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Description of *Gratiana pauxilla* sp. nov. from Bolivia with key to *Gratiana* species and note on *G. insculpta* (BOH.) (Coleoptera: Chrysomelidae: Cassidiinae: Cassidini)

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ABSTRACT. *Gratiana pauxilla* sp. nov. is described and figured from Tarija department of Bolivia. Following new synonymy is proposed based on study of respective type material: *Gratiana