 1.5-2x as long as lateral margin of metasternum (Fig 1C); lateral margins slightly sinuate, posteriorly gradually converging, posterior margin of VII slightly arcuate; ventral segments III-VII separate; III nearly 2x as long as IV, centrally slightly concave, laterally tumescent, convex; IV undulate (alternating concave/

convex); V + VI jointly similar in length to IV; VII similar in length to V + VI combined; V-VII slightly convex.

Pygidium in posterodorsal view entirely covered by elytra; subquadrate, lateral margins subparallel, posterior margin truncate to medially slightly emarginate, ventrally slightly plicate; shallowly and widely emarginate; in lateral view broad, orientation nearly perpendicular to venter.

Terminalia. Sternum VIII (Fig 5A) consisting of two ventral, triangular sclerites + two dorsal, transverse-trapezoidal sclerites; dorsal sclerites laterally acutely narrowed, anteriorly with densely arranged micropores, posteriorly with very short, unifid setae. Spiculum gastrale (Fig 5B) slightly shorter than median lobe, stout, slightly arcuate; anteriorly strongly expanded, with explanate, transversely oval lamina; posteriorly bifurcate (Y-shaped), furcal arms short, stout, strongly diverging at an angle of nearly 180°; each arm anterolaterally with a triangular, densely punctate, laminate projection; posteriorly truncate. Tegmen (Fig 5C) slightly shorter than median lobe; tegminal apodeme slender, sinuate, anteriorly slightly capitate; tegminal plate connate, O-shaped, posteriorly with two short, triangular projections.

Aedeagus with median lobe in dorsal view narrowly elongate (Fig 5D), length/width ratio 4.86-5.28 (N = 2); anterodorsal margin retracted, subrectate; anteroventral margin medially strongly triangularly emarginate; lateral margins subrectate, subparallel along anterior 2/3, expanded and arcuate near posterior 1/4, thereafter subrectate and gradually converging towards apex; apex triangularly narrowed. Median lobe in lateral view arcuate, homogeneously

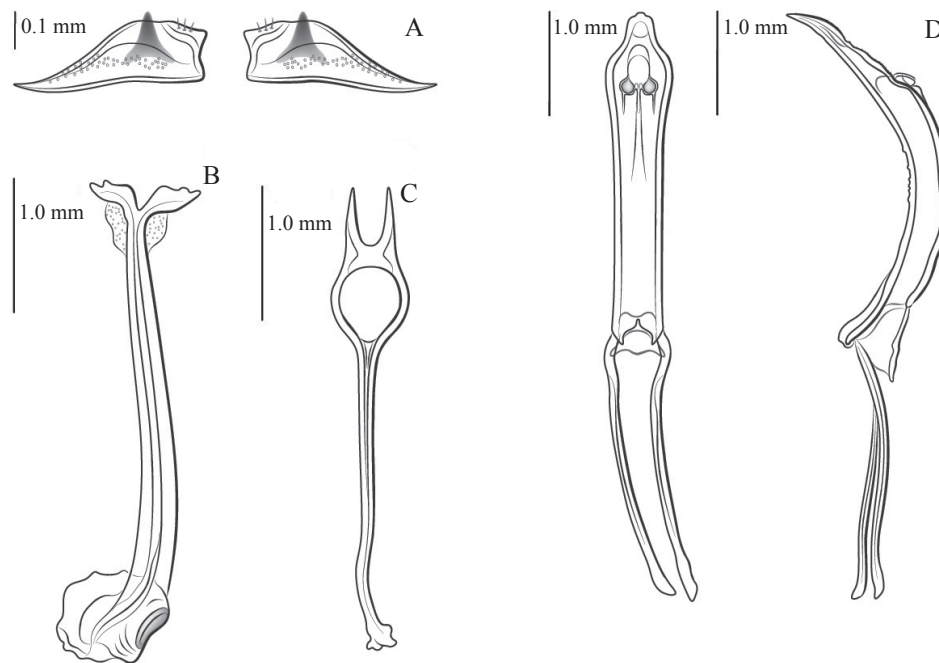


Fig 5 Terminalia of *Scelianoma elydimorpha*, male; (A) sternum VIII, dorsal view; (B) spiculum gastrale, ventral view; (C) tegmen, ventral view; (D) aedeagus, ventral and lateral view.

deflexed (Fig 5D); width similar throughout anterior 2/3, gradually narrowed along posterior 1/3; anterodorsal margin strongly retracted; dorsal margins slightly sinuate along posterior 1/3, finely denticulate; ventral surface rugulose; apex acutely narrowed, subrectate, slightly deflexed. Ostium positioned dorsally at posterior 1/3, small, trapezoidal; internal sac with small, paired, convex-lobulate sclerites projecting from ostium; dorsal region posteriad of ostium concave, weakly sclerotized. Aedeagal apodemes nearly 2/3 as long as median lobe, slender.

