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New species of the genera *Stolas* BILLB. and *Nebraspis* SPAETH (*Coleoptera*: *Chrysomelidae*: *Cassidinae*)

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ABSTRACT. *Stolas flavomarginata* (Peru: Loreto, Ecuador: Napo), *S. imitatrix* (Ecuador: Llanos), *S. armirantensis* (Peru: Amazonas), *S. intermedia* (Peru: Junin) and *Nebraspis viridimetallica* (Argentina: Entre Rios) are described.

Key words: entomology, taxonomy, new species, Neotropics, *Coleoptera*, *Chrysomelidae*, *Cassidinae*, *Stolaini*.

The genus complex *Stolas* BILLB. with 325 hitherto described species (BOROWIEC 1999) is one of the largest within *Cassidinae* (in this complex I have included *Mesomphalia*, *Xenicomorpha*, *Cyrtonota*, *Botanochara*, *Trilaccodea*, *Nebraspis, Hilarocassis, Anacassis Eutheria, Nebraspis* and *Poecilaspidella*). The members of the genus complex are usually large or medium-sized cassids, often with metallic tint. The group has never been revised or keyed but most species are well characterized by their body shape, sculpture and colour pattern. In the material studied recently I found five new species from South America. Their descriptions are given below.

***Stolas flavomarginata* n. sp.**

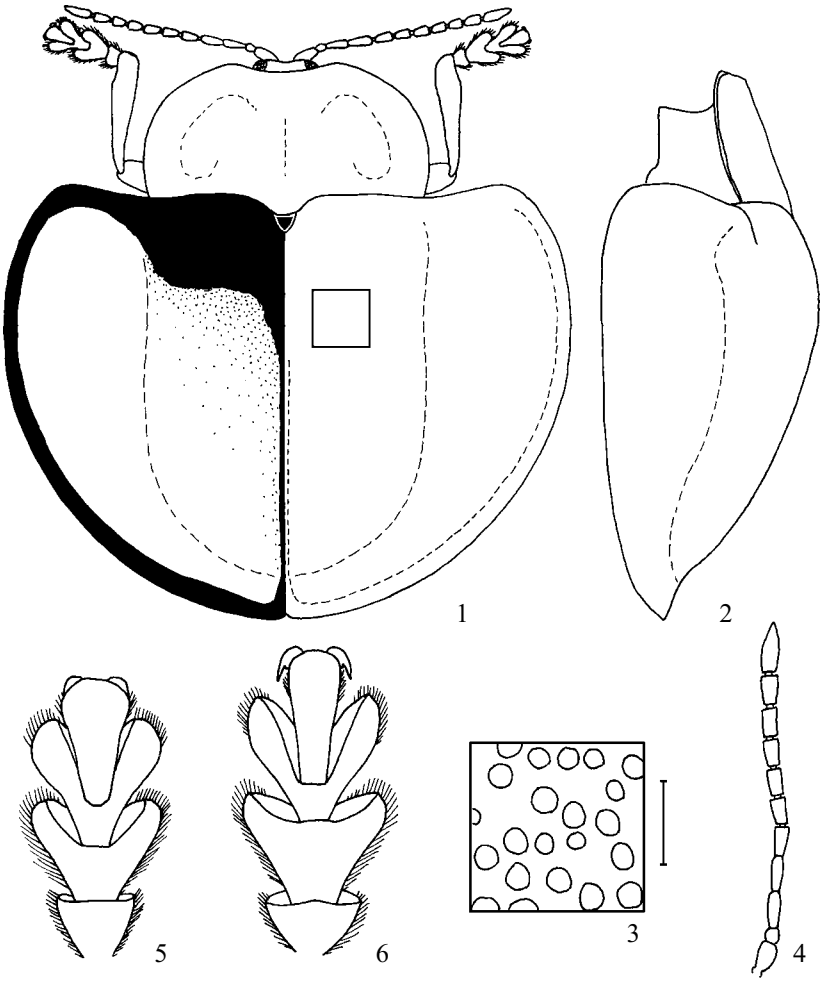
ETYMOLOGY

Named after mostly yellow explanate margin of elytra.

