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Research article
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Four peculiar new *Metallactus* species from Argentina (Coleoptera: Chrysomelidae, Cryptocephalinae)

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Abstract
Metallactus canescens **sp. nov**., *Metallactus aemulus* **sp. nov**., *Metallactus diaguita* **sp. nov**., *Metallactus nugator* **sp. nov**. are described from Northern and Central Argentina. The new species are very similar to one another regarding their external look but can be distinguished above all on the basis of internal characters, in particular the morphology of the aedeagal median lobe. Besides, some traits of their external features, i. e. the thick dorsal setosity and the weak metallic hue, look quite uncommon within the genus *Metallactus* Suffrian, 1866 and remind of some species of genus *Coscinoptera* Lacordaire, 1848 (in particular *C. tibialis* Harold, 1875) and other undescribed species belonging to the genus *Griburius* Haldeman, 1849. This might be due to some kind of adaptive convergent evolution.

Key words: Entomology, taxonomy, new species, Pachybrachina, Neotropical Region, endophallus, endophallic sclerites.

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Introduction

The genus *Metallactus* Suffrian, 1866 includes today 98 species. Compared to the original diagnosis of Suffrian (1866), in recent years the diagnostic features of this Neotropical genus were better delineated in a series of works (Sassi 2018, 2019; Sassi in press). From the analysis of a lot of material covering the whole range of morphological variability, there does not seem to be a tendency, in *Metallactus*, to develop a dorsal coverage of setae, as it is noted in a number of cases in several other genera of Cryptocephalinae, and in South American Pachybrachina in particular, such as some species of *Mylassa* Stål, 1867, many *Pachybrachis* Chevrolat, 1836 and some *Griburius* Haldeman, 1849 (see for instance Agrain et al. 2017). As a matter of fact, none of *Metallactus* species known so far show dense and continuous dorsal setosity, therefore, the four species described here constitute at present a remarkable exception.

Materials and Methods

Measurement, photography and drawings of specimens. Examination, dissection, measurements and drawings were completed with the use of a stereomicroscope with an ocular micrometer. The total length (BL) of each specimen was measured from the anterior margin of pronotum to the apex of elytron.

Pictures of the dorsal, lateral and frontal habitus of the holotype and drawings of the aedeagal median lobe, the endophallus sclerites, the spermatheca and the right antenna of a male specimen are provided for all the species.

Photos were composed by photomontage with CombineZP Image Stacking Software (Hadley 2010). Data for type specimens are cited verbatim and additional comments are given in square brackets.

Dissections. The internal structures were studied by dissecting dried specimens after separating the abdomen in water, soaking it in boiling, dilute (10%) KOH for about 15 seconds, keeping it in the same hot solution for five minutes and then washing it in water. Female and male internal genitalia were kept in microvials in 60% ethanol for the whole period in which the study was conducted, allowing comparison and enabling the observation from any desired angle at any time, avoiding the need to dissolve the medium as in the case of durable preparations.

Regarding the male genitalia, only the morphology of the median lobe of the aedeagus and the structure of the sclerites of the endophallus were found to be useful. For the systematic comparisons among species, the endophallus was extracted with a non-conservative procedure for the membranes, focusing only on the sclerotized plates, namely the sclerites, which were studied in their reciprocal position in the uneverted structure.

In the female genitalia, the morphology of the spermatheca was studied, compared and figured. The female rectal apparatus was neither figured nor discussed because

no significant differences have been detected in the comparison of the species.

Taxonomy. The four species described here look externally almost identical, for this reason a single, general description of the external habitus could have been given, highlighting the sole significant, small differences as a description of the individual species. However, it was preferred to give the description of each species extensively, albeit redundant within the structure of the present work, because this allows to connect an unambiguous and complete description to each of the species, which can facilitate comparisons and taxonomic revisions.

Terminology. For terminology of external characters, spermatheca, median lobe of aedeagus and endophallus see Sassi (2018).

Abbreviations

BL body length;
BW body width;
PL pronotal length;
PW pronotal width;
HT holotype.

Specimens depositories

BMNH Natural History Museum, London, United Kingdom
BYU Insect Collection Monte L. Bean Life Science Museum Brigham Young University, Provo, U.S.A.
DSPC Author's Personal Collection, Castelmarte, Italy
MNHUB Stiftung Museum für Naturkunde, Leibniz-Institut fur Evolutions und Biodiversitätsforschung, Berlin, Germany
MSNM Museo Civico di Storia Naturale, Milano, Italy
USNMNH Smithsonian Institution, Washington DC, U.S.A.
SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany

Photos of the species are also available on the author's website (Sassi & Montagna 2020) at http://www.chrysomelidae.it/amer-pachy

Results

The analysis of the 19 specimens available made it possible to identify 4 distinct species. The differences detected are subtle, but they are believed to be sufficient to divide the sample into different taxa because such differences affect crucial traits of the edeagal morphology. The shape of the spermatheca also provides pieces of interesting information, as well as the sclerites of the internal sac. The dorsal coloration is uniform but some differences in elytral background (dark gray to dark reddish brown) and the presence/absence of reddish variegations might prove useful but require confirmation on a larger number of specimens. For that reason, such differences in coloration are given in the description, but not stressed as informative elements in the diagnoses and comparisons.