**Female.** Body length 8.58-13.2 mm, width 2.86-4.03 mm (N = 6); length/width ratio 2.81-3.28, greatest width near anterior 1/6 to central region of elytra (Fig 6). Rostrum length 1.14-1.65 mm, rostrum/pronotum length/width ratio 0.32-0.45, rostrum length/width ratio 0.93-1.03. Pronotum length/width ratio 1.26-1.67; pronotum/elytra length ratio 0.43-0.63;

widest near central region. Ventral margins of metatibia (Fig 4B) lacking large cuticular teeth; yet with small, regularly arranged tubercles present (as in male). Elytra length/width ratio 1.81-2.24, widest near anterior 1/6 to near central region of elytra (Fig 6); posterior declivity distinct, strongly angulate, subrectate (Fig 7). Venter 2-2.5x as long as lateral margin of metasternum; posterior margin of VII arcuate; III centrally slightly concave, laterally subplane; IV centrally subplane, laterally slightly convex. Pygidium trapezoidal, lateral margins posteriorly converging, posterior margin truncate, ventrally not plicate, not emarginate; in lateral view very narrow, orientation parallel to tergum.

**Terminalia.** Tergum VIII nearly 2/5 as long as sternum VIII; triangular, anteriorly strongly emarginate, medially projected, anterolateral edges strongly projected, acute; posteriorly narrowly arcuate; posterior 1/2 covered homogeneously with short, unifid setae. Sternum VIII



Fig 6 Habitus of *Scelianoma elydimorpha*, female; dorsal view.



Fig 7 Female elytral declivity of *Scelianoma elydimorpha*, lateral view.

(Fig 8A) with anterior 3/4 stylate, very slender, subrectate, anteriorly slightly expanded, capitate-explanate; posterior 1/4 bifurcate, triangular; each arm arcuate-triangular, posteriorly expanded, explanate, slightly convex, orientation subparallel; surface punctulate, posterior margins with longer, unifid setae. Coxites (Fig 8B) nearly 2/3 as long as sternum VIII, strongly sclerotized, narrowly conical-tubular, posteriorly

gradually narrowed, subrectate; centrally and posteriorly with vaguely defined regions of micropores. Styli not separately articulated (“absent”), very short, narrowly lobulate, compressed; each stylus posterolaterally with 2-3 short setae and one slightly longer seta. Genital chamber (vagina) nearly 3/4 as long as sternum VIII, weakly sclerotized, narrowly tubular, strongly plicate. Spermatheca V-shaped, strongly angulate near central region by nearly 70° (Fig 8C); basally strongly transverse; spermathecal duct inserted at inner basal edge; gland reservoir inserted at outer basal edge, narrowly tubular; apical 1/2 of spermatheca slightly sinuate; apex truncate, wide.

**Type species.** *Scelianoma elydimorpha*, by present designation.

**Etymology.** Named for the slender, tube-like shape and absence of elytral humeri, with *Sceli-* signifying “slender, dry-looking” (derived from *skeliphros* in Ancient Greek), and *-an-oma* signifying “without shoulder” (derived from *an* and *omos*, respectively; Brown 1956). The gender is feminine.

### *Scelianoma elydimorpha* Franz & Girón, new species

**Diagnosis.** *Scelianoma elydimorpha* is characterized by a specific pattern of scale coverage on the integument (Figs 1-6), i.e. alternating regions of dark brown to reddish brown to pale white scales, with darker scales predominating dorsally and lighter scales laterally and ventrally. The dorsal punctures (pronotum and elytra) tend to have reddish brown scales. The elytra are distinctly sexually dimorphic – gradually attenuating in males along the posterior 5/6 yet mostly subparallel in females, and the females furthermore have two rows of erect setae along each mesal side of the declivity (Fig 7). At present *S. elydimorpha* is the only species