DIAGNOSIS

It belongs to the *latevittata* group, which comprises the largest species of the genus with the narrowest pronotum. All species of the group are distributed in

mountain and submontane regions of NW South America. At first glance it is very similar to *S. perezi* BOR. described recently from Ecuador. Both species have mostly yellow explanate margin of elytra and partly yellow elytral disc. *S. perezi* differs is more densely pubescent and wider pronotum (width/length ratio 1.80-1.83, in *flavomarginata* 1.69-1.75), slightly more densely pubescent elytra and humeri more pronounced anterad. The best character distinguishing both species is the structure of claw segment of tarsi. In *S. flavomarginata* the segment is distinctly widened apically (almost like in members of the genus *Agenysa* SP.) while in *S. perezi* it is moderately widened, typical for the genus *Stolas* (figs



1-5. *Stolas flavomarginata*: 1 - body outline and elytral pattern, 2 - body in profile, 3 - puncturation of elytra (scale 0.5 mm), 4 - antenna, 5 - tarsus; 6. *Stolas perezi*, tarsus

5, 6). Other species of the *latevittata* group differ in mostly or completely black elytral disc or/and blood red elytral pattern.

DESCRIPTION

Length: 14.3-15.3 mm, width: 14.0-15.3 mm, length of pronotum: 4.0-4.5 mm, width of pronotum: 7.0-7.6 mm, length/width ratio: 1.00-1.02, pronotum width/length ratio: 1.69-1.75. Body very broad, almost circular.

Pronotum uniformly black. Elytral disc mostly yellow, only basal part and sutural margin black, border between black and yellow diffuse, forms a colour gradient from black, through brown and yellow brown to yellow. Explanate margin of elytra yellow with black or brown, moderately broad margin. Head black. Antennal segments 1-4 yellowish-brown, on underside paler than on upper side; segment 5 brown, remaining segments black. Ventrites black, abdominal sterna on sides with small brown spots. Legs mostly black, tarsi paler, brownish-black.

Pronotum narrow, square, 1.69-1.75 times wider than long, sides in basal 2/3 length almost parallel, only slightly converging posterad, in anterior 1/3 length broadly rounded, sides form softer arch than in related *S. perezi*, anterior emargination deep. Disc moderately convex, impressed at base and on sides, in the middle without or with narrow unpubescent area; but it is not glabrous like in related *S. perezi*; sulcus along middle of pronotal disc very narrow or obsolete. Margins distinctly impressed, forming a gutter. Sides of disc and margins with moderately dense, long, adherent hairs, forming whirl pattern (in paratype specimen hairs are mostly worn off). Surface of disc and margins dull, impunctate. Scutellum very small. Base of elytra much wider than base of pronotum (fig. 1), humeri only slightly protruding anterad. Elytral disc regularly convex, with top of convexity in postscutellar point, with no impressions (fig. 2). Puncturation of disc completely irregular, coarse and dense, distance between punctures 0.5-1.5 times wider than puncture diameter. Punctures without tendency to form groups, but disposed slightly irregularly (fig. 3), surface of elytra does not appear irregularly reticulate, only parallel to suture with low and indistinct elevation. Border between disc and explanate margin indistinct, with no row of larger punctures. Explanate margin very broad, moderately declivous, without tendency to form a gutter. Anterior margin slightly protruding anterad, humeral angles rounded. Puncturation of explanate margin as dense as but twice finer than on dark parts of disc. Surface between punctures on both disc and explanate margin slightly dull, only postscutellar point slightly glabrous. Whole elytra covered with moderately dense, double, shorter adherent, and longer erect hairs. Apex of elytral epipleura only in internal angle with sparse erect hairs.

Clypeus slightly impressed in the middle. Antennae long, length ratio of antennal segments: male 100:33:87:87:67:63:65:65:68:67:114 (fig. 4). Prosternal collar broad, its anterior margin slightly convex. Prosternal process distinctly canaliculate longitudinally. Ventrites with no diagnostic characters. Last segment of tarsi distinctly widened apically, almost like in members of the genus *Agenysa* (fig. 5).