Key to the species

1. Interocular distance relatively short (Fig. 5a, 5c), less than 10% of BL in male, less than 12.5 % of BL in female (but unknown in female of *M. diaguita!*). Femora completely metallic gray or partly reddish 2
- Interocular distance in male relatively large (Fig. 5b, 5d), more than 11% of BL in male, more than 14% in female. Femora at least partly reddish or yellow 3
2. Apex of median lobe weakly separated from shaft, rounded, with shallow, scarcely delimited setose depressions ("hairy dents" in Sassi, 2018). Posterior margin of male fifth abdominal ventrite more deeply notched. Femora completely metallic gray .... *M. canescens* **sp. nov.** (Fig. 1)
- Apex of median lobe well separated from shaft, pointed. Setose depressions well impressed, separated by a shallow longitudinal carina. Rear posterior margin of male fifth abdominal ventrite more deeply notched. Femora at least partly reddish .... *M. diaguita* **sp. nov.** (Fig. 3)
3. Apex of median lobe pointed. Setose depressions well impressed, externally delimited by a sharp edge. Ventral surface of median lobe rather convex in lateral view. Sclerite I of endophallus sac-like. Vasculum of spermatheca slender in the outline. Femora darkened with reddish patches .... *M. aemulus* **sp. nov.** (Fig. 2)
- Apex of median lobe rather blunt. Setose depressions shallow, scarcely delimited. Ventral surface of median lobe slightly concave in lateral view. Sclerite I of endophallus triangular. Vasculum of spermatheca stokier in the outline. Male mid and posterior femora yellow ..... *M. nugator* **sp. nov.** (Fig. 4)

***Metallactus canescens* sp. nov.** (Figs 1, 5a, 6a)

Type material. Holotype ♂, **Argentina**: (body, aedeagus and detached abdomen glued on the same card) // "Argentina Catamarca E of Salina de Pipanaco 10 km S of San Miguel ca 700m 24-25 Nov. 1999 Petr Zabransky leg. // "*Metallactus canescens* sp. nov. HOLOTYPUS D. Sassi des." [red label, printed] // (MSNM). Paratypes (11 specimens): 6♂♂ and 4♀♀, same data of holotype (MSNM, DSPC); 1♂, // "Sgo del Estero Cap. XI.961 Kohler" [white label, handwritten] // "Argentina 1968 Coll. J. Daguerre" [white label, printed] // (USNMNH). All paratypes provided with additional label: // "*Metallactus canescens* sp. nov. PARATYPUS D. Sassi des." [red label, printed] //.

Etymology. Latin present participe *canescens*, meaning "growing old" and stressing the presence of the thick whitish dorsal setosity.

Type locality. San Miguel (Salina de Pipanaco, Catamarca, Argentina).

Distribution. Argentina (Fig. 6a).

Diagnosis. *Metallactus canescens* differs from the other

species in having all femora completely metallic gray. Besides, the interocular distance is remarkably shorter than in *M. aemulus* and *M. nugator*, being rather similar in *M. diaguita* only. This latter differs in the shape of apical half of median lobe.

Description of male. Habitus in Fig. 1a–b (HT). BL = 4.0–5.0 mm, BW = 2.3–2.7 mm, PL = 1.3–1.8 mm, PW = 2.0–2.5 mm. Interocular distance 8.6 % of BL.

Head dark brown with strong metallic reflections, some lighter patches in the middle of frons. Labrum yellow. Vertex surface shiny, finely punctured, with scattered short recumbent setae. Frontoclypeal area relatively narrow between eyes (Fig. 5a), with shallow punctures, denser on clypeus, and thick, long, appressed, white setae hiding almost completely the surface. Mid-cranial suture not distinguishable. Ocular lines barely discernible, strictly adhering to ocular rim, sometimes marked by a fading line of punctures. Ocular canthus deep, quite densely punctured with thick long, appressed setae. Antennae (Fig. 1f) with first five antennomeres sublucid, yellowish, 4-5 rod-shaped, 6-11 darker, dull, more flattened and more diffusedly setose.

Pronotum dark gray with evident metallic reflections. Sometimes two fading, reddish patches on posterior angles. Pronotal shape subelliptical, vaulted. Lateral margins rather thin, almost not visible from above, regularly curved with maximum width just behind half length. Posterolateral impression obliterated. Surface rather convex, shiny with scattered, shallow punctures sometimes alternate with finer micropunctation, and with an evident covering of robust, appressed, white setae, rather sparse on disk, denser and partly semi-erect (in some specimens) on sides.

Scutellum dark brown to blackish, distinctly raised, covered with white setae and perceptibly punctured. Apex truncated in a straight line.

Elytron dark brown, irregularly dappled with chestnut to almost completely chestnut, metallic reflections more evident when darker tint prevails, but surface always rather shiny. Sometimes basal margin frankly yellow. Epipleuron uniformly dark brown. Suture narrowly blackish. Humeral callus blackish. Elytral outline parallel-sided, rather slender, elytron disc only weakly flattened in the middle. Lateral margin straight, narrow, not visible from above. Postscutellar area not raised. Humeral callus prominent, impunctate. Elytral surface covered with robust, rather thick, uniformly distributed whitish setae, with small, shallow punctation irregularly arranged on disk and clues of irregular rows only towards side and apex. Intervals flat. Epipleuron smooth, lustrous, slightly convex close to basal margin, flatter rearward, with only few scattered, weakly impressed, small setigerous punctures.

Pygidium dark brown, smooth, matt, covered by sparse shallow punctures and whitish setae.

Inferior parts of thorax dark brown, surface almost entirely hidden by a thick covering of robust, recumbent, white setae. Only inner part of hypomera almost bare with scarce shallow punctures. Prosternal process narrow, longitudinally grooved, covered with long, curly setae and terminated by a short, blunt, triangular apex. Abdominal sternites dark colored, completely hidden by long, appressed, white setae. Legs with sparse, long setae, femora dark colored with evident metallic reflections, tibiae yellow, tarsi brownish.

Median depression on fifth abdominal ventrite rather shallow, lengthened, bare, impunctate, moderately shiny. Posterior margin of fifth abdominal ventrite weakly notched. Median lobe of aedeagus (Fig. 1c) slightly flattened dorsoventrally, fairly enlarged on apical end, with apex scarcely differentiated from shaft, short, blunt to slightly pointed. In lateral view outline almost straight along proximal section, with apex slightly bent ventrally. Setose depressions moderately impressed, evident, bearing scarse, short and curly setae. Aedeagal ventral surface smooth in lateral view and devoid of particular structures. Endophallus (Fig. 1d) with sclerite I strongly developed, weakly sclerotized, subtriangular in lateral view, with huge denticle arranged on apical corner. Dorsal spicule well developed as well, weakly sclerotized, thorn-like. Sclerite II short, curved, tapered at one end. Arch of sclerite III slender, short. Apex of sclerite III curved upwards and pointed. Branches of sclerite IV equivalent in length to sclerite III in the folded-up structure, almost straight, parallel-sided along the entire length, with blunt, slightly asymmetrical, microdenticulate apex.