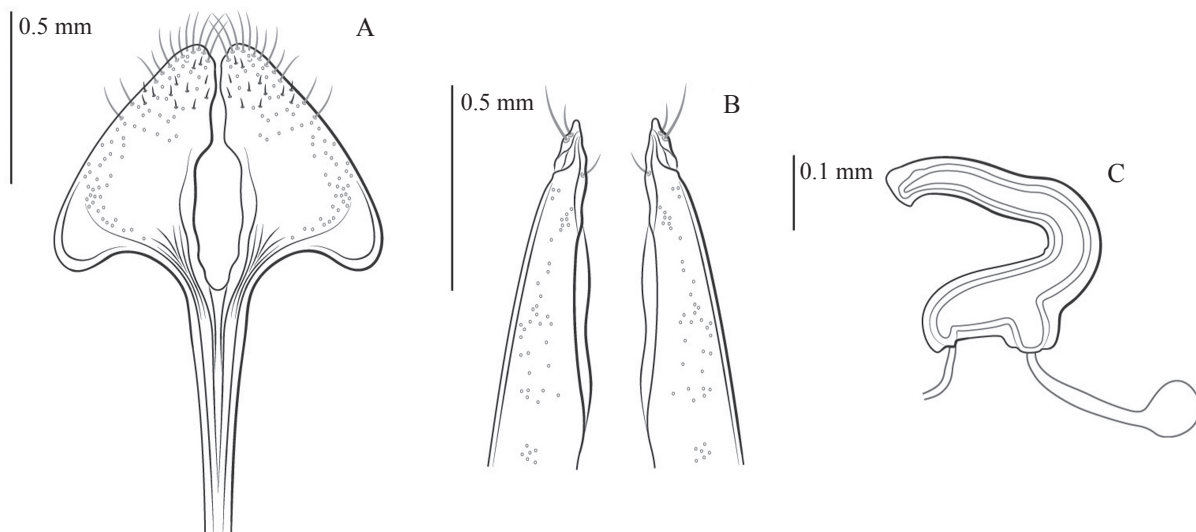


Fig 8 Terminalia of *Scelianoma elydimorpha*, female; (A) posterior end of sternum VIII, ventral view; (B) posterior end of coxites, dorsal view; (C) spermatheca.



placed in the genus, and therefore many diagnostic features appear in the description above.

**Description – male.** Body length 9.83–13.73 mm, width 2.86–3.98 mm (N = 6); shape in dorsal view elongate (Fig 1A), length/width ratio 3.32–3.49, greatest width near anterior 1/6 of elytra. Color of integument dark reddish brown to black; surface sculpture colliculate to rugulose, covered with setae and scales; setae sparsely arranged, homogeneous throughout, short, recurvate; scales densely arranged, homogeneous throughout, overlapping, short, subcircular, appressed, pale white to light reddish brown to brown. Scales with multiple colors variously interspersed, forming distinct patterns on various regions of surface; typically darker (brown) dorsally on head, pronotum, and elytra, lighter (white to reddish brown) laterally, ventrally, and on legs; often partially or entirely absent (removed) on worn specimens. Elytra with one small, slight, transverse impression extending from stria III–VI near anterior 1/6 of each elytron; scales variously darker (intervals) to lighter (punctures) brown along striae I–VI, pale white (intervals) to light reddish-brown (punctures) along stria VII–X. Aedeagus with median lobe in dorsal view narrowly elongate (Fig 5d), length/width ratio 4.86–5.28 (N = 2); dorsal margins finely denticulate along posterior 1/3; ostium positioned dorsally at posterior 1/3, small, trapezoidal; internal sac with small, paired, convex-lobulate sclerites projecting from ostium; aedeagal apodemes nearly 2/3 as long as median lobe, slender. Other characteristics as provided in generic account above.

**Female.** Body length 8.58–13.2 mm, width 2.86–4.03 mm (N = 6), length/width ratio 2.81–3.28, greatest width near anterior 1/6 to central region of elytra (Fig 6). Metatibia with apical 3/5 (to subapex) of posteroventral margin with row of long, closely aligned, suberect, distally oriented, narrowly depressed, apically arcuate, dark reddish brown setae (Fig 4B). Elytra with anterior transverse impressions indistinct; angulation of dorsal + posterior region of elytra tumescent (as seen in lateral view), declivity with two rows of longer, erect setae and pale white to light reddish brown scales along mesal side of each stria I (Fig 7). Sternum VIII (Fig. 8A) with each posterior arm arcuate-triangular, explanate, slightly convex, posterior margins with longer, unid setae. Coxites (Fig 8B) strongly sclerotized, narrowly conical-tubular, styli not separately articulated (“absent”). Spermatheca (Fig 8C) V-shaped, strongly angulate near central region by nearly 70°, apical 1/2 slightly sinuate, apex truncate, wide. Other characteristics as provided in generic account above.