TYPES

Holotype: PERU: Loreto, Campamento San Jacinto, 8 VII 1996 (preserved at the Department of Systematic Zoology and Zoogeography, University of Wrocław, Poland); paratype: ECUADOR: Napo Province: Yasuni National Park: Yasuni Research Station: 76°36'W, 00°38'S: S: 3-20, XI 1998: T. PAPE & B. VIKLUND (preserved at the Naturhistoriska Riksmuseet Stockholm, Sweden).

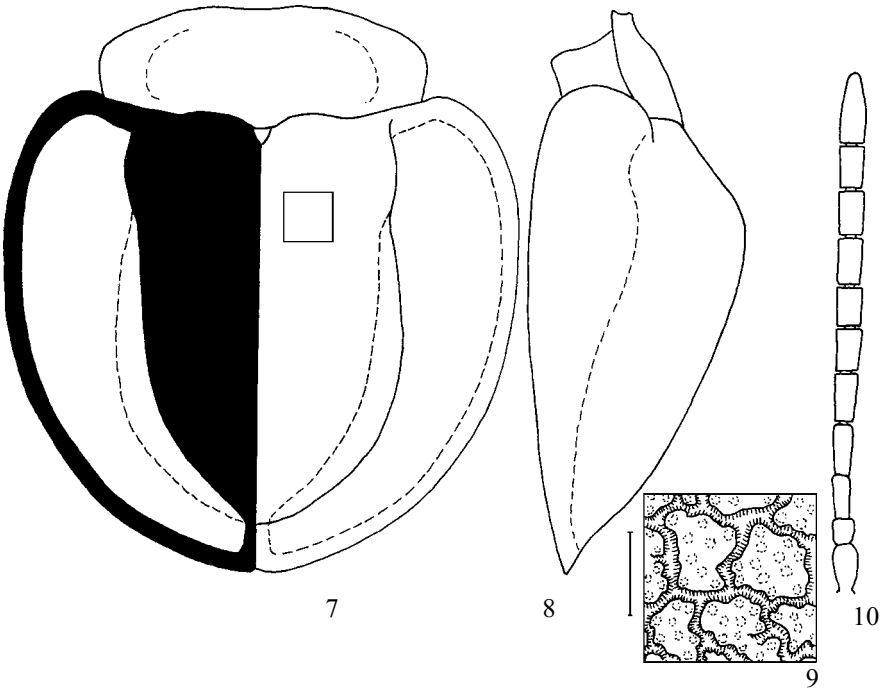
***Stolas imitatrix* n. sp.**

ETYMOLOGY

Named after is external similarity to *Stolas latevittata* (BOH.) and *S. sanguineovittata* BOR., who occur in the same area. The similarity between these species may result from Muellerian mimicry.

DIAGNOSIS

It belongs to *eugenea* species group. The group comprises very large species, with elytra pubescent, not metallic, elytral disc without pale reticulation and very broad pronotum. *S. eugenea* (BOH.) and *S. praetoria* (SP.) differ in maculate pale



7-10. *Stolas imitatrix*: 7 - body outline and elytral pattern, 8 - body in profile, 9 - sculpture of elytra (scale 2 mm), 10 - antenna

band of explanate margin of elytra (not maculate in *imitatrix*). *S. corruptiva* (Sp.), *S. placida* (Sp.) and *S. cassandra* (Sp.) differ in band of explanate margin of elytra yellow (red in imitatrix); *S. corruptiva* differs also in the band short, only slightly longer than wide (in *imitatrix* elongate, occupying whole length of explanate margin); *S. placida* differs also in high postscutellar gibbosity (in *imitatrix* elytra are only slightly elevated in postscutellar point); *S. cassandra* differs also in uniformly convex elytral disc, with no postscutellar gibbosity, and reticulation of disc higher and impunctate (in *imitatrix* elytral disc is slightly elevated in postscutellar point and elytral reticulation lower and partly punctate). At first glance *S. imitatrix* is extremely similar to *S. latevittata* (Boh.) and *S. sanguineovittata* Boh. of the *latevittata* group, especially in very large and broad body and deep red band of explanate margin of elytra. Both species of *latevittata* group differ in narrow pronotum (the principal character of *latevittata* group), while in *imitatrix* it is very short and broad, like in other species of the *eugenea* group.