Female. BL = 5.2–5.3 mm, BW = 2.8 mm, PL = 1.7 mm, PW = 2.5–2.7 mm. Interocular distance 11.7–12.1 % of BL.

Females differ in stouter body, larger interocular distance, shorter antennomeres (but some variability has been observed in antennomeres length).

Fifth abdominal ventrite in females with rounded, rather deep pit. Bottom of pit quite shiny, with few sparse small punctures bearing tiny setae. Vasculum of spermatheca (Fig. 1e) not pigmented to perceptibly darkened at base and apex, with straight to slightly curved proximal lobe, not swollen at base, quite long distal lobe and apex abrubtily tapered, straight to slightly bent downward. Ampulla not pigmented, sitting on the very end of vasculum. Duct insertion and sperm gland insertion perceptibly distinct. Duct uniform in size, slender, coiled with coils markedly loose and somewhat irregularly arranged, with tendency to form a tangle beside the vasculum; not coiled portion of duct near bursa copulatrix rather short, straight. Insertion on bursa copulatrix swollen, stout, clearly pigmented.

***Metallactus aemulus* sp. nov.** (Figs 2, 5b, 6b)

Type material. Holotype ♂, **Argentina**: (body, aedeagus and detached abdomen glued on the same card) // "Santa Elena, Entre Rios, Argentine. G. E. Bryant I.1912" [white

label, mostly printed] // "G. Bryant Coll. 1919-147" [white label, printed] // "*Metallactus aemulus* sp. nov. HOLOTYPUS D. Sassi des." [red label, printed] // (BMNH). PARATYPE (1 specimen): 1♀, same data of holotype // "*Metallactus aemulus* sp. nov. PARATYPUS D. Sassi des." [red label, printed] // (BMNH).

Etymology. Latin adjective *aemulus* means "imitator" "competitor", stressing the close similarity with the other species of the group.

Type locality. Santa Elena (Entre Rios, Argentina).

Distribution. Argentina (Fig. 6b).

Diagnosis. Male specimens differ from *M. canescens* and *M. diaguita* in larger interocular distance. *M. nugator* is similar as regard this feature, but it differs both in median lobe shape and spermatheca outline. The median lobe in particular is broadened distally in *M. aemulus*, and it shows two slight but perceivable thickenings bordering the outer side of the setose depressions. In addition, the median lobe apex is more pointed than in *M. nugator*, and ventral outline more convex in lateral view.

Description of male. Habitus in Fig. 2a–b (HT). BL = 4.4 mm, BW = 2.4 mm, PL = 1.6 mm, PW = 2.2 mm. Interocular distance 11.7 % of BL.

Head dark brown with moderate metallic reflections on vertex, diffusedly reddish in the middle of frons. Labrum yellow. Vertex surface shiny, finely punctured, with scattered short recumbent setae. Frontoclypeal area relatively large between eyes (Fig. 5b), with barely visible punctures, denser on clypeus, and thick, long, appressed, white setae hiding almost completely the surface. Mid-cranial suture not distinguishable. Ocular lines scarcely detectable, narrow, strictly adhering to ocular rim. Ocular canthus deep, with surface almost totally hidden by thick, long, appressed setae. Antennae (Fig. 2f) with first five antennomeres sublucid, yellowish, 4-5 rod-shaped, 6-11slightly darkened, dull, more flattened and more diffusedly setose. Pronotum dark brown with weak metallic reflections. Pronotal shape subelliptical, vaulted. Lateral margins rather thin, almost not visible from above, regularly curved with maximum width just behind half length. Posterolateral impression obliterated. Surface rather convex, moderately shiny with scattered, fine punctures barely distinguishable under the coverage of setae; setosity thick, recumbent, well developed towards the median line as well.

Scutellum dark brown to blackish, distinctly raised, covered with white setae and almost smooth. Apex truncated in a straight line.

Elytron dark brown, with sparse reddish tinge; metallic reflections rather weak and surface moderately shiny. Basal margin dark brown as well. Epipleuron uniformly dark brown. Humeral callus blackish. Elytral outline parallel-sided, rather slender, elytron disc only weakly flattened in the middle. Lateral margin straight, narrow, not visible from above. Postscutellar area not raised. Humeral callus prominent, impunctate and bare. Elytral surface covered with robust, rather thick, uniformly distributed whitish setae, with rather small, shallow punctation irregularly arranged. Intervals flat. Epipleuron smooth, impunctate, lustrous, slightly convex close to basal margin, flatter rearward, devoid of punctures and setae.

Pygidium dark brown, smooth, matt, covered by sparse shallow punctures and whitish setae.

Inferior parts of thorax dark brown, surface covered with a thick layer of robust, recumbent, whitish setae. Only inner part of hypomera almost bare with scarce shallow punctures. Prosternal process narrow, longitudinally grooved, covered with long, curly setae and terminated by a short, blunt triangular apex. Abdominal sternites dark colored, completely hidden by long, appressed, white setae. Legs bearing sparse, rather long setae, femora and tarsi dark colored, tibiae yellow.