**Variation.** Size variation is considerable, with the largest males being 1.6x longer than the smallest females. Shorter specimens tend to have a smaller length/width ratio and therefore appear more robust. The distinctive patterns of scale distribution and pigmentation have often been lost in older specimens, which are variously dull light to dark brown. Similarly, the rows of erect scales along the mesal margins of the female elytral declivity are less apparent in older specimens.

**Type material.** Male holotype “Puerto Rico (USA), Bosque Seco Guánica, Sendero Ballenas, 80 m, N 17°57.72’, W

66°51.86’/ beating plants at night, leg. N Franz & J Girón, IX-01-2007” (UPRM); female allotype, same label information as male holotype (UPRM); male paratypes, same label information as male holotype (AMNH, 2; CMNC, 4; CWOB, 4; MEBT, 4; MHND, 2; NMNH, 4), “USA, Puerto Rico, Bosque Seco Guánica, Sendero Ballena[s], 40 m, N 17°57.37’, W 66°51.44’/ Night collecting (UV light), leg. Castellanos, Franz, Velázquez, Tamaris, Yusseff, IX-22-2006” (NMFC, 2); “USA, Puerto Rico, Bosque Seco de Guánica, Sendero Ballena[s], 30 m, N 17°57.31’, W 66°51.43’/ Beating plants, leg. N Franz & J Metcalf, VII-20-2006” (UPRM, 3); female male paratypes, same label information as male holotype (AMNH, 2; CMNC, 4; CWOB, 4; MEBT, 4; MHND, 2; NMNH, 2), “USA, Puerto Rico, Bosque Seco de Guánica, Sendero Ballena[s], 30 m, N 17°57.31’, W 66°51.43’/ Beating plants, leg. N Franz & J Metcalf, VII-20-2006” (NMNH, 2; NMFC, 4), “USA, Puerto Rico, Bosque Seco de Guánica, Sendero Ballena[s], 30 m, N 17°57.31’, W 66°51.43’/ Beating at night, leg. N M Franz & N J Martínez, V-23-2006” (UPRM, 4).

**Etymology.** Named for the sexually dimorphic elytral declivity – *ely-di-morpha*.

**Natural history.** *Scelianoma elydimorpha* is apparently restricted to well-preserved dry forest habitats in southwestern Puerto Rico (Fig 9), and is particularly common in the lower regions of the Guánica Dry Forest (a UNESCO International Biosphere Reserve), along the Sendero Ballenas (Fig 10), close to the coast and Road 333. See Murphy & Lugo (1986, 1990) for a description of the forest structure and predominant tree species. Adults of *S. elydimorpha* have been taken on multiple potential host plants and are more abundant on the leaves at night than during the day (NMF, personal observation). The immature stages are unknown.

Additional specimens of *S. elydimorpha*, housed at UPRM and not labeled as paratypes, were collected at Maricao (Y Aguirre, 1975; one male), San Germán (R Ramírez, 1956; one female), and on Caja de Muertos Island, Puerto Rico (R Bonilla, 1935; one female).

## Discussion

*Scelianoma elydimorpha* is one of the largest weevil species commonly observed at Guánica. Specimens of this new species have been stored in regional and likely

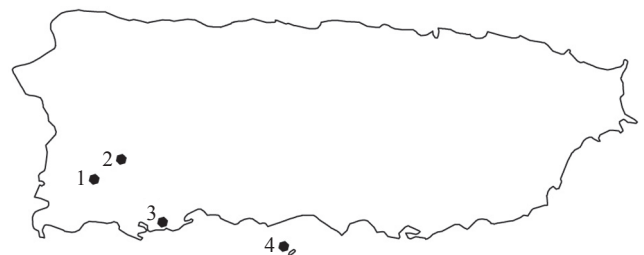


Fig 9 Reported localities for *Scelianoma elydimorpha* in Puerto Rico, as indicated by the ● symbol: (1) San Germán; (2) Maricao; (3) Guánica; and (4) Caja de Muertos Island.