Description

Length: 19.0 mm, width: 17.6 mm, length of pronotum: 4.8 mm, width of pronotum: 10.7 mm, length/width ratio: 1.08, pronotum width/length ratio: 2.23. Body very broad, sides regularly rounded.

Pronotum black, with indistinct blue tint, lateral margins of anterior emargination reddish. Elytral disc mostly black with indistinct blue tint, only posterolateral part red. Explanate margin of elytra blood red, only lateral margin narrowly black. Head black. Antennae uniformly black. Ventrites black with indistinct blue tint, only last sternite on sides with yellowish spot. Legs black.

Pronotum short and very broad, 2.23 times wider than long, sides in basal half slightly converging posterad, in anterior half strongly converging anterad, anterior emargination deep. Disc moderately convex, impressed on sides, along middle with very narrow and shallow median sulcus. Margins distinctly impressed, forming a gutter. Whole surface of pronotum with moderately dense, long, adherent hairs, partly forming whirl pattern. Scutellum very small. Base of elytra much wider than base of pronotum (fig. 7), humeri moderately protruding anterad. Elytral disc unevenly convex, slightly elevated in postscutellar point, with shallow postscutellar impressions (fig. 8). Surface of disc with low glabrous, reticulation, more distinct in sutural half of disc than on sides, fields of reticulation moderately large, 5-6 fields across elytron (fig. 9). Surface of fields dull, punctate, punctures dense with distance between them smaller than puncture diameter. Yellow parts of disc finer and sparser punctate than fields of reticulation with distance between punctures two to three times wider than puncture diameter. Explanate margin very broad, moderately declivous, in apical part almost horizontal, without tendency to form a gutter. Anterior margin moderately protruding anterad, humeral angles rounded. Puncturation of explanate margin as dense and large as on red part of disc. Whole elytra covered with sparse, moderately long, erect hairs. Apex of elytral epipleura only in internal angle with sparse erect hairs.

Clypeus not impressed in the middle. Antennae long, length ratio of antennal segments: 100:63:100:117:100:97:87:83:92:93:133 (fig. 10). Prosternal collar prominent, its anterior margin slightly concave. Prosternal process distinctly canaliculate longitudinally. Ventrites with no diagnostic characters. Last segment of tarsi narrow.

TYPE

Holotype: "Ecuador, Llanos" (preserved at the Department of Systematic Zoology and Zoogeography, University of Wrocław, Poland).

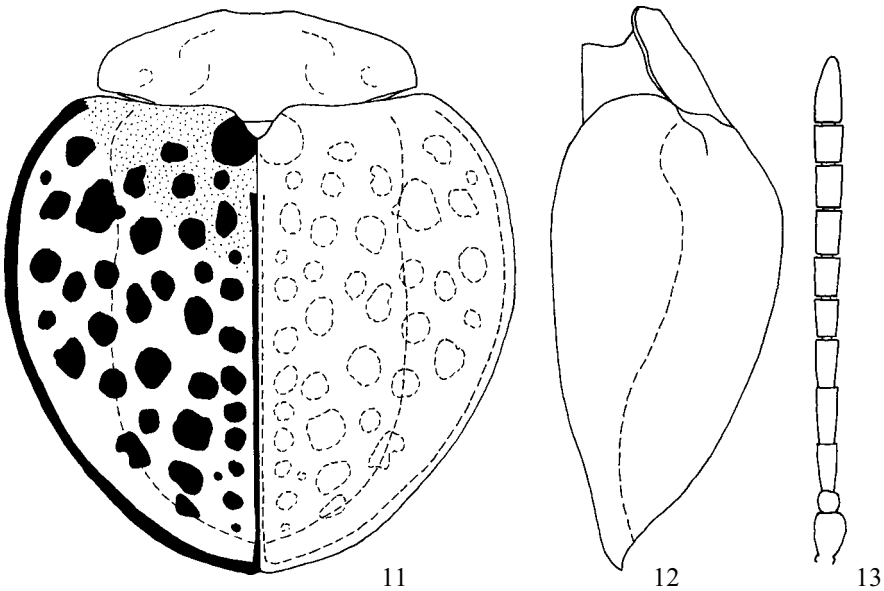
***Stolas armirantensis* n. sp.**

ETYMOLOGY

Named after its locus typicus, Armirante in northern Peru.

