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Research article

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Revision of type specimens of *Astaena* (Coleoptera: Scarabaeidae: Melolonthinae: Sericini) described by L.W. Saylor

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Abstract. This is the first part of a revision of the type specimens of the South American Sericini. Herein, we examine type specimens of *Astaena* described by Lawrence Webster Saylor (1913–1999). We provide diagnostic redescriptions, images of habitus, aedeagus, and labels of the type specimens of all 18 species described by him in the genus *Astaena*. We raise *Sayloria* Frey, 1973, a former subgenus of *Symmela* Erichson, 1835 that includes three species, to genus level. Our study results in the following new combinations and synonymy: *Sayloria bicoloripes* (Saylor, 1946) comb. nov. (= *A. postnodata* Frey, 1973 syn. nov.), *S. abcora* (Saylor, 1946) comb. nov. (= *A. apolinarmaria* Saylor, 1946 syn. nov.) and *S. pottsii* (Saylor, 1946) comb. nov.

Keywords. Chafers, *Sayloria*, taxonomy, Neotropical region, South America.

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Introduction

Sericini Kirby, 1837 is a monophyletic tribe of chafer beetles with a nearly worldwide distribution, that is absent only in Australia and circumpolar regions (Ahrens 2006a; Eberle *et al.* 2017a). It comprises

about 4000 species allocated in 200 genera (Ahrens 2006a). While Sericini are still generally poorly known in terms of their taxonomy and systematics, some significant progress has been made over the past two decades with hundreds of new species of Sericini discovered in Asia and Africa (e.g., Ahrens 2004a; Fabrizi & Ahrens 2014; Ahrens & Fabrizi 2016; Eberle *et al.* 2017b; Fabrizi *et al.* 2019a, 2019b; Liu *et al.* 2019). However, South American species are still comparatively poorly known (Smith & Evans 2005). For South America, around 250 nominal taxa have been described previously. The latest comprehensive treatment was a synopsis by Frey (1973). However, the recognition of most species is still very difficult since many species have been described based on female specimens and so far, comprehensive illustrations of species morphology are scarce.

The systematic status of South American Sericini received, however, several important recent updates: several genera have been excluded from Sericini (e.g., *Athlia* Erichson, 1835 and *Dihymenonyx* Gutiérrez, 1949 are now placed in Athliini Smith & Evans, 2018 (Smith & Evans 2018); *Blepharotoma* Blanchard, 1850 (Sericini according to Frey 1973) was transferred initially to Liparetrini Burmeister, 1855 (Evans & Smith 2005; Katovich 2008) but has since been moved to Sericoidini Burmeister, 1855 (Smith 2008)) or their synonymy with non-Neotropical Sericini genera was recognized and are no longer considered elements of the Neotropical fauna (e.g., *Rhynchosymmela* Frey, 1974 was synonymized with *Maladera* Mulsant & Rey, 1871 (subgenus *Hemiserica* Brenske, 1894; Ahrens 2004b)). Currently, four genera are recognized for the Neotropics, *Symmela* Erichson, 1835, *Astaena* Erichson, 1847, *Raysymmela* Saylor, 1947, and *Miotemna* Lacordaire, 1855 (Evans & Smith 2005).

This work is part one of a series of studies with the common goal to re-examine and redescribe the type specimens of species of Sericini from South America, to designate lectotypes or neotypes where necessary, to revise their taxonomic status, and to produce high-quality images from the type specimens and their labels. In this way, we hope to facilitate correct identification of the species for future work, thus increase our ability to recognize as yet undescribed species, and make taxonomic information available for applied research including ecological, phylogenetic and biogeographical issues.

Most South American species of Sericini were described by German entomologists, such as Erichson (1835, 1847), Burmeister (1855), Kirsch (1865, 1885), Moser (1918, 1921a, 1921b, 1924, 1926), and Frey (1973, 1974, 1975, 1976), and their type specimens are housed in European collections (Evans 2003). However, numerous species were described by Lawrence W. Saylor (1913–1999; Ratcliffe 2016). During the visit of the first author (TLP) to the United States National Museum, Smithsonian Institute, Washington DC (USNM), it was possible to borrow and examine the Saylor type specimens of Sericini from the Californian Academy of Sciences, thus facilitating the first part of this taxonomic revision. Here we revise the type material of 18 species (of 19 total species in total) of South American Sericini described by L.W. Saylor, providing redescriptions and systematic assessments of the species. *Raysymmela huanuca* Saylor, 1947 (Saylor 1947a) was not included in this work. It will be treated in the framework of a separate revision of this genus.

Material and methods

Specimens studied for this work are all housed at the California Academy of Sciences, San Francisco, USA (CAS). All pictures were taken using a Canon EOS 5D Mark III (22.3 megapixels), lens Canon MP-E 65 mm with Passport II portable digital imaging system. Posteriorly they are stacked using the Zerene Stacker system ver. 1.04. Figure plates were edited with Adobe Photoshop CS3. Maps were generated with QGIS ver. 3.4. Diagnostic descriptions were generated from a nexus file, which was created in Mesquite ver. 3.61 (Maddison & Maddison 2018) and subsequently fine-edited by hand. The label data of type specimens are given verbatim in quotation marks; different labels are separated by a forward slash (/).

Repositories

- CAS = California Academy of Sciences, San Francisco, California, USA
CMNC = Canadian Museum of Nature, Ottawa, Canada
MNHN = Muséum national d'histoire naturelle, Paris, France
NHMB = Naturhistorisches Museum, Basel, Switzerland
SMTD = Staatliches Museum für Tierkunde, Dresden, Germany
ZFMK = Zoologisches Forschungsinstitut und Museum A. Koenig, Bonn, Germany
ZMHB = Zoologisches Museum der Humboldt-Universität, Berlin, Germany

Results

Class Insecta Linnaeus, 1758
Subclass Pterygota Lang, 1888
Order Coleoptera Linnaeus, 1758
Superfamily Scarabaeoidea Latreille, 1802
Family Scarabaeidae Latreille, 1802
Subfamily Melolonthinae Leach, 1819
Tribe Sericini Kirby, 1837

Genus *Astaena* Erichson, 1847

Astaena Erichson, 1847: 101.

Temnostoma Blanchard, 1850: 84.

Astaena – Frey 1973: 325 (identification key). — Evans 2003: 18 (checklist). — Evans & Smith 2005: 4 (checklist); 2007: 4 (checklist); 2009: 4 (checklist).

Temnostoma – Lacordaire 1856: 208 (synonymy).

Type species

Astaena tridentata Erichson, 1847 (by monotypy).

Diagnosis

Brown or reddish-brown coloration, mostly unicolored. Antennae with eight or nine antennomeres; antennal club with three antennomeres. Abdomen with a lateral carina.

Astaena abaca Saylor, 1946
Figs 1A–D, 7A

Astaena abaca Saylor, 1946: 223.

Astaena abaca – Frey 1973: 354 (identification key). — Evans 2003: 19 (checklist). — Evans & Smith 2005: 4 (checklist); 2007: 4 (checklist); 2009: 4 (checklist).

Type material examined

Holotype

COLOMBIA • ♀; “Paine viii Colum. / Apolinar-Maria / L.W. Saylor Collection / California Academy of Sciences Type n° 7904 / Holotype *Astaena abaca* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 12 mm. Width: 5.8 mm.

HEAD. Reddish-brown, surface with simple setae. Labroclypeus convex, shape of anterior margin convex, posteriorly with sparse punctation. Ratio ocular canthus (measured just the process on the eye)/eye (measured along longitudinal axis): 1/4. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1.5; ratio third vs fourth antennomere: 1/2; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra with setae. Pronotum unicolored, reddish-brown, widest at middle, anterior marginal line present, lateral margin strongly convex and smooth (not serrated), antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface tegument opaque, microsculpture absent, punctation on intervals present, striae and interval punctation equal in size.

ABDOMEN. Lateral carina present. Second visible ventrite with row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, setae on basal surface present, a laterally extended longitudinal shelf present. Metatibia, widest at apex, dorsal margin carinate, ventral margin smooth (not serrated), distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/2. Dorsal surface of tarsi glabrous. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

Male

Unknown.

Astaena biciliata Saylor, 1946
Figs 1E–I, 7A

Astaena biciliata Saylor, 1946: 219.

Astaena biciliata – Frey 1973: 335, 347 (identification key). — Evans 2003: 19 (checklist). — Evans & Smith 2005: 5 (checklist); 2007: 5 (checklist); 2009: 5 (checklist).