Median depression on fifth abdominal ventrite shallow, lengthened, bare, smooth, shiny, impunctate. Posterior margin of fifth abdominal ventrite weakly notched. Median lobe of aedeagus (Fig. 2c) clearly enlarged on apical end, with apex well differentiated from shaft, triangular, fairly pointed. In lateral view outline almost straight, with apex slightly bent ventrally. Setose depressions rather impressed, evident, externally well delimited by sharp border, with surface almost rugose bearing scarse, rather long, curly setae. Aedeagal ventral surface quite convex in lateral view, smooth and devoid of particular structures. Endophallus (Fig. 2d) with sclerite I strongly developed, weakly sclerotized, sac-like in lateral view with well developed denticle arranged on apical corner. Dorsal spicule well developed as well, weakly sclerotized, thorn-like. Sclerite II rather long, straight, moderately tapered at ends. Arch of sclerite III slender, short. Apex of sclerite III long, slender, curved upwards and pointed. Branches of sclerite IV equivalent in length to sclerite III in the folded-up structure, almost straight, parallel-sided along the entire length, with blunt, microdenticulate apex.

Female. BL = 5.0 mm, BW = 2.8 mm, PL = 1.5 mm, PW = 2.6 mm. Interocular distance 15.7 % of BL.

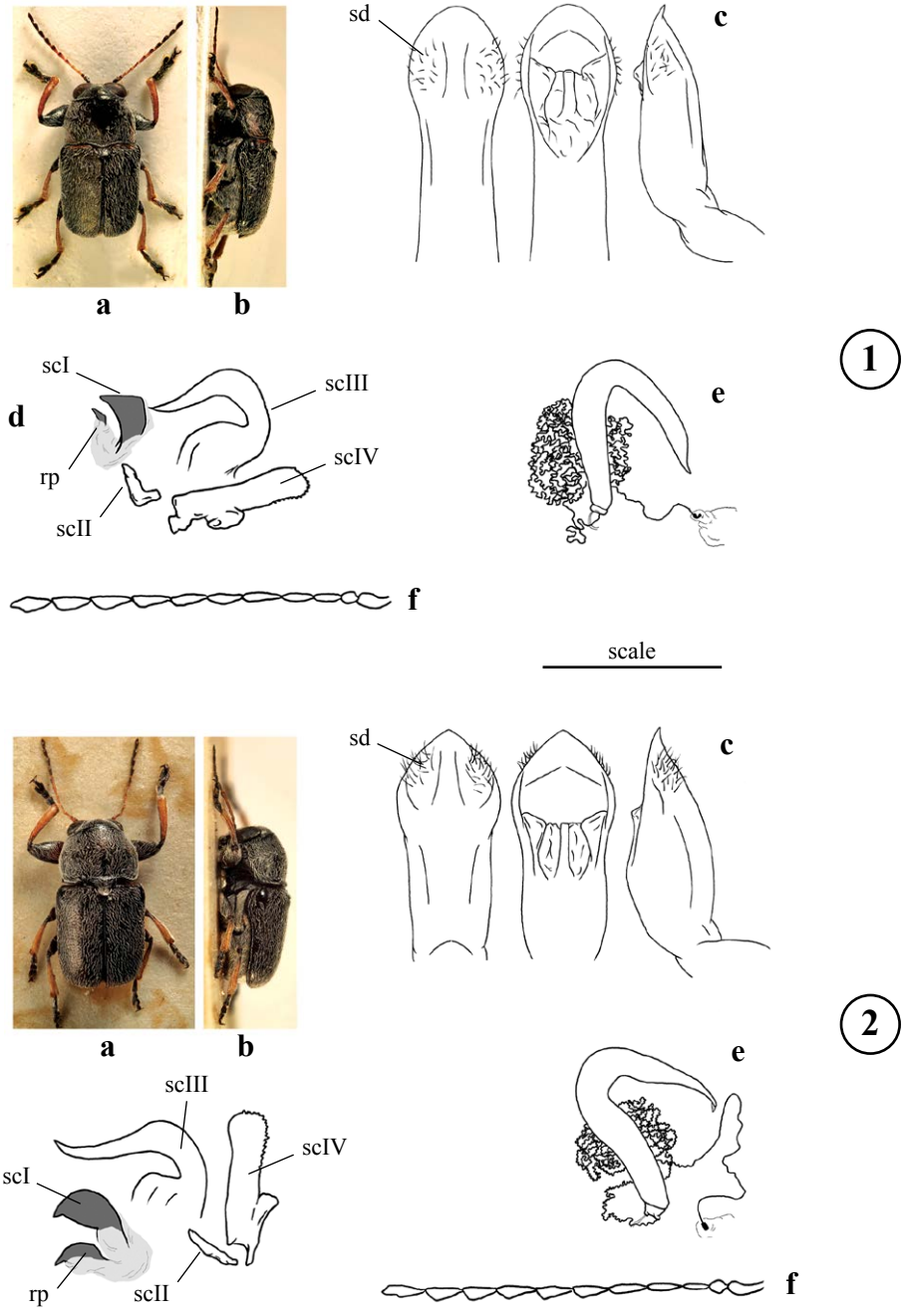
The single available female differs from the single male in stouter body, larger interocular distance, shorter antennomeres, deeper pronotal punctation.

Fifth abdominal ventrite with rounded, rather deep pit. Bottom of pit matt, slightly rugulose, almost bare. Vasculum of spermatheca (Fig. 2e) not pigmented, slender, with slightly curved proximal lobe, not swollen at base, quite long distal lobe and apex regularly tapered, sharpened, slightly bent downward. Ampulla not pigmented, short, transverse, sitting on the very end of vasculum. Duct insertion and sperm gland insertion perceptibly distinct. Duct uniform in size, slender, coiled with coils rather loose and somewhat irregularly arranged, with tendency to form a

tangle beside the vasculum; not coiled portion of duct near bursa copulatrix long, straight. Insertion on bursa copulatrix almost cylindrical, clearly pigmented.