DIAGNOSIS

It belongs to the *duricoria* group. The group comprises very large species, with elytra pubescent, not metallic, partly or completely red or yellow reticulate, and with very broad pronotum. *S. duricoria* (BOH.) distinctly differs in pale reticulation reduced to only explanate margin of elytra and disc without pale reticulation (in *armirantensis* whole elytra reticulate). *S. clathrata* (SP.) and



11-13. *Stolas armirantensis*: 11 - body outline and elytral pattern, 12 - body in profile, 13 - antenna

S. famula (SP.) differ in elytral reticulation red (yellow in *armirantensis*) and high postscutellar gibbosity (in *armirantensis* elytra are only slightly elevated in postscutellar point). *S. cordata* (WAGEN.) differs in elytra only partly red reticulate and higher postscutellar elevation. *S. huanocensis* (SP.) differs in red elytral reticulation, black spots of explanate margin with tendency to form transverse bands and more elevated postscutellar gibbosity. Elytral colouration of *S. armirantensis* with broad yellow reticulation combined with large purple red spot at elytral base is unique. Species of the *eugenea* group, which also have very broad pronotum and pubescent elytra differ in elytral disc almost completely black, without pale reticulation.

DESCRIPTION

Length: 18.6 mm, width: 16.6 mm, length of pronotum: 4.6 mm, width of pronotum: 10.4 mm, length/width ratio: 1.12, pronotum width/length ratio: 2.26. Body very broad, sides regularly rounded.

Pronotum uniformly black, anterior margin without yellow. Elytral disc and explanate margin with broad, yellow reticulation and numerous, black impressed spots, sutural and lateral margin black. Base of elytra with large, triangular, purple red spot. Head black. Antennae uniformly black. Ventrites black, only last two abdominal sterna on sides with small brown or yellow spots. Legs black.

Pronotum short and very broad, 2.26 times wider than long, sides in basal 2/3 length almost parallel, only slightly converging posterad, in anterior 1/3 length broadly rounded, sides only in basal 1/3 length almost parallel, then strongly converging anterad, anterior emargination shallow. Disc depressed, impressed on sides, with very shallow median sulcus. Margins distinctly impressed. Surface of disc and margins dull, impunctate, covered by sparse, adherent, yellow hairs. Scutellum small. Base of elytra only slightly wider than base of pronotum (fig. 11), humeri very broadly rounded, only slightly protruding anterad. Elytral disc unevenly convex, slightly elevated in postscutellar point (fig. 12), with distinct postscutellar impressions, margined by fold. Yellow reticulation of disc broad and very low, only in area close to suture and in basal red triangle reticulation distinctly elevated. Surface of yellow reticulation glabrous, moderately coarse but densely punctate, distance between punctures as wide as to slightly narrower than puncture diameter. Surface of black fields dull, impunctate. Explanate margin very broad, moderately declivous, without tendency to form a gutter. Puncturation of yellow reticulation of the explanate margin as dense and coarse as on disc. Whole elytra covered with dense, long, erect hairs. Apex of elytral epipleura with dense, long, erect hairs.

Clypeus not impressed in the middle. Antennae long, length ratio of antennal segments: 100:50:120:150:120:90:95:110:100:90:160 (fig. 13). Prosternal collar prominent, its anterior margin almost straight. Prosternal process distinctly canaliculate longitudinally. Ventrites with no diagnostic characters. Last segment of tarsi narrow.