Type material examined

Holotype

PERU • ♂; “ix-20-35 M. Sani Beni Lima Peru, 35 / L.W. Saylor Collection / California Academy of Sciences Type n° 7907 / Holotype *Astaena biciliata* L.W. Saylor”; CAS.

Paratype

PERU • 1 ♀; “ix-20-35 M. Sani Beni Lima Peru, 35 / L.W. Saylor Collection / Collection of the California Academy of Sciences, San Francisco, California / Allotype *Astaena biciliata* L.W. Saylor / CASENT 8438128”; CAS.

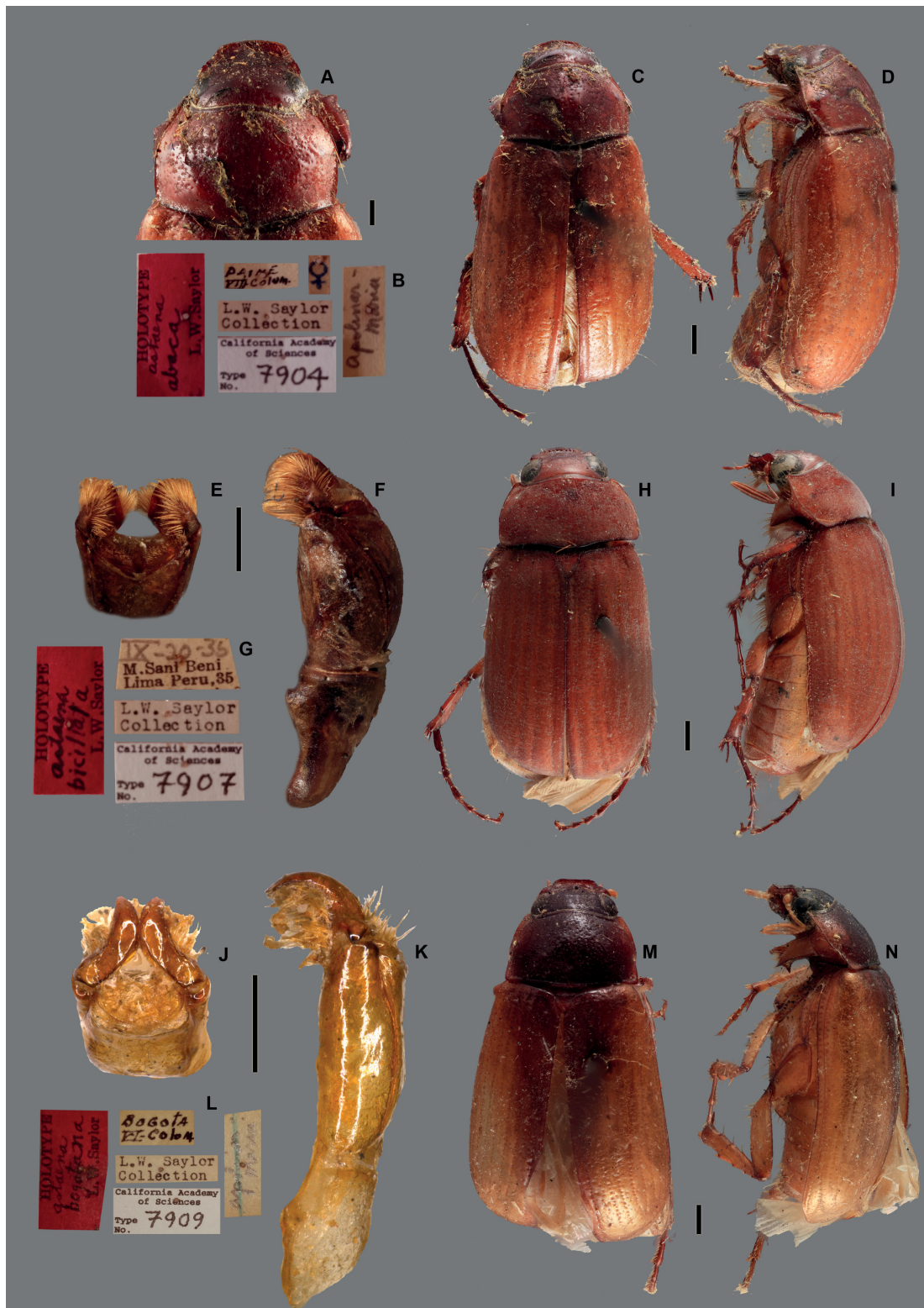


Fig. 1. A–D. *Astaena abaca* Saylor, 1946, holotype, ♀ (Type No. 7904; CAS). – E–I. *A. biciliata* Saylor, 1946, holotype, ♂ (Type No. 7907; CAS). – J–K. *A. bogotana* Saylor, 1946, paratype, ♂ (CAS). – L–N. *A. bogotana*, holotype, ♂ (Type No. 7909; CAS). A. Head and pronotum, dorsal view. B, G, L. Labels. C, H, M. Habitus, dorsal view. D, I, N. Habitus, lateral view. E, J. Parameres, dorsal view. F, K. Aedeagus, lateral view. Scale bars: A, E–F, J–K = 0.5 mm; C–D, H–I, M–N = 1 mm.

Holotype redescription

MEASUREMENTS. Length: 11 mm. Width: 5.6 mm.

HEAD. Reddish-brown, surface with upright setae. Labroclypeus, shape of anterior margin convex, posteriorly with sparse punctation. Ocular canthus with terminal setae, ratio to eye: 1/4. Eyes, ratio diameter/interocular width: 0.55. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1; ratio third vs fourth antennomere: 1/4; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum unicolored, reddish-brown, widest at base, anterior marginal line present, posterior marginal line absent, lateral margin weakly convex and smooth (not serrated), antero-lateral angle dorso-ventrally not flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc sparse, setae of lateral margin sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and dense, diameter of stria and interval punctation equal, posterior edge straight.

ABDOMEN. Lateral carina present. Second visible ventrite with row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Ratio of length of metepisternum/metacoxa: 1/0.77. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, ratio of width/length: 1/2.69, dorsal margin not carinated, ventral margin not serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur 1/2. Dorsal surface of tarsi glabrous and without punctures. Metatarsi, length of first protarsomere smaller than second and third combined, ventral margin not serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

AEDEAGUS. Fig. 1E–F.

Astaena bogotana Saylor, 1946
Figs 1J–N, 7A

Astaena bogotana Saylor, 1946: 228.

Astaena bogotana – Frey 1973: 341 (identification key). — Evans 2003: 20 (checklist). — Evans & Smith 2005: 5 (checklist); 2007: 5 (checklist); 2009: 5 (checklist).

Type material examined

Holotype

COLOMBIA • ♂; “Bogota vi- Colom. / Apolinar-Maria / L.W. Saylor Collection / California Academy of Sciences Type n° 7909 / Holotype *Astaena bogotana* L.W. Saylor”; CAS.

Paratype

COLOMBIA • 1 ♂; “Bogota vi- Colom. / L.W. Saylor Collection / Paratype *Astaena bogotana* L.W. Saylor / CASENT 8438130”; CAS.

Holotype redescription

MEASUREMENTS. Length: 12 mm. Width: 5.8 mm.

HEAD. Reddish-brown, surface with setae. Labroclypeus, shape of anterior margin convex. Ratio ocular canthus/eye: 1/4. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1; ratio third vs fourth antennomere: 1/4; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum unicolored, reddish-brown, widest at base, anterior marginal line present, posterior marginal line absent, lateral margin weakly convex and not serrated, antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally flattened, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra bicolored, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of striae and interval punctation equal.

ABDOMEN. Lateral carina present. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur 1/3. Metatarsi, length of first protarsomere smaller than second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

AEDEAGUS. Fig. 1J–K.

Astaena excisipes Saylor, 1947
Figs 2A–D, 7A

Astaena excisipes Saylor, 1947b: 433.

Astaena excisipes – Frey 1973: 347 (identification key). — Evans 2003: 22 (checklist). — Evans & Smith 2005: 7 (checklist); 2007: 7 (checklist); 2009: 7 (checklist).

Type material examined

Holotype

ECUADOR • ♀; “Ecuador Baron / Coll. Kraatz / L.W. Saylor Collection / California Academy of Sciences Type n° 7910 / *Astaena producta* Bates? / Moser det. / Holotype *Astaena excisipes* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 9.5 mm. Width: 4.7 mm.

HEAD. Reddish-brown. Labroclypeus, shape of anterior margin weakly sinuated medially. Ocular canthus with terminal setae, ratio to eye: 1/4. Ratio third vs fourth antennomere: 1/4. Fourth antennomere, lateral projection absent. Ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum unicolored, reddish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin straight and not serrated, two angles on postero-lateral margin present, antero-lateral angle dorso-ventrally not flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc dense, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and dense, diameter of striae and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, dorsal margin not carinated, ventral margin serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/2. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere smaller than second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid.