***Metallactus diaguita* sp. nov.** (Figs 3, 5c, 6c)

Type material. Holotype ♂, **Argentina**: (glued, aedeagus extracted and glued on the same card bearing the specimen, abdomen glued on a separate card) // "RA La Roja Patquia X 1957 Coll. A. Martinez" [white label, handwritten] // "F. Monros Collection 1959" [white label, printed] // "*Metallactus diaguita* sp. nov. HOLOTYPUS D. Sassi des." [red label, printed] // (USNMNH). PARATYPE (1 specimen): 1♂, // "Arg La Roja Dept Rosaro V. Penaloza, Sierra de Arganaraz 1 km W El Rocillo 11-22 Oct 1997 ME Irwin FD Parker S Roig 31.2071°S 66.7140° W [white la-



Figs 1-2 – *Metallactus canescens* **sp. nov.** (**1**), *M. aemulus* **sp. nov.** (**2**). **1**a–b: habitus; **1**c: median lobe of aedeagus in ventral (left), dorsal (center) and lateral (right) view [0.8 mm]; **1**d: sclerites of endophallus [0.6 mm]; **1**e: spermatheca [0.6 mm]; **1**f: antenna [1.2 mm]. **2**a–b: habitus; **2**c: median lobe of aedeagus in ventral (left), dorsal (center) and lateral (right) view [0.8 mm]; **2**d: sclerites of endophallus [0.5 mm]; **2**e: spermatheca [0.5 mm]; **2**f: antenna [1.1 mm]. **1**a–b: holotype; **2**a–b: holotype. scI–IV: sclerites I–IV of endophallus; ds: dorsal spicule; sd: setose depression. Square brackets: length of scale segment.

bel, printed] // "*Metallactus diaguita* sp. nov. PARATYPUS D. Sassi des." [red label, printed] // (BYU).

Etymology. The species is named after the indigenous Diaguita people. The word Diaguita is a latinized noun in the nominative singular, standing in apposition to the generic name (art. 11.9.1.2. I.C.Z.N., 4th edition).

Type locality. Patquia (La Roja, Argentina).

Distribution. Argentina (Fig. 6c).

Diagnosis. Male specimens of this species differ from the related species in the shape of the median depression on fifth abdominal ventrite, which is deeper and more transverse. Besides, the posterior margin of male fifth abdominal ventrite is more deeply notched. Again, males can also be distinguished from *M. aemulus* and *M. nugator* for the shorter interocular distance. However, the shape of the median lobe is the main feature that easily allows to distinguish this species from the others.

Description of male. Habitus in Fig. 3a–b (HT). BL = 4.3–4.5 mm, BW = 2.4–2.6 mm, PL = 1.6–1.7 mm, PW = 2.1–2.3 mm. Interocular distance 9.3–9.5 % of BL.

Head dark brown with strong metallic reflections; an upright yellowish spot in the middle of frons, in the holotype reaching vertex. Labrum yellow. Vertex surface shiny, finely punctured, with scattered, short, recumbent setae on sides, almost impunctate and naked along median line. Frontoclypeal area relatively large between eyes (Fig. 5c), with shallow punctures, denser on clypeus, and thick, long, appressed, white setae hiding almost completely the surface. Mid-cranial suture not distinguishable. Ocular lines narrow, barely distinguishable, strictly adhering to ocular rim. Ocular canthus deep, quite densely punctured with thick long, appressed setae. Antennae (Fig. 3e) with antennomeres 2-5 sublucid, yellowish, 4-5 rod-shaped, 6-11 distally darkened, dull, more flattened and more diffusedly setose.

Pronotum dark grey with evident metallic reflections. Pronotal shape subelliptical, vaulted. Lateral margins thin, not visible from above, regularly curved with maximum width just behind half length. Posterolateral impression obliterated. Surface rather convex, shiny with scattered, small, shallow punctures and an evident covering of robust, appressed, whitish setae, rather sparse on disk, denser on sides.

Scutellum blackish, with yellowish tip in one of the specimens, distinctly raised, covered with white setae and perceptibly punctured. Apex truncated in a straight line.

Elytron dark grey, devoid of chestnut hues in both the available specimens with the exception of the basal margin which is narrowly tinged with yellow from median line to humeral callus; surface shiny with evident metallic reflections. Epipleuron uniformly dark brown. Humeral callus blackish. Elytral outline parallel-sided, rather slender, elytron disc only weakly flattened in the middle. Lateral margin straight, narrow, not visible from above. Postscutellar area not raised. Humeral callus prominent, impunctate. Elytral surface covered with robust, rather thick, uniformly distributed whitish setae, with evident, rather shallow punctation irregularly arranged on disk and clues of irregular rows only towards side and apex. Intervals flat. Epipleuron smooth, impunctate, lustrous, slightly convex close to basal margin, flatter rearward, completely smooth and naked in one specimen, with only few scattered, weakly impressed, small setigerous punctures in the other.

Pygidium dark brown, smooth, matt, covered by sparse shallow punctures and whitish setae.

Inferior parts of thorax dark brown, surface almost entirely hidden by a thick covering of robust, recumbent, white setae. Only inner part of hypomera almost bare with scarce shallow punctures. Prosternal process narrow, longitudinally grooved, coarsely but sparsely punctured, covered with long, curly setae and terminated by a short, rather slender triangular apex. Abdominal sternites dark colored, completely hidden by long, appressed, white setae. Legs with sparse, long setae, femora dark colored with strong metallic reflections, tibiae yellow, tarsi brownish.

Median depression on fifth abdominal ventrite quite deep, rather transverse, bare, smooth, impunctate, shiny. Posterior margin of fifth abdominal ventrite rather deeply notched. Median lobe of aedeagus (Fig. 3c) almost cylindrical in section, rather abruptly enlarged on apical end, with apex well differentiated from shaft, subtriangular, pointed with slightly curved sides which are fairly thickened, above all along proximal section. In lateral view apex slightly bent ventrally. Setose depressions evident, well impressed so that forming a short carina in between, bearing rather short, curly setae. Aedeagal ventral surface slightly convex in lateral view, smooth and devoid of particular structures. Endophallus (Fig. 3d) with sclerite I strongly developed, weakly sclerotized, subtriangular in lateral view, with huge denticle arranged on apical corner. Dorsal spicule well developed as well, weakly sclerotized, thorn-like. Sclerite II rather long, regularly curved, slender, tapered at one end. Arch of sclerite III slender, short. Apex of sclerite III curved upwards and pointed. Branches of sclerite IV equivalent in length to sclerite III in the folded-up structure, straight, parallel-sided along the entire length, with blunt, asymmetrical, fairly microdenticulate apex.