Fig 10 Photographs of the type locality of *Scelianoma elydimorpha*; Sendero Ballenas at the Guánica Dry Forest Reserve, southwestern Puerto Rico.

also international depositories since at least the 1930s. Nevertheless, *Scelianoma* presents a unique combination of morphological characteristics that have precluded a generic or even tribal assignment until now. As discussed in other treatments (e.g., Thompson 1992, Marvaldi 1997, 1998, Anderson & Lanteri 2000, Girón Duque 2006), the tribal definitions for broad-nosed weevils are still largely those of Lacordaire (1863, 1866), and are for the most part inadequate. *Scelianoma* shares certain characteristics with members of other entimine tribes such as Geonemini Gistel (e.g., *Epicaerus* Schoenherr) or Naupactini (e.g., *Artipus* Sahlberg). Yet such observations are of limited use given

that the tribes themselves are poorly circumscribed and probably not monophyletic. A placement of the new genus in the Eustylini, with postulated affinities to the *Compsus-Exophthalmus* complex as detailed in the diagnosis, is therefore the most prudent conclusion.

The unique suite of features of *Scelianoma* produces numerous difficulties when using the traditional literature for identification. Specifically, van Emden's (1944) key to the "Brachyderinae" is irrelevant since *Scelianoma* would be subsumed under that author's concept of "Otiorynchinae" – now classified as Entiminae (e.g., Marvaldi 1997). Under Champion's (1911) arrangement, *Scelianoma* would be

placed in close relationship to *Epicaerus* (= *Cacochromus* Sharp). However, members of the latter, primarily Central American genus have (*inter alia*) a shorter, more globular shape, ventrally unarmed tibiae, and often more conspicuous pronotal or elytral sculptures (cf. Blatchley & Leng 1916, Anderson 2002).

Another possibly closely related genus is *Brachyomus* Lacordaire, whose members occur in northern South America as well as Trinidad and Saint Vincent (O'Brien & Wibmer 1982, Wibmer & O'Brien 1986). In contrast to *Scelianoma*, species of *Brachyomus* have posteriorly diverging elytra with variously arranged tubercles (Lacordaire 1863). *Artipus* is readily separated from *Scelianoma* by the wider epistoma which lacks a posterior, inversely V-shaped carina, by an antennal scrobe that terminates above the eye, and a funicular antennomere II that is longer than I, among other characteristics (cf. Blatchley & Leng 1916, Anderson 2002). Lastly, other eustyline genera such as *Compsus*, *Exophthalmus*, *Eustylus* Schoenherr, *Exorides* Pascoe, and *Phaops* Sahlberg tend to have a less tubular shape, more pronounced (though rarely angulate) elytral humeri, or various forms of depressions and projections on the dorsal surface (cf. Girón Duque 2006). Many of these taxa are diverse and morphologically heterogeneous, and probably not monophyletic. Placing *S. elydimorpha* in a separate genus bears on one hand the "risk" of later synonymy but on the other hand minimizes the potential for creating even more paraphyletic eustyline genera. We prefer the latter scenario (see also Anderson & Lanteri 2002), and expect that studies of the internal organs of related entimines will provide additional evidence for the unique phylogenetic position of *Scelianoma*.

*Scelianoma elydimorpha* is a conspicuous member among the Puerto Rican entimines and seemingly restricted to the Island's most pristine southwestern dry forest habitats (cf. Figueroa Colón 1996). Collecting records from areas other than Guánica (Figs 9, 10) are at least 30 years old and require new validation. The immature stages and host plant associations of *S. elydimorpha* are unknown. The adults are typically caught on the same plants as other entimines occurring in Guánica, specifically *Apodrosus argentatus* Wolcott. Martorell (1976; see also Wolcott 1948) lists the following hosts for the latter species: *Colubrina arborescens* Sargent (Rhamnaceae), *C. elliptica* (Sw.) Briz. & W.L. Stern; *Conocarpus erectus* L. (Combretaceae); *Dalbergia ecastaphyllum* (L.) Taubert (Fabaceae); and *Guaiacum sanctum* L. (Zygophyllaceae). These and other shrub and tree species inhabiting Guánica's southern limestone slopes (Murphy & Lugo 1986) are potential hosts of *S. elydimorpha*.

*Scelianoma elydimorpha* adults have a heavily sclerotized integument that is well suited for survival in an environment where water is limited. The absence of wings should limit their ability to colonize new areas. We hope that this contribution will augment interest in research on Caribbean entimines, as many specialized taxa remain to be documented and placed in a phylogenetic framework. In addition to improving our knowledge of entimine classification and evolution, such studies promise to inform management policies of their endangered habitats.

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