Male

Unknown.

Remarks

The holotype specimen is a female; Saylor (1946) incorrectly stated that the holotype as a male.

Astaena explaniceps Saylor, 1947
Figs 2E–I, 7A

Astaena explaniceps Saylor, 1947b: 436.

Astaena explaniceps – Frey 1973: 341 (identification key). — Evans 2003: 22 (checklist). — Evans & Smith 2005: 7 (checklist); 2007: 7 (checklist); 2009: 7 (checklist).

Type material examined

Holotype

ARGENTINA • ♂; “Salta Prov. Arg. S.A. / L.W. Saylor Collection / California Academy of Sciences Type n° 7911 / Holotype *Astaena explaniceps* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 9.2 mm. Width: 3.8 mm.

HEAD. Reddish-brown, surface with upright setae. Labroclypeus, shape of anterior margin convex, posteriorly with dense punctation. Ocular canthus with terminal setae, ratio to eye: 1/2. Ratio third vs fourth antennomere: 1/3. Fourth antennomere, lateral projection absent. Ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra with setae. Pronotum unicolored, reddish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin strongly convex and smooth (not serrate), antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally flattened, punctation on disc dense, setae of lateral margin sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of stria and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

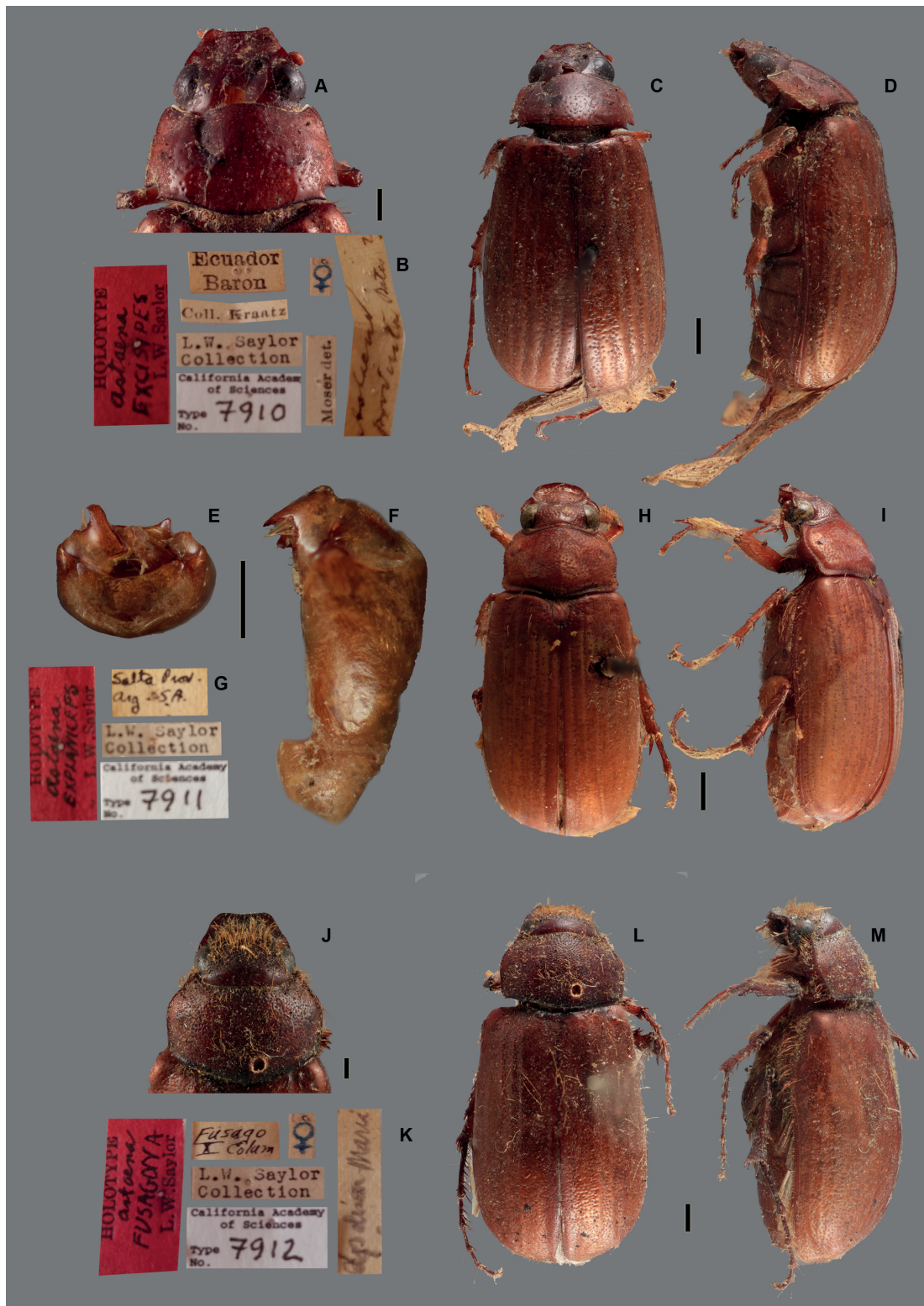


Fig. 2. A–D. *Astaena excisipes* Saylor, 1947, holotype, ♀ (Type No. 7910; CAS). – E–I. *A. explaniceps* Saylor, 1947, holotype, ♂ (Type No. 7911; CAS). – J–M. *A. fusagony* Saylor, 1946, holotype, ♀ (Type No. 7912; CAS). A, J. Head and pronotum, dorsal view. B, G, K. labels. C, H, L. Habitus, dorsal view. D, I, M. Habitus, lateral view. E. Parameres, dorsal view. F. Aedeagus, lateral view. Scale bars: A, E–F, J = 0.5 mm; C–D, H–I, L–M = 1 mm.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf absent. Metatibia, widest at apex, dorsal margin carinated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/3. Dorsal surface of tarsi glabrous, with punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

AEDEAGUS. Fig. 2E–F.

Astaena fusagona Saylor, 1946
Figs 2J–M, 7B

Astaena fusagona Saylor, 1946: 221.

Astaena fusagona – Frey 1973: 329 (identification key). — Evans 2003: 23 (checklist). — Evans & Smith 2005: 8 (checklist); 2007: 8 (checklist); 2009: 8 (checklist).

Type material examined

Holotype

COLOMBIA • ♀; “Fusago x Colom / Apolinar-Maria / L.W. Saylor Collection / California Academy of Sciences Type n° 7912 / Holotype *Astaena fusagona* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 13 mm. Width: 6 mm.

HEAD. Blackish-brown, surface with upright setae. Labroclypeus, shape of anterior margin weakly sinuated medially, posteriorly with dense punctation. Ocular canthus with terminal setae, ratio to eye: 1/3. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1; ratio third vs fourth antennomere: 1/4; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra with upright setae. Pronotum unicolored, blackish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin strongly convex and smooth (not serrate), antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc dense, setae of lateral margin dense, median longitudinal excavation absent. Scutellum, punctures medially present. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and dense, diameter of strial and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite with row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, dorsal margin carinated, with group of spines positioned at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/3. Dorsal surface of tarsi glabrous. Metatarsi, length of first protarsomere smaller than second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

Male

Unknown.

Astaena incachaca Saylor, 1946
Figs 3A–E, 7A

Astaena incachaca Saylor, 1946: 215.

Astaena incachaca – Frey 1973: 329 (identification key). — Evans 2003: 23 (checklist). — Evans & Smith 2005a: 9 (checklist); 2007: 9 (checklist); 2009: 9 (checklist).

Type material examined

Holotype

BOLIVIA • ♂; “Incachaca, Bolivia, Alt. 2500m, J. Steinbach, Acc. 6873 / L.W. Saylor Collection / California Academy of Sciences Type n° 7913 / Holotype *Astaena incachaca* L.W. Saylor”; CAS.

Paratype

BOLIVIA • 1 ♀, Incachaca, Bolivia, Alt. 2500m, J. Steinbach, Acc. 6873 / L.W. Saylor Collection / Collection of the California Academy of Sciences, San Francisco, California / Allotype *Astaena incachaca* L.W. Saylor / CASENT 8438145”; CAS.

Holotype redescription

MEASUREMENTS. Length: 11 mm. Width: 5.6 mm.