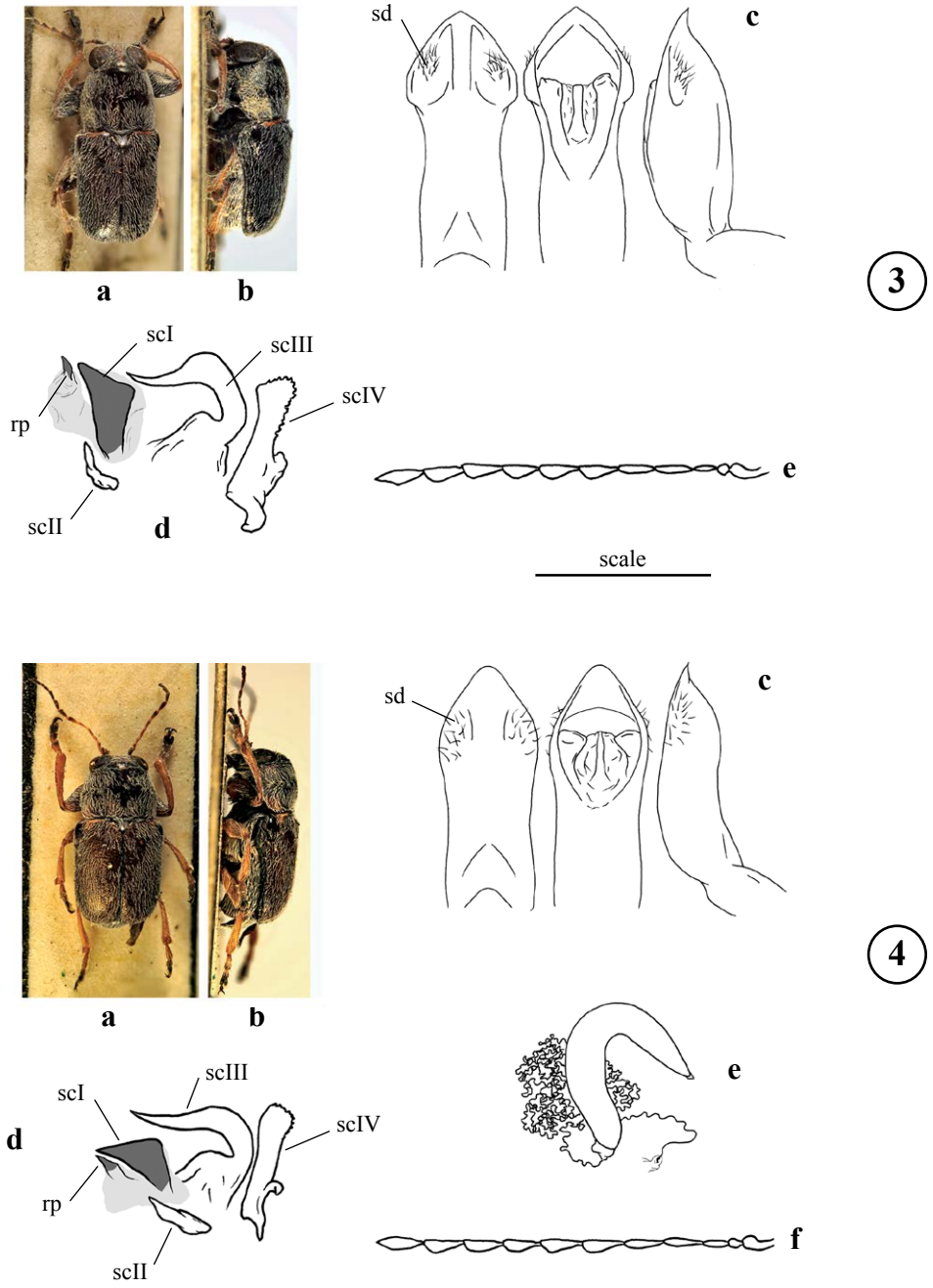
Female. unknown.

***Metallactus nugator* sp. nov.** (Figs 4, 5d, 6d)

Type material. Holotype ♂, **Argentina**: (body, aedeagus and detached abdomen glued on the same card) // "Argentina Salta Dtº Capital Cerro San Bernardo XII 942" [white label, handwritten] // "F. Monros Collection 1959" [white label, printed] // "*Metallactus nugator* sp. nov. HOLOTYPUS

D. Sassi des." [red label, printed] // (USNMNH). PARATYPES (2 specimens): 1♀, // "Argentina Salta C. Moldes Coll. Monrós Feb. 943" [white label, handwritten] // "F. Monros Collection 1959" [white label, printed] // (USNMNH) //; 1♀, // "Argentina Córdoba prov. Capilla del Monte, Camino Real de Ischilin, 30°46'S 64°20' W, 1150m, 05.XII.2015 l" [white label, printed] // (DSPC). Both paratypes provided with additional label: // "*Metallactus nugator* sp. nov. PARATYPUS D. Sassi des." [red label, printed] //.

Etymology. Latin noun *nugator* stands for "swindler", because of the similarity with the other species of the group. The word *nugator* is intended here as a noun in the nominative singular, standing in apposition to the generic name (article 11.9.1.2 of I.C.Z.N., 4th edition).



Figs 3-4 – *Metallactus. diaguita* **sp. nov.** (**3**), *M. nugator* **sp. nov.** (**4**). **3**a–b: habitus; **3**c: median lobe of aedeagus in ventral (left), dorsal (center) and lateral (right) view [0.8 mm]; **3**d: sclerites of endophallus [0.6 mm]; **3**e: antenna [1.1 mm]. **4**a–b: habitus; **4**c: median lobe of aedeagus in ventral (left), dorsal (center) and lateral (right) view [0.8 mm]; **4**d: sclerites of endophallus [0.4 mm]; **4**e: spermatheca [0.5 mm]; **4**f: antenna [1.1 mm]. **3**a–b: holotype; **4**a–b: holotype. scI–IV: sclerites I–IV of endophallus; ds: dorsal spicule; sd: setose depression. Square brackets: length of scale segment.

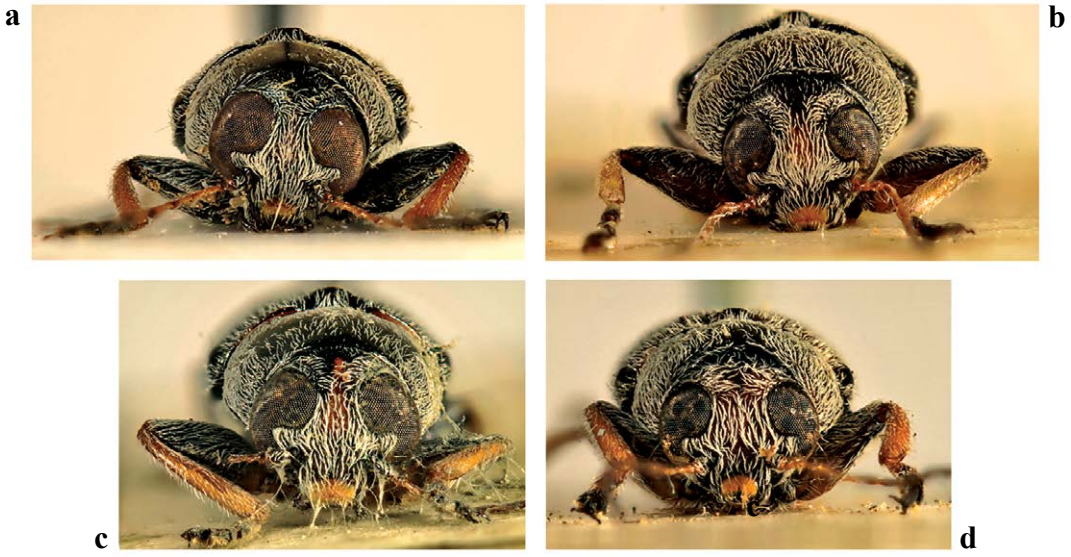


Fig. 5 – Forehead of holotypes (all males). *Metallactus canescens* **sp. nov.** (**a**); *M. aemulus* **sp. nov.** (**b**); *M. diaguita* **sp. nov.** (**c**); *M. nugator* **sp. nov.** (**d**).

Type locality. Cerro San Bernardo (Dept. Capital, Salta, Argentina).

Distribution. Argentina (Fig. 6a).

Diagnosis. Male specimens differ from *M. canescens* and *M. diaguita* in the wider interocular distance. It also differs from the other species in the outline of ventral side of aedeagal median lobe, which is slightly concave in lateral view rather than convex or almost straight. In female vasculum of spermatheca is stouter with shorter distal lobe. Tibiae, mid and posterior femora are completely yellow, while in the other species femora are at least partly darkened with metallic hues.

Description of male. Habitus in Fig. 4a–b (HT). BL = 4.0 mm, BW = 2.3 mm, PL = 1.3 mm, PW = 2.0 mm. Interocular distance 12.6 % of BL.

Head reddish, vertex and lower part of clypeus gray with weak metallic reflections. Labrum yellow. Vertex surface shiny, finely punctured, with scattered short recumbent setae. Frontoclypeal area quite large between eyes (Fig. 5d), with shallow punctures, denser on clypeus, and thick, long, appressed, white setae hiding almost completely the surface. Mid-cranial suture not distinguishable. Ocular lines narrow, barely distinguishable, strictly adhering to ocular rim. Ocular canthus deep, with thick, long, appressed setae. Antennae (Fig. 4f) with first five antennomeres sublucid, yellowish, 4-5 rod-shaped, 6-11 darker, dull, more flattened and more diffusedly setose.

Pronotum dark brown irregularly dappled with chestnut; darker parts with weak metallic reflections. Pronotal shape subelliptical, vaulted. Lateral margins rather thin, almost not visible from above, regularly curved with maximum width just behind half length. Posterolateral impression obliterated. Surface rather convex, shiny with scattered, shallow punctures, with an evident covering of quite long, appressed, whitish setae, rather sparse on disk, denser on sides.

Scutellum reddish, bordered with dark brown, distinctly raised, covered with white setae and very finely punctured. Apex truncated in a straight line.

Elytron vaguely reddish on the whole, with darker patches with weak metallic sheen irregularly distributed, surface rather shiny. Epipleuron and humeral callus uniformly blackish. Elytral outline parallel-sided, elytron disc only weakly flattened in the middle. Lateral margin straight, narrow, not visible from above. Postscutellar area not raised. Humeral callus prominent, bare and impunctate. Elytral surface covered with robust, rather thick, uniformly distributed whitish setae, with small, shallow, quite dense punctation irregularly arranged on disk and clues of irregular rows only towards side and apex. Intervals flat. Epipleuron smooth, slightly rugose, slightly convex close to basal margin, flatter rearward.

Pygidium dark brown, smooth, matt, covered by sparse shallow punctures and whitish setae.

Inferior parts of thorax dark brown, surface almost entirely hidden by a thick covering of robust, recumbent, white setae. Only inner part of hypomera almost bare with scarce shallow punctures. Prosternal process narrow, longitudinally grooved, covered with long, curly setae and terminated by a short, blunt triangular apex. Abdominal sternites dark colored, completely hidden by long, appressed, white setae. Legs with sparse, long setae, yellow with the exception of anterior femora, which are dark reddish, and tarsi, partly darkened.