TYPE

Holotype: PERU: Amazonas, Armirante, 55 km W Rioja, 13 XII 96, leg. AU (preserved at the Department of Systematic Zoology and Zoogeography, University of Wrocław, Poland).

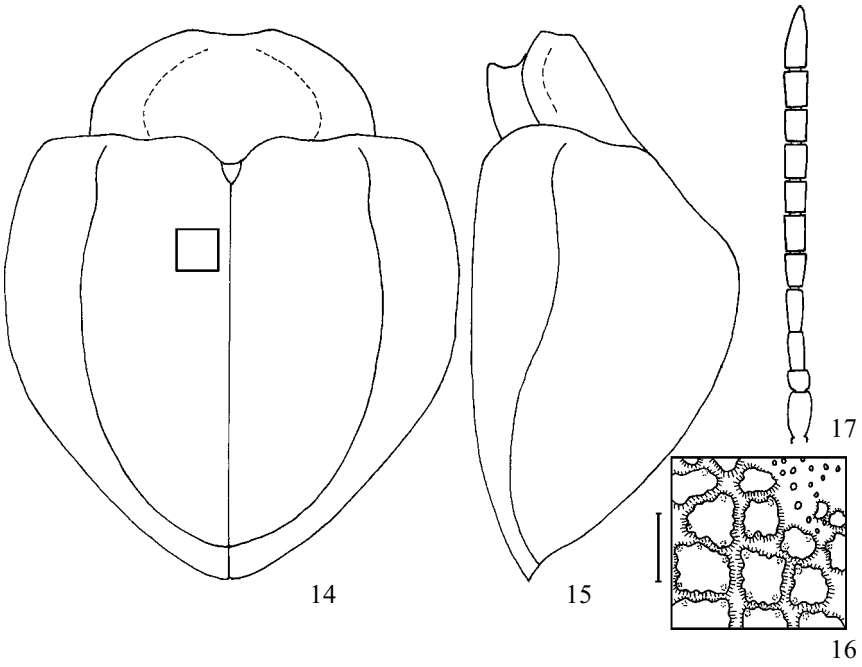
Stolas intermedia n. sp.

ETYMOLOGY

Named after its intermediate position between *cruentata* and *discoides* groups.

DIAGNOSIS

It is a member of the *discoides* species group but with some characters of the *cruentata* group. Like members of the *discoides* group it has almost semicircular pronotum, with maximum width at base, and lateral margins of anterior emargination yellow, but like members of the *cruentata* group it has strongly gibbous elytra with distinctly reticulatedisc (no other member of *discoides* group has reticulate elytra and no member of *cruentata* group has semicircular pronotum). At first glance the most similar species is *S. pellicula* (SP.), the aberration with uniformly black elytra. It has similar, gibbous and reticulate elytra but differs in



14-17. *Stolas intermedia*: 14 - body outline, 15 - body in profile, 16- sculpture of elytra (scale 1 mm), 17- antenna

broad pronotum, in basal 1/3 length almost parallelsided, then strongly converging anterad (in *pellicula* sides of pronotum form regular, soft arch). In *S. pellicula* lateral margins of anterior emargination are not marked with yellow. *S. verecunda* and *S. intermedia* are the only species of the *discoides* group with ground colour of elytra black, without distinct metallic tint. *S. verecunda* distinctly differs in almost regularly convex elytral disc, without reticulation and usually with yellow spots, only occasionally uniformly black.

DESCRIPTION

Length: 12.7 mm, width: 11.0 mm, length of pronotum: 3.0 mm, width of pronotum: 6.5 mm, length/width ratio: 1.15, pronotum width/length ratio: 2.17.

Pronotum black, only lateral margins of anterior emargination marked with yellow. Elytral disc uniformly black with indistinct, dark cupreous tint. Head black. Antennae black, only apex of underside of segments 1-4 yellowish-brown. Ventrites and legs black, abdominal sterna on sides with small yellow-brown spots.