HEAD. Reddish-brown, surface with upright setae. Labroclypeus, shape of anterior margin straight, posteriorly with dense punctation. Ocular canthus with terminal setae, ratio to eye: 1/3. Eyes, ratio diameter/interocular width: 0.56. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1; ratio third vs fourth antennomere: 1/3; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra with setae. Pronotum unicolored, reddish-brown, widest at middle, posterior marginal line absent, lateral margin strongly convex and smooth (not serrate), antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc sparse, setae of lateral margin dense, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of stria and interval punctation equal.

ABDOMEN. Lateral carina absent. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Ratio of length of metepisternum/metacoxa: 1/0.95. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf absent. Metatibia, widest at apex, ratio of width/length: 1/4.27, dorsal margin not carinated, ventral margin serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/2. Dorsal surface of tarsi glabrous, with punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

AEDEAGUS. Fig. 3A–B.

Astaena maqueta Saylor, 1947
Figs 3F–J, 7A

Astaena maqueta Saylor, 1947b: 434.

Astaena maqueta – Frey 1973: 326 (identification key). — Evans 2003: 24 (checklist). — Evans & Smith 2005: 10 (checklist); 2007: 10 (checklist); 2009: 10 (checklist).

Type material examined

Holotype

ARGENTINA • ♂; “Macueta Salta Prov. Arg. S.A. x-xi-32 / L.W. Saylor Collection / California Academy of Sciences Type n° 7914 / Holotype *Astaena maqueta* L.W. Saylor”; CAS.

Paratypes

ARGENTINA • 1 ♀; “Macueta Salta Prov. Arg. SA. x-xi-33 / L.W. Saylor Collection / Collection of the California Academy of Sciences, San Francisco, California / Allotype *Astaena maqueta* L.W. Saylor”; CAS • 1 ♂; “Macueta Salta Prov. Arg. SA. x-xi-33 / L.W. Saylor Collection / Paratype *Astaena maqueta* L.W. Saylor / CASENT 8438172”; CAS.

Holotype redescription

MEASUREMENTS. Length: 12 mm. Width: 5.8 mm.

HEAD. Reddish-brown, surface with upright setae. Labroclypeus, shape of anterior margin convex, posteriorly with dense punctation. Ocular canthus with terminal setae, ratio to eye: 1/2. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1; ratio third vs fourth antennomere: 1/3; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Pronotum and elytra surface with upright setae. Pronotum unicolored, reddish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin weakly convex and not serrated, antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc dense, setae of lateral margin dense, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and dense, diameter of stria and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite with row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, dorsal margin not carinated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/2. Dorsal surface of tarsi glabrous, with punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated and glabrous. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws asymmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw truncate.

AEDEAGUS. Fig. 3F–G.

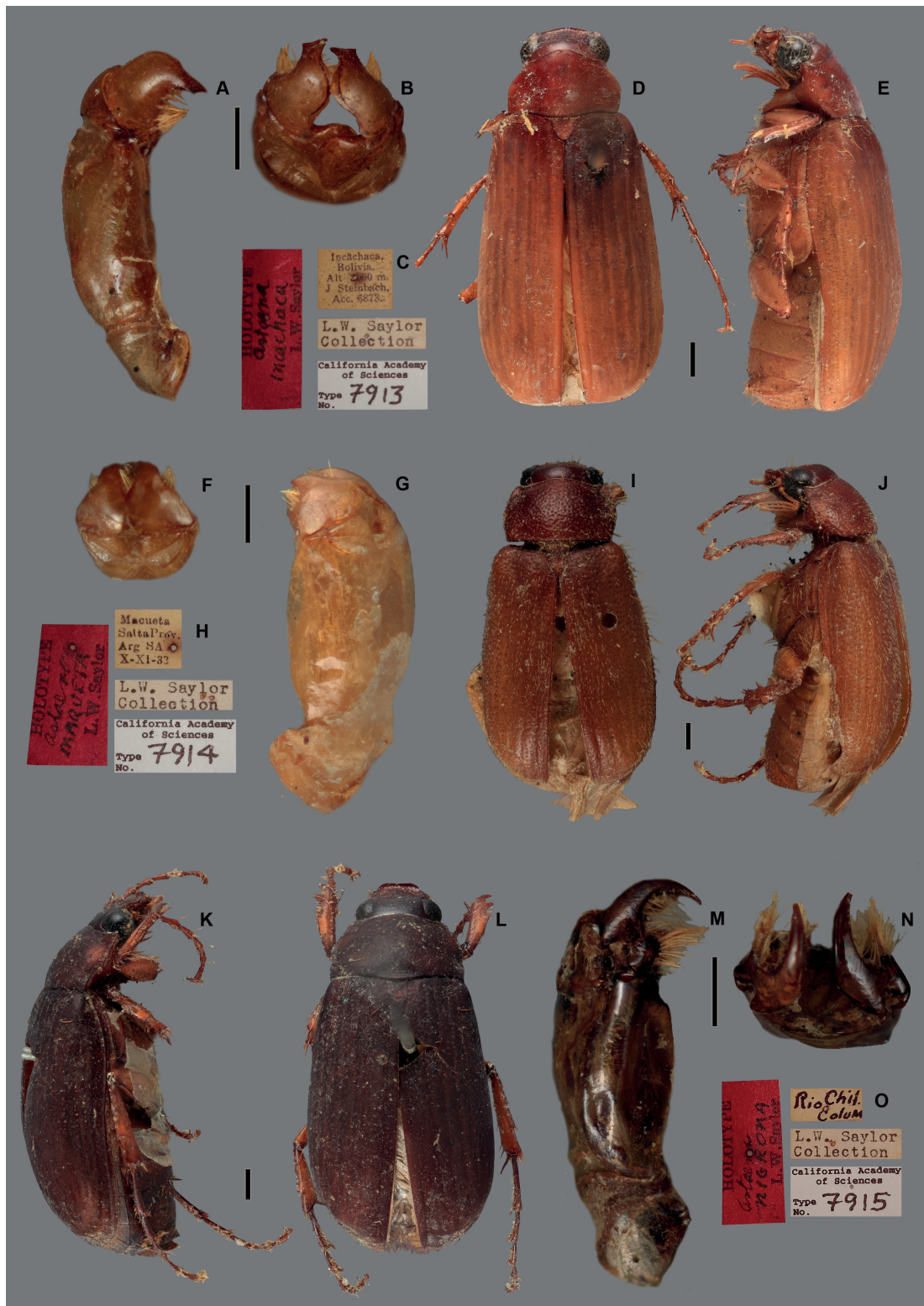


Fig. 3. A–E. *Astaena incachaca* Saylor, 1946, holotype, ♂ (Type No. 7913; CAS). – F–J. *A. maqueta* Saylor, 1947, holotype, ♂ (Type No. 7914; CAS). – K–O. *A. nigrona* Saylor, 1947, holotype, ♂ (Type No. 7915; CAS). A, G, M. Aedeagus, lateral view. B, F, N. Parameres, dorsal view. C, H, O. labels. D, I, L. Habitus, dorsal view. E, J, K. Habitus, lateral view. Scale bars: A–B, F–G, M–N = 0.5 mm; D–E, I–L = 1 mm.

Astaena nigrona Saylor, 1947

Figs 3K–O, 7A

Astaena nigrona Saylor, 1947b: 435.

Astaena nigrona – Frey 1973: 331 (identification key).

non *Astaena nigroana* (incorrect subsequent spelling) – Evans 2003: 25 (checklist). — Evans & Smith 2005: 10 (checklist); 2007: 10 (checklist); 2009: 10 (checklist).

Type material examined

Holotype

COLOMBIA • ♂; “Rio Chil. Colum / L.W. Saylor Collection / California Academy of Sciences Type n° 7915 / Holotype *Astaena nigrona* L.W. Saylor”; CAS.

Paratype

COLOMBIA • 1 ♀; “Bogota VI- Colum / L.W. Saylor Collection / Collection of the California Academy of Sciences, San Francisco, California / Allotype *Astaena nigrona* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 12 mm. Width: 5.8 mm.

HEAD. Reddish-brown. Labroclypeus, shape of anterior margin weakly sinuated medially. Ocular canthus without terminal setae, ratio to eye: 1/4. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1.5; ratio third vs fourth antennomere: 1/3; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra with setae. Pronotum bicolored, reddish-brown with two red spots on laterals, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin strongly convex and smooth (not serrate), antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally flattened, punctation on disc dense, setae of lateral margin sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, blackish-brown, surface opaque, microsculpture absent, punctation on intervals present, diameter of stria and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite with row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/3. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws asymmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw truncate.

AEDEAGUS. Fig. 3M–N.

Astaena pygidia Saylor, 1946
Figs 4A–E, 7B

Astaena pygidia Saylor, 1946: 230.