Median depression on fifth abdominal ventrite flat,

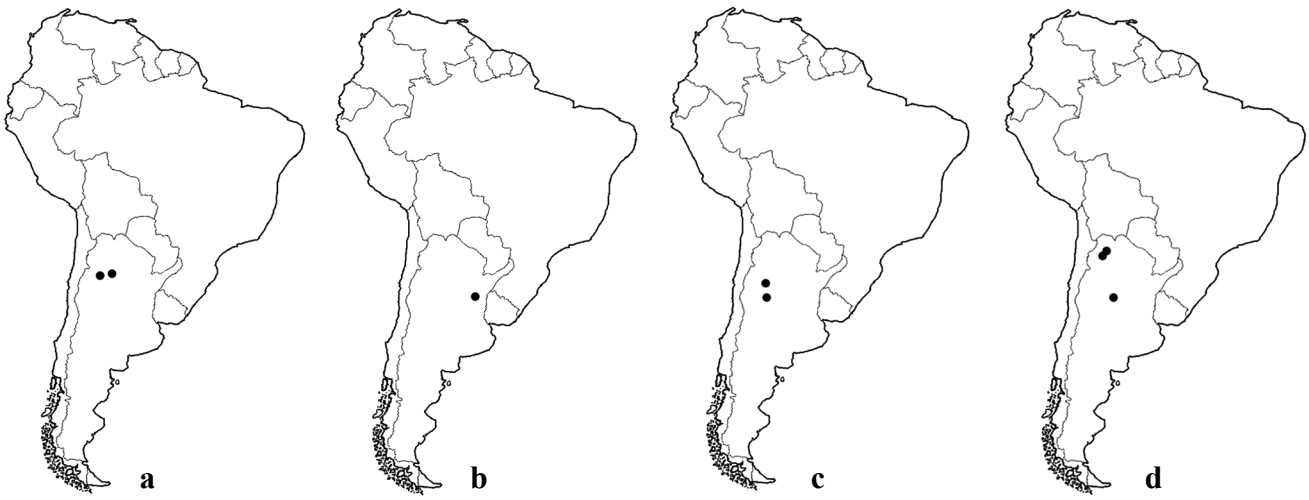


Fig. 6 – Distribution maps. *Metallactus canescens* **sp. nov.** (**a**); *M. aemulus* **sp. nov.** (**b**); *M. diaguita* **sp. nov.** (**c**); *M. nugator* **sp. nov.** (**d**).

barely impressed, lengthened, bare, impunctate, shiny. Posterior margin of fifth abdominal ventrite weakly notched. Median lobe of aedeagus (Fig. 4c) slightly flattened dorsoventrally, slightly enlarged on apical end, with apex scarcely differentiated from shaft, short, distally tapered but ending in a blunt tip. In lateral view apex slightly bent ventrally. Setose depressions moderately impressed, with slightly rugulose surface bearing scarse, curly setae. Aedeagal ventral surface slightly concave in lateral view, smooth and devoid of particular structures. Endophallus (Fig. 4d) with sclerite I strongly developed, weakly sclerotized, subtriangular in lateral view, with huge denticle arranged on apical corner. Dorsal spicule well developed as well, weakly sclerotized, thorn-like. Sclerite II rather long and stout, straight, gradually tapered at one end. Arch of sclerite III slender, short. Apex of sclerite III curved upwards and pointed. Branches of sclerite IV equivalent in length to sclerite III in the folded-up structure, almost straight, parallel-sided along the entire length, with blunt, slightly asymmetrical, microdenticulate apex.

Female. BL = 5.4 mm, BW = 3.0–3.1 mm, PL = 1.7–1.8 mm, PW = 2.6–2.8 mm. Interocular distance 14.3–14.6 % of BL.

Females differ in stouter body, larger interocular distance, shorter antennomeres. Dorsal colour pattern is similar to the one of male in one examined specimen, while in second one lighter yellowish pattern is limited to a longitudinal spot along midline of pronotum, which has sides largely bordered with yellowish as well. In this latter specimen elytron is uniformly dark brown with a triangular yellow spot just beside humeral callus.

Fifth abdominal ventrite in females with rounded, rather deep pit. Bottom of pit quite shiny and smooth in one specimen, covered with rather coarse punctures in the second one. Vasculum of spermatheca (Fig. 4e) perceptibly darkened at base and apex to almost devoid of pigmentation, with slightly curved, not swollen at base proximal lobe and short distal lobe with apex abruptly tapered. Ampulla transverse, not pigmented, sitting on the very end of vasculum. Duct insertion and sperm gland insertion perceptibly distinct. Duct uniform in size, slender, coiled with coils markedly loose and somewhat irregularly arranged, with tendency to form a tangle beside the vasculum; not coiled portion of duct near bursa copulatrix rather short, winding. Insertion on bursa copulatrix fairly swollen and pigmented.

Discussion

The new species described above are the only *Metallactus* species known so far with dorsal surface covered with a rather dense and continuous whitish setosity. This feature is not rare in Chrysomelids, and not even in Pachybrachini but, being present in *Metallactus* in this species group only, makes this quite remarkable. In addition, these new taxa have a strong resemblance to some species of genus *Coscinoptera* Lacordaire, 1848, in particularly with *C. tibialis* Harold, 1875, also present in Argentina, and with which the new species could be confused on a superficial examination.

By examining other South American Pachybrachina material, two other species have been found, still undescribed, currently attributable to the genus *Griburius*, having a strong external similarity both in colour and in a similar whitish setosity with the "aggregate" *Coscinoptera tibialis-Metallactus canescens* and allied. These latter *Griburius* species look externally as similar to the *Metallactus* species studied in the present work as to be confused with them at a not too careful observation. Besides, in genus *Griburius,* a taxon very similar to all the mentioned species, on the basis of its overall external looking, is *Griburius velutinus* (Suffrian, 1866). At the current state of knowledge, it is not possible to formulate hypotheses relating to the morphofunctional meaning of this complex

of external features (setosity plus metallic hues), but some form of evolutionary convergence cannot be excluded.

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