Pronotum broad, almost semicircular, 2.17 times wider than long, with maximum width at base, sides form a regular soft arch. Disc moderately convex, not impressed, along middle with very narrow sulcus. Margins shallowly impressed. Whole surface of disc and margins dull, impunctate, bare. Scutellum moderately large. Base of elytra much wider than base of pronotum (fig. 14), humeri not pronounced anterad, rounded. Elytral disc gibbous, with distinct postscutellar impressions (fig. 15). Whole surface with impunctate, dull, low reticulation (fig. 16), distinct in central part of elytron, vanishing on slope and close to anterior margin. Postscutellar gibbosity without reticulation, punctate, slightly glabrous. Fields of reticulation dull, with very shallow punctures only on sides; 5-6 fields across elytron. Border between disc and explanate margin distinct, explanate margin broad, moderately declivous. Its surface dull, impunctate, mostly without reticulation, only in central part, close to border of disc, with hardly marked few folds. Whole elytra covered with sparse, moderately long, erect hairs. Apex of elytral epipleura with dense, erect hairs.

Clypeus slightly impressed in the middle. Antennae long, length ratio of antennal segments: 100:36:86:89:71:73:65:68:65:70:124 (fig. 17). Prosternal collar moderately prominent, its anterior margin slightly convex. Prosternal process distinctly canaliculate longitudinally. Ventrites with no diagnostic characters. Last segment of tarsi narrow

TYPE

Holotype: PERU: Junin, Qiroz, 17 XII 1993 (preserved at the Department of Systematic Zoology and Zoogeography, University of Wrocław, Poland).

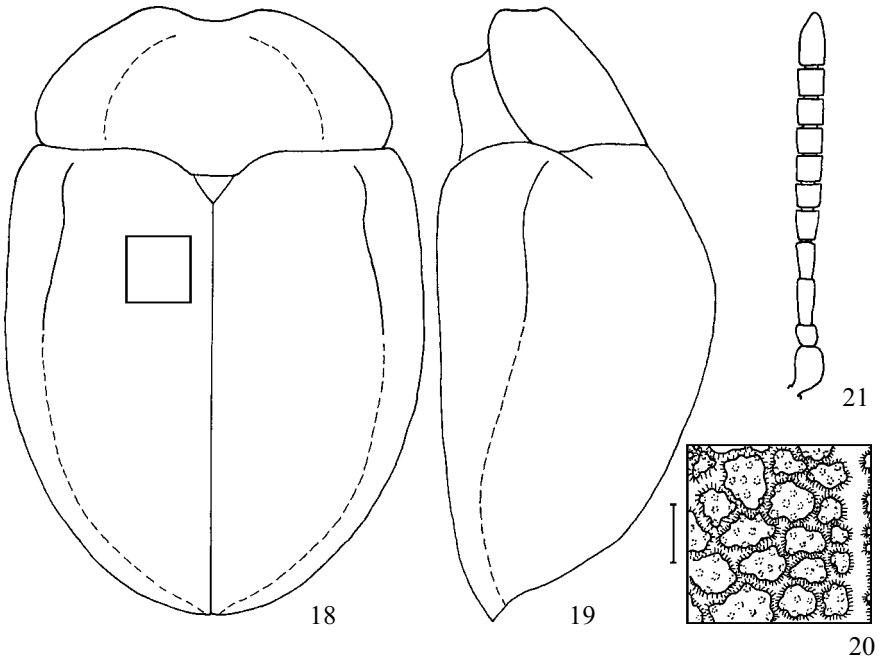
Nebraspis viridimetallica n. sp.

ETYMOLOGY

Named after its distinct metallic green dorsal colouration.

DIAGNOSIS

It is the only species of the genus width dorsum uniformly metallic. Both its congeners - *N. corticina* (BOH.) and *N. rubricollis* (BOH.) - have pronotum reddish-brown and elytra reddish-brown (*corticina*) or black with indistinct metallic tint (*rubricollis*). *Nebraspis viridimetallica* is also similar to members of the *Stolas festiva* group. The group comprises moderately large species with dorsum uniformly metallic, without pale spots, and elytral disc distinctly reticulate. *Nebraspis viridimetallica* is distinctly slimmer than members of the *S.* fest*i*va group, with length/width ratio of both sexes above 1.40 (in *festiva* group below 1.40, in the narrowest species *S. vicina* (BOH.) 1.38). *N. viridimetallica* has elytral disc moderately regularly convex, while in species of the *festiva* group it is distinctly convex to slightly gibbous - *S. paranensis* (SP.), *S. festiva* (KLUG), *S. selecta* (SP.) and *S. vicina* (BOH.) or strongly gibbous - *S. tumulus* (BOH.), *S. ignita* (BOH.), *S. implexa* (BOH.) and *S. subreticulata* (BOH.). *N. viridimetallica*