Astaena pygidia – Frey 1973: 339 (identification key). — Evans 2003: 28 (checklist). — Evans & Smith 2005: 12 (checklist); 2007: 12 (checklist); 2009: 12 (checklist).

Type material examined

Holotype

PERU • ♂; “Peru / Vitoc, 1400 to 1800m ix-22-40 / Coll of Bob Potts / L.W. Saylor Collection / California Academy of Sciences Type n° 7917 / Holotype *Astaena pygidia* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 8 mm. Width: 4 mm.

HEAD. Reddish-brown. Labroclypeus, shape of anterior margin weakly sinuated medially, posteriorly with sparse punctation. Ocular canthus with terminal setae, ratio to eye: 1/3. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1; ratio third vs fourth antennomere: 1/3; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum unicolored, brownish-orange, widest at middle, posterior marginal line absent, lateral margin strongly convex and smooth (not serrate), postero-lateral angle dorso-ventrally not flattened, punctation on disc sparse, setae of lateral margin sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, brownish-orange, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of strial and interval punctation equal.

ABDOMEN. Lateral carina absent. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, ventral margin serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/3. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin setose. Protibia with three teeth. Protarsi, second protarsomere narrow, claws asymmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw truncate.

AEDEAGUS. Fig. 4A–B.

Astaena rugithorax Saylor, 1946
Figs 4F–I, 7B

Astaena rugithorax Saylor, 1946: 222.

Astaena rugithorax – Frey 1973: 364 (identification key). — Evans 2003: 28 (checklist). — Evans & Smith 2005: 13 (checklist); 2007: 13 (checklist); 2009: 13 (checklist).

Type material examined

Holotype

COLOMBIA • ♀; “Colombia, S. A. / L.W. Saylor Collection / California Academy of Sciences Type n° 7918 / Holotype *Astaena rugithorax* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 14 mm. Width: 7 mm.

HEAD. Blackish-brown, surface with setae. Labroclypeus, shape of anterior margin straight, posteriorly with dense punctation. Ocular canthus without terminal setae, ratio to eye: 1/3. Ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum unicolored, blackish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin strong convex and serrated, antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc dense, setae of lateral margin sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, blackish-brown, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of stria and interval punctation equal.

ABDOMEN. Lateral carina absent. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf absent. Metatibia, widest at apex, distal spines groups disposed at half size of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/2. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

Male

Unknown.

Astaena salta Saylor, 1946

Figs 4J–M, 7B

Astaena salta Saylor, 1946: 231.

Astaena salta – Frey 1973: 336 (identification key). — Evans 2003: 28 (checklist). — Evans & Smith 2005: 13 (checklist); 2007: 13 (checklist); 2009: 13 (checklist).

Type material examined

Holotype

ARGENTINA • ♀; “Salta, Arg. viii / L.W. Saylor Collection / California Academy of Sciences Type n° 7919 / Holotype *Astaena salta* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 5 mm. Width: 3 mm.



Fig. 4. A–E. *Astaena pygidia* Saylor, 1946, holotype, ♂ (Type No. 7917; CAS). – F–I. *A. rugithorax* Saylor, 1946, holotype, ♀ (Type No. 7918; CAS). – J–M. *A. salta* Saylor, 1946, holotype, ♀ (Type No. 7919; CAS). A. Aedeagus, lateral view. B. Parameres, dorsal view. C, G, K. Labels. D, H, L. Habitus, dorsal view. E, I, M. Habitus, lateral view. F, J. Head and pronotum, dorsal view. Scale bars: A–B, F, J = 0.5 mm; D–E, H–I, L–M = 1 mm.

HEAD. Reddish-brown, surface with setae. Labroclypeus, shape of anterior margin convex, posteriorly with dense punctation. Ocular canthus without terminal setae, ratio to eye: 1/3. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1.5; ratio third vs fourth antennomere: 1/2; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra with setae. Pronotum unicolored, reddish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin weakly convex and not serrated, antero-lateral angle dorso-ventrally not flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc dense, setae of lateral margin sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of stria and interval punctation equal.

ABDOMEN. Lateral carina absent. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/3. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, ventral margin serrated and glabrous. Protibia with two teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow.

Male

Unknown.

Astaena yungasa Saylor, 1946
Figs 5A–E, 7B

Astaena yungasa Saylor, 1946: 217.

Astaena yungasa – Frey 1973: 333 (identification key). — Evans 2003: 31 (checklist). — Evans & Smith 2005: 15 (checklist); 2007: 15 (checklist); 2009: 15 (checklist).

Type material examined

Holotype

BOLIVIA • ♂; “Yungas, Bolivia / L.W. Saylor Collection / California Academy of Sciences Type n° 7920 / Holotype *Astaena yungasa* L.W. Saylor”; CAS.

Paratype

BOLIVIA • 1 ♂; “Yungas, Bolivia / L.W. Saylor Collection / Paratype *Astaena yungasa* L.W. Saylor / CASENT 8438307”; CAS.

Holotype redescription

MEASUREMENTS. Length: 14 mm. Width: 6.75 mm.

HEAD. Blackish-brown, surface with upright setae. Labroclypeus, shape of anterior margin weakly sinuated medially, posteriorly with dense punctation. Ocular canthus with terminal setae, ratio to eye: 1/3. Eyes, ratio diameter/interocular width: 0.68. Antennae with eight antennomeres. Antennal club

with three antennomeres. Ratio antennal club/remaining antennomeres: 1/1. Ratio third vs fourth antennomere: 1/4. Fourth antennomere, lateral projection absent. Ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra with setae. Pronotum unicolored, blackish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin strongly convex and smooth (not serrate), antero-lateral angle dorso-ventrally not flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc sparse, setae of lateral margin dense, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of striae and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Ratio of length of metepisternum/metacoxa: 1/0.86. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf absent. Metatibia, widest at apex, ratio of width/length: 1/4.83, dorsal margin not carinated, ventral margin serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur 1/2. Dorsal surface of tarsi glabrous, with punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws asymmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw truncate.

AEDEAGUS. Fig. 5A–B.

Astaena zyrota Saylor, 1946
Figs 5F–J, 7B

Astaena zyrota Saylor, 1946: 232.

Astaena zyrota – Frey 1973: 352 (identification key). — Evans 2003: 31 (checklist). — Evans & Smith 2005: 15 (checklist); 2007: 16 (checklist); 2009: 16 (checklist).

Type material examined

Holotype

GUIANA • ♂; “Tumatumari VI Br Guiana / L.W. Saylor Collection / California Academy of Sciences Type n° 7921 / Holotype *Astaena zyrota* L.W. Saylor”; CAS.

Holotype redescription

MEASUREMENTS. Length: 7.5 mm. Width: 4.5 mm.

HEAD. Reddish-brown, surface without setae. Labroclypeus, shape of anterior margin weakly sinuated medially, posteriorly with sparse punctation. Ocular canthus without terminal setae, ratio to eye: 1/4. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1.5; ratio third vs fourth antennomere: 1/3; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Pronotum unicolored, reddish-brown, widest at middle, anterior marginal line present, posterior marginal line absent, lateral margin weakly convex and not serrated, antero-lateral angle dorso-ventrally not flattened, postero-lateral angle dorso-ventrally not flattened, punctation on

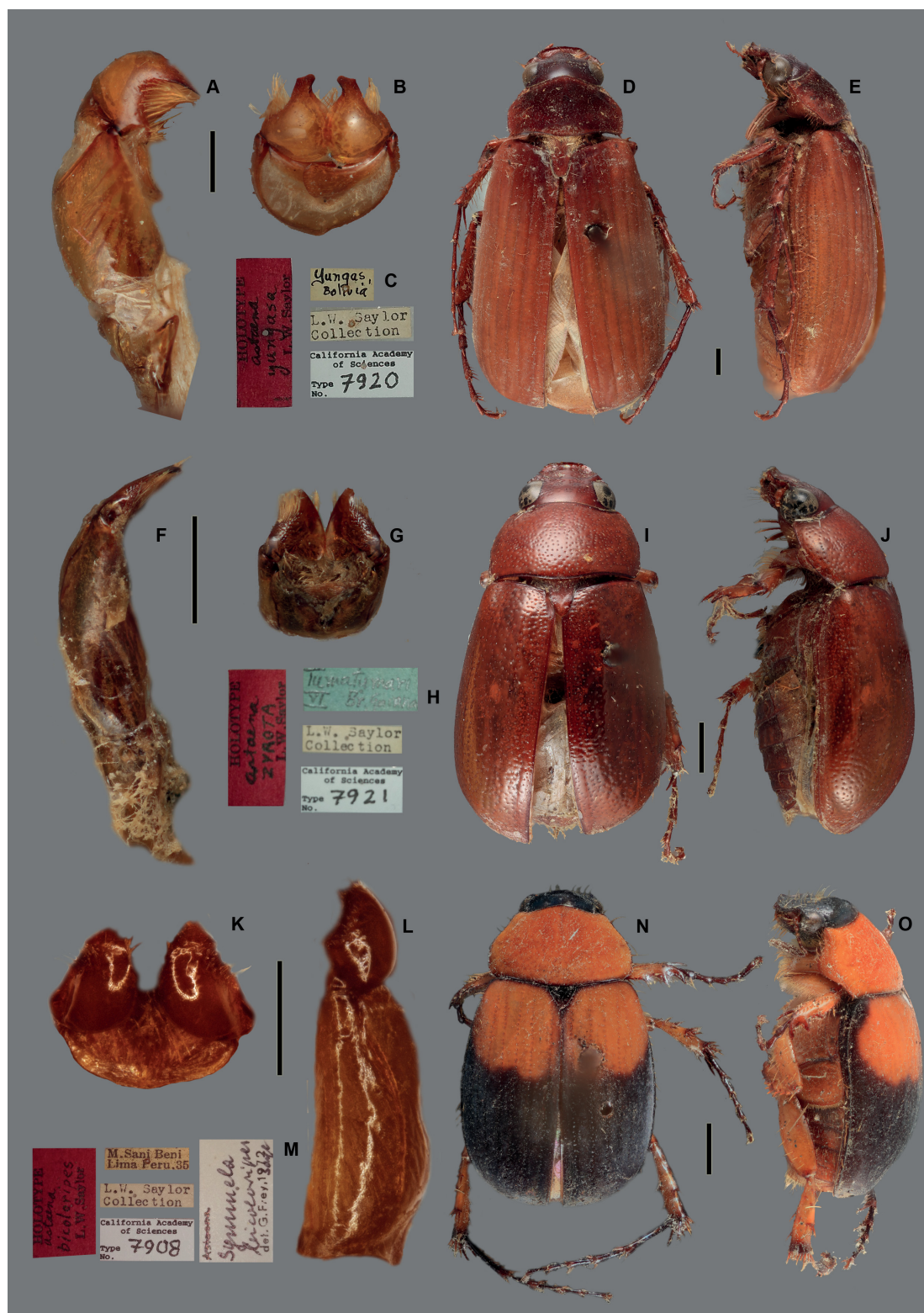


Fig. 5. A–E. *Astaena yungasa* Saylor, 1946, holotype, ♂ (Type No. 7920; CAS). – F–J. *A. zyrota* Saylor, 1946, holotype, ♂ (Type No. 7921; CAS). – K–L. *Sayloria bicoloripes* (Saylor, 1946), paratype, ♂ (CAS). – M–O. *S. bicoloripes*, holotype, ♀ (Type No. 7908; CAS). A, F, L. Aedeagus, lateral view. B, G, K. Parameres, dorsal view. C, H, M. Labels. D, I, N. Habitus, dorsal view. E, J, O. Habitus, lateral view. Scale bars: A–B, F–G, K–L = 0.5 mm; D–E, I–J, N–O = 1 mm.

disc dense, setae of lateral margin sparse, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, reddish-brown, surface opaque, microsculpture absent, punctation on intervals present, punctation on intervals dense, diameter of striae and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite with row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf absent. Metatibia, widest at apex, ventral margin not serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/2. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere smaller than second and third combined, ventral margin glabrous. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws asymmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw truncate.

AEDEAGUS. Fig. 5F–G.

Sayloria Frey, 1973

Sayloria Frey, 1973 (nec Chalumeau, 1981): 324 (as subgenus of *Symmela*).

Sayloria (as subgenus of *Symmela* Frey, 1973) – Evans 2003: 47 (checklist). — Evans & Smith 2005: 29 (checklist); 2007: 29 (checklist); 2009: 30 (checklist).

Type species

Astaena bicoloripes Saylor, 1946 (by monotypy).

Diagnosis

Brown, reddish-brown, blackish coloration, often bicolored. Antennae with eight antennomeres; antennal club of males with three antennomeres. Abdomen without a robust lateral carina. Mentum deeply sinuated medially at anterior margin.

Sayloria bicoloripes (Saylor, 1946) comb. nov. Figs 5K–O, 7C

Astaena bicoloripes Saylor, 1946: 226.

Astaena postnodata Frey, 1973: 339 **syn. nov.**

Symmela (*Sayloria*) *bicoloripes* – Frey 1973: 324 (new subgenus, identification key).

Symmela bicoloripes – Evans 2003: 47 (checklist). — Evans & Smith 2005: 29 (checklist); 2007: 30 (checklist); 2009: 30 (checklist).

Astaena postnodata – Evans 2003: 27 (checklist). — Evans & Smith 2005: 12 (checklist); 2007: 12 (checklist); 2009: 12 (checklist).

Type material examined

Holotype (*Astaena bicoloripes*)

PERU • ♀; “M. Sani Beni Lima Peru. 35 / L.W. Saylor Collection / California Academy of Sciences Type n° 7908 / Holotype *Astaena bicoloripes* L.W. Saylor / *Symmela bicoloripes* Saylor det. G. Frey”; CAS.

Paratype (*Astaena bicoloripes*)

PERU • 1 ♂; “M. Sani Beni Lima Peru. 35 / L.W. Saylor Collection / Paratype *Astaena bicoloripes* L.W. Saylor / *Astaena bicoloripes* Saylor / CASENT 8438129”; CAS.

Holotype (*Astaena postnodata*)

PERU • ♂; “Mt. Alegre, Rio Pachitea O. Peru G. Tessmann / Type *Astaena postnodata* G. Frey 1973”; ZMHB.

Paratypes (*Astaena postnodata*)

PERU • 4 ♀♀; “Mt. Alegre, Rio Pachitea O. Peru G. Tessmann / Paratype *Astaena postnodata* G. Frey 1973”; ZMHB.

Additional material examined

PERU • 1 ♂; “Dept. Cusco, PERU Santa Isabel Cosnipata Valley Dec 5 1951 Felix Woytkowski / H. & A. Howden collection Ottawa Canada”; CMNC • 6 ♂♂, 5 ♀♀; “Mt. Alegro, Rio Pachitea o. Peru G. Tessmann”; ZFMK, ZMHB, NHMB.

Holotype redescription

MEASUREMENTS. Length: 6.5 mm. Width: 4 mm.

HEAD. Black, surface with upright setae. Labroclypeus convex, shape of anterior margin weakly sinuated medially, posteriorly with dense punctation. Ocular canthus with terminal setae, ratio to eye: 1/3. Eyes, ratio diameter/interocular width: 0.44. Antennae with nine antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1; ratio third vs fourth antennomere: 1/2; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1.2/1.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum unicolored, brownish-orange, widest at base, anterior marginal line present, posterior marginal line absent, lateral margin strongly convex and smooth (not serrate), antero-lateral angle dorso-ventrally not flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc dense, setae of lateral margin sparse, median longitudinal excavation present. Scutellum, punctures medially present. Elytra bicolored, surface opaque, microsculpture absent, punctation on intervals present and sparse, diameter of stria and interval punctation equal.

ABDOMEN. Lateral carina present. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Ratio of length of metepisternum/metacoxa: 1/0.90. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, ratio of width/length: 1/3, dorsal margin not carinated. ventral margin serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/3. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated and setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws asymmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw truncate.

AEDEAGUS. Fig. 5K–L.

Remarks

Also, in this case, the holotype was a female specimen; Saylor mentioned in the original description that the holotype was a male.

Sayloria abcora (Saylor, 1946) comb. nov.
Figs 6A–I, 7C

Astaena abcora Saylor, 1946: 224.

Astaena apolinar-maria Saylor, 1946 **syn. nov.**

Astaena abcora – Frey 1973: 348 (identification key). — Evans 2003: 19 (checklist). — Evans & Smith 2005: 29 (checklist); 2007: 30 (checklist); 2009: 30 (checklist).

Astaena apolinar-maria – Frey 1973: 352 (identification key).

Astaena apolinar-maria Evans 2003: 19 (spelling corrected, checklist). — Evans & Smith 2005: 29 (checklist); 2007: 30 (checklist); 2009: 30 (checklist).

Type material examined

Holotype (*Astaena abcora*)

COLOMBIA • ♂; “Buenaventura alt. 3500-4000 ft. Colombia, ii-3 / L.W. Saylor Collection / California Academy of Sciences Type n° 7905 / Holotype *Astaena abcora* L.W. Saylor”; CAS.

Paratype (*Astaena abcora*)

COLOMBIA • 1 ♀; “Buenaventura alt. 3500-4000 ft. Colombia, ii-3 / L.W. Saylor Collection / Collection of the California Academy of Sciences, San Francisco, California / Allotype *Astaena abcora* L.W. Saylor / CASENT 8438114”; CAS.

Holotype (*Astaena apolinar-maria*)

COLOMBIA • ♀; “Pensilvania Colomb / L.W. Saylor Collection / California Academy of Sciences Type n° 7906 / Apolinar-Maria / Holotype *Astaena apolinar-maria* L.W. Saylor”; CAS.

Additional material examined

COLOMBIA • 4 ♂♂, 1 ♀; “COLOM: Antioquia 1800m, nr. Yarumai 20.iv.73, J. Helava”; CMNC • 19 ♂♂, 11 ♀♀; “Manizales A.M. Patino / Slg. R. Oberthür Eing. Nr.4, 1956”; ZFMK, MNHN • 3 ♂♂, 1 ♀; “S. America / Coll. C. Felsche Kauf 20, 1918”; SMTD • 1 ♀; “Columbia / Gehr. W.Müller Vermächt., 1909”; SMTD • 1 ♀; “Cauca / Coll. C. Felsche Kauf 20, 1918”; SMTD • 1 ♀; “Columbia Cañon de Gallo / *Astaena apolinar-maria* Sayl. Det. G. Frey, 1972 / cum typo comparatum”; NHMB.

Holotype redescription

MEASUREMENTS. Length: 7 mm. Width: 3.75 mm.

HEAD. Black, surface with simple setae. Labroclypeus, shape of anterior margin weakly sinuated medially, posteriorly with sparse punctation. Ocular canthus with terminal setae, ratio to eye: 1/3. Eyes, ratio diameter/interocular width: 0.40. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal club/remaining antennomeres: 1/1.5; ratio third vs fourth antennomere: 1/2; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum bicolored, widest at base, anterior marginal line present, posterior marginal line absent, lateral margin weakly convex and serrated, antero-lateral angle dorso-ventrally flattened, postero-lateral angle dorso-ventrally not

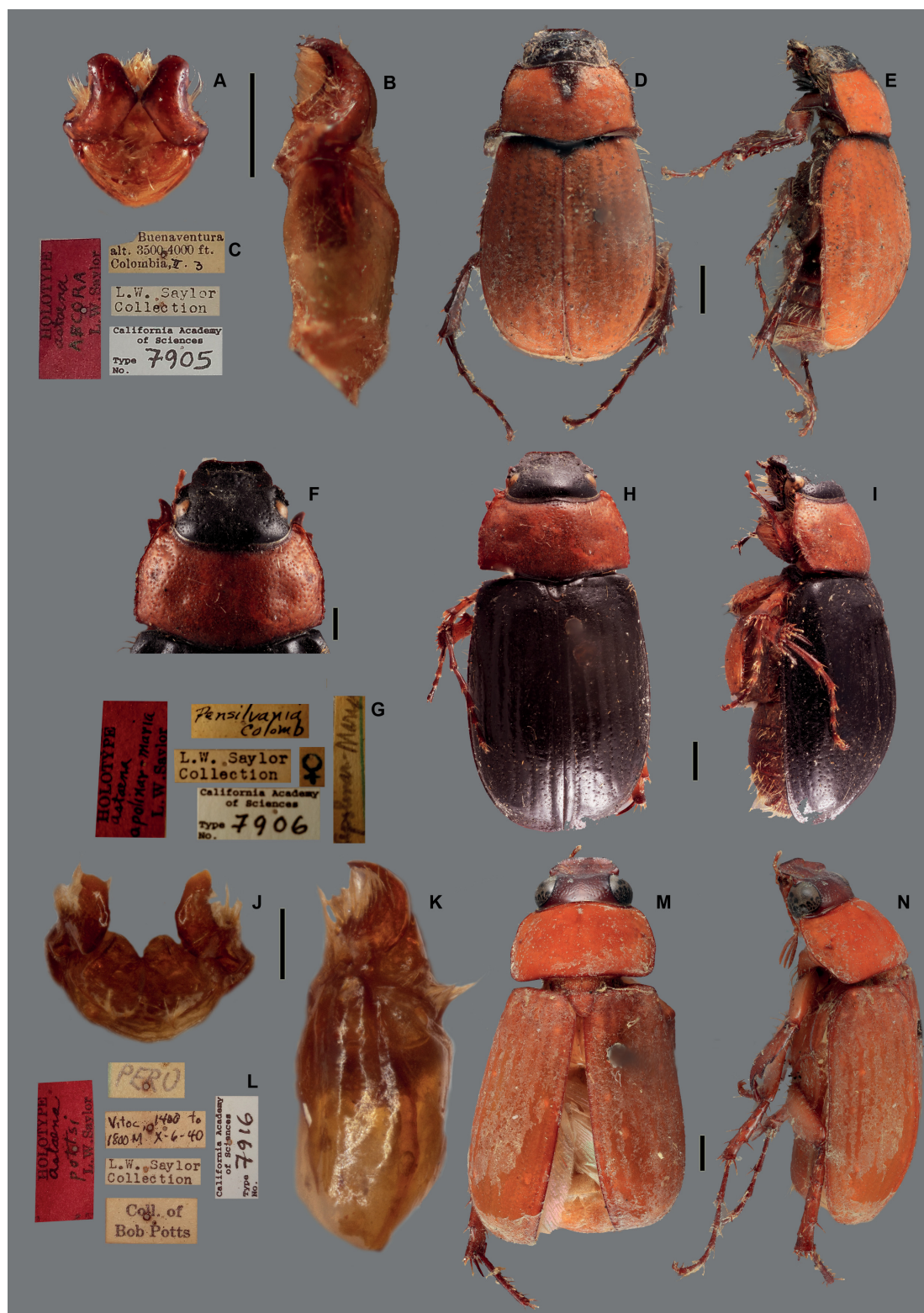


Fig. 6. A–E. *Sayloria abcora* (Saylor, 1946), holotype, ♂ (Type No. 7905; CAS). – F–I. *Astaena apolinarmaria* Saylor, 1946, holotype, ♀ (Type No. 7906; CAS). – J–K. *Sayloria pottsii* (Saylor, 1946), paratype, ♂ (CAS). – L–N. *S. pottsii*, holotype, ♀ (Type No. 7916; CAS). A, J. Parameres, dorsal view. B, K. Aedeagus, lateral view. C, G, L. Labels. D, H, M. Habitus, dorsal view. E, I, N. Habitus, lateral view. F. Head and pronotum, dorsal view. Scale bars: A–B, F, J–K = 0.5 mm; D–E, H–I, M–N = 1 mm.

flattened, punctation on disc sparse, setae of lateral margin dense, median longitudinal excavation absent. Scutellum, punctures absent medially. Elytra unicolored, brownish-orange, surface opaque, microsculpture absent, punctation on intervals present, sparse, diameter of stria and interval punctation equal, posterior edge straight.

ABDOMEN. Lateral carina absent. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Ratio of length of metepisternum/metacoxa: 1/0.77. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, ratio of width/length: 1/3.34, dorsal margin carinated, ventral margin not serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/2. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin serrated and glabrous. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

AEDEAGUS. Fig. 6A–B.

Remarks

There is no difference between female type specimens of *S. abcora* and *S. apolinarmaria* except coloration, which is very variable. Therefore, we consider them synonymous.

Sayloria pottsi (Saylor, 1946) comb. nov.
Figs 6J–N, 7C

Astaena pottsi Saylor, 1946: 217.

Astaena pottsi – Frey 1973: 339 (identification key). — Evans 2003: 27 (checklist). — Evans & Smith 2005: 12 (checklist); 2007: 12 (checklist); 2009: 12 (checklist).

Type material examined

Holotype

PERU • ♀; “Peru / Vitoc, 1400 to 1800m x-6-40 / Coll. of Bob Potts / L.W. Saylor Collection / California Academy of Sciences Type n° 7916 / Holotype *Astaena pottsi* L.W. Saylor”; CAS.

Paratypes

PERU • 1 ♀; “Peru / Vitoc, 1400 to 1800m ix-22-40 / Coll. of Bob Potts / L.W. Saylor Collection / Collection of the California Academy of Sciences, San Francisco, California / Allotype *Astaena pottsi* L.W. Saylor / CASENT 8438229”; CAS • 1 ♂; “Vitoc, 1400 to 1800m ix-13-40 / Coll. of Bob Potts / L.W. Saylor Collection / Paratype *Astaena pottsi* L.W. Saylor / Locality label should read Vitor, PERU / CASENT 8438221”; CAS • 1 ♀; “Peru / Vitoc, 1400 to 1800m ix-3-40 / Coll. of Bob Potts / Paratype *Astaena pottsi* L.W. Saylor / Locality label should read Vitor, PERU / CASENT 8438222”; CAS.

Holotype redescription

MEASUREMENTS. Length: 11 mm. Width: 5 mm.

HEAD. Reddish-brown, surface with setae. Labroclypeus, shape of anterior margin straight, posteriorly with sparse punctation. Ocular canthus with terminal setae, ratio to eye: 1/4. Eyes, ratio diameter/interocular width: 0.7. Antennae with eight antennomeres; antennal club with three antennomeres; ratio antennal

club/remaining antennomeres: 1/1.5; ratio third vs fourth antennomere: 1/2; fourth antennomere, lateral projection absent; ratio fifth vs fourth antennomere: 1/5.

PRONOTUM AND ELYTRA. Surface of pronotum and elytra without setae. Pronotum unicolored, brownish-orange, widest at middle, lateral margin weakly convex and not serrated, antero-lateral angle dorso-ventrally not flattened, postero-lateral angle dorso-ventrally not flattened, punctation on disc sparse, setae of lateral margin sparse, median longitudinal excavation present. Scutellum, punctures absent medially. Elytra unicolored, brownish-orange, surface opaque, microsculpture absent, punctation on intervals present and dense, diameter of strial and interval punctation equal.

ABDOMEN. Lateral carina absent. Second visible ventrite without row of setae in medial region. Apical visible ventrite without suture to apical tergite.

LEGS. Ratio of length of metepisternum/metacoxa: 1/1.12. Metacoxa without longer lateral bristles, a laterally extended longitudinal shelf present. Metatibia, widest at apex, ratio of width/length: 1/3.88, dorsal margin not carinated, ventral margin not serrated, distal spines groups disposed at two thirds of metatibial length. First metatarsomere, ratio to dorsal metatibial spur: 1/3. Dorsal surface of tarsi glabrous, without punctures. Metatarsi, length of first protarsomere subequal to second and third combined, ventral margin setose. Protibia with three teeth. Protarsi, length of first protarsomere subequal to second and third combined, second protarsomere narrow, claws symmetrical, inner protarsal claw bifid, apex of basal tooth of inner protarsal claw acute.

AEDEAGUS. Fig. 6J–K.

Discussion

The current revision treated the types described by L.W. Saylor, of which six of 18 taxa are known only from females. This represents nearly 35% of the species, which makes a comprehensive taxonomic treatment difficult since generally all species of Sericini are distinguished with confidence only through the examination of male genitalia. Although external morphology, including shape and surface structure of head, pronotum, and elytra, is relatively stable in South American Sericini compared to Old World Sericini lineages, the taxonomy of the species is complicated by the fact that sexual dimorphism is extreme in many species. Dimorphism is not only apparent in the shape of tarsi and pygidium, but also in body color and surface sheen; thus males and females of the same species are often not easily associated initially (e.g., *Sayloria abcora*).

We were able to identify *Sayloria* Frey, 1973 as a separate genus based on a comprehensive and comparative preliminary review of morphological characters within South American Sericini (Pacheco *et al.* in preparation). Exclusive hypothesized synapomorphies of *Sayloria* include mouthpart characters (e.g., the deeply excised anterior margin of the mentum) and the absence of a robust lateral carina on abdominal ventrites. Given the high degree of homoplasy in many morphological traits of Sericini that make a generic systematic very difficult (e.g., Ahrens 2006b, 2006c; Ahrens & Vogler 2008; Liu *et al.* 2015; Frings *et al.* 2020), results from comparative morphology will need to be supported by evidence from future molecular phylogenies.

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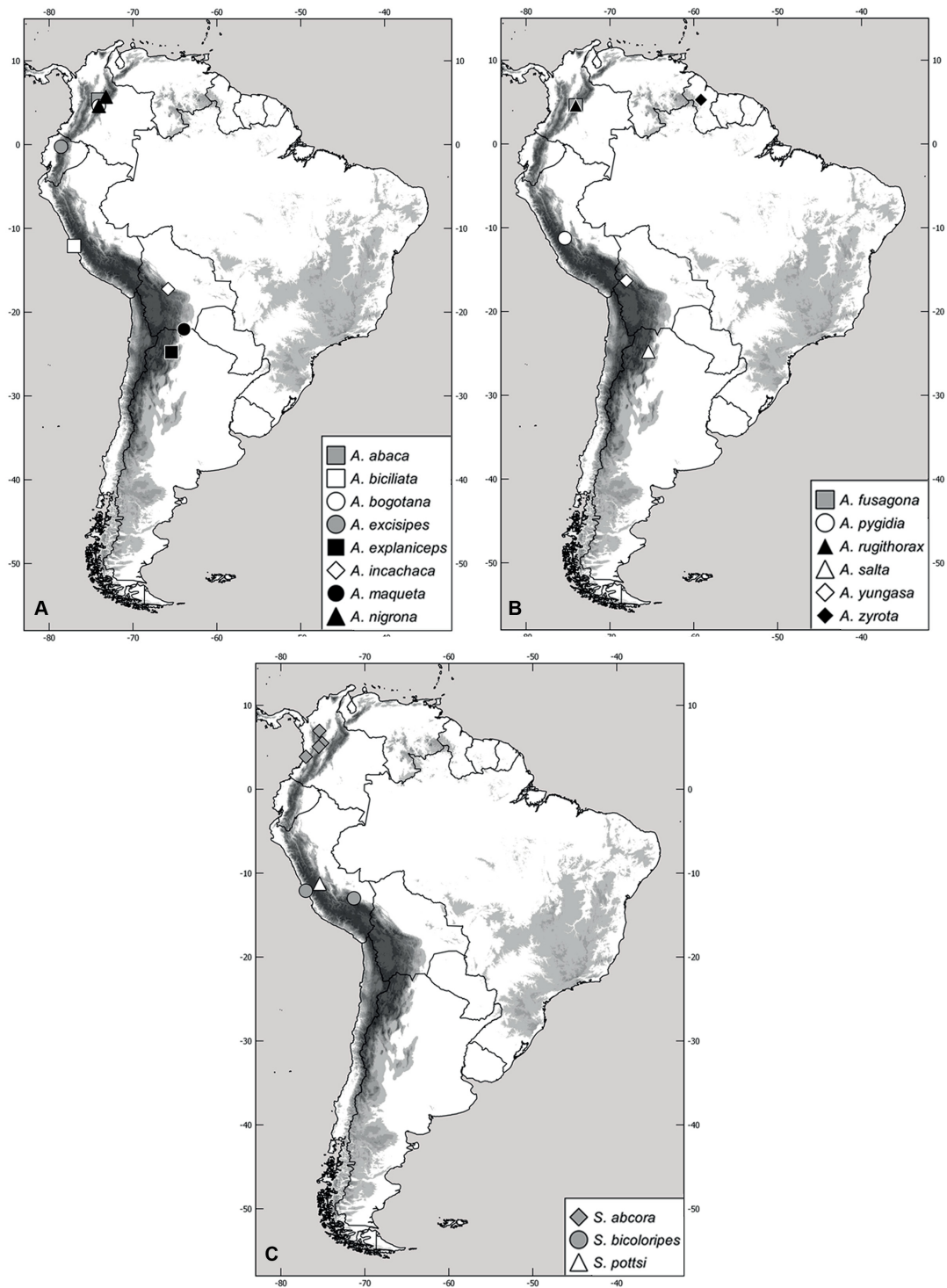


Fig. 7. Distribution of type localities of the South American Sericini species described by Saylor. **A.** *Astaena abaca* Saylor, 1946, *A. biciliata* Saylor, 1946, *A. bogotana* Saylor, 1946, *A. excisipes* Saylor, 1947, *A. explaniceps* Saylor, 1947, *A. incachaca* Saylor, 1946, *A. maqueta* Saylor, 1947, and *A. nigrona* Saylor, 1947. **B.** *A. fusagona* Saylor, 1946, *A. pygidia* Saylor, 1946, *A. rugithorax* Saylor, 1946, *A. salta* Saylor, 1946, *A. yungasa* Saylor, 1946, and *A. zyrota* Saylor, 1946. **C.** *Sayloria abcora* (Saylor, 1946) comb. nov., *S. bicoloripes* (Saylor, 1946) comb. nov., and *S. pottsi* (Saylor, 1946) comb. nov..

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