18-21. *Nebraspis viridimetallica*: 18 - body outline, 19 - body in profile, 20 - sculpture of elytra (scale 1 mm), 21 - antenna

differs from all species of the *Stolas festiva* group also in punctate explanate margin of elytra (in the *festiva* group explanate margin of pronotum is dull, impunctate). The distribution range of the genus *Nebraspis* is restricted to S Brazil (S Goias, Parana, Santa Catarina), Paraguay and N Argentina (Entre Rios), while members of the genus *Stolas* are widespread in Neotropics.

DESCRIPTION

Length: male 10.8-11.4 mm female 13.2-13.8, width: male 7.5-7.9 mm, female: 8.7-9.2 mm; length of pronotum: male 3.0 mm, female 3.3-3.5 mm, width of pronotum: male 6.1-6.4 mm, female 6.8-7.5; length/width ratio: male 1.42-1.48, female 1.49-1.52, pronotum width/length ratio: both sexes 2.00-2.18. Body elongate oval, in male slightly stouter than in female

Pronotal disc metallic green, explanate margin sometimes with cupreous to purple tint. Elytral disc metallic green with cupreous reticulation. Explanate margin of elytra purple metallic. Head black with blue metallic tint. Antennae black, four glabrous basal segments with indistinct metallic blue tint. Ventrites and legs black with metallic blue tint.

Pronotum broad, with maximum width in basal 1/3 length, 2.00-2.18 times wider than long, sides broadly rounded. Disc slightly depressed, on sides with shallow impressions, with narrow median sulcus. Surface of disc at top glabrous, punctate, punctures moderately coarse and sparse, distance between punctures two to three times wider than puncture diameter, on sides of disc surface dull, punctures slightly smaller and sparser than at top. Explanate margins without distinct impressions, its surface dull, punctate, punctures slightly smaller and sparser than on disc.. Scutellum large. Base of elytra slightly wider than base of pronotum (fig. 18), humeri rounded, not pronounced anterad. Elytral disc regularly convex, with top of convexity almost in the middle, with very shallow postscutellar impressions (fig. 19). Whole disc of elytra with distinct, high, glabrous reticulation, 6-8 fields of reticulation across elytron (fig. 20). Fields of reticulation dull, shallowly punctate. Along suture, between first and second row of fields, elytral relief has tendency to form a longitudinal elevation. Explanate margin narrow, moderately declivous, with glabrous reticulation, vanishing in humeral area and posterior third of explanate margin. Fields of reticulation dull, shallowly punctate, like on disc. Apex of elytral epipleura bare.

Clypeus slightly impressed in the middle. Antennae moderately long, length ratio of antennal segments: 100:53:100:80:67:54:55:54:60:60:120 (fig. 21). Prosternal collar moderately prominent, its anterior margin slightly convex. Prosternal process distinctly canaliculate longitudinally. Ventrites with no diagnostic characters. Last segment of tarsi narrow.

TYPES

Holotype: ARGENTINA: Entre Rios, XII 1996; 4 paratypes: the same data; paratype: ARGENTINA, XI 87, Entre Rios, LIEBIG (holotype and four paratypes

preserved at the Department of Systematic Zoology and Zoogeography, University of Wrocław, Poland; one paratype preserved in coll. D. SASSI, Castelmarte, Italy).

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REFERENCES

BOROWIEC, L. 1999. A world catalogue of the *Cassidinae* (*Coleoptera*: *Chrysomelidae*). Biologica Silesiae, Wrocław, 476 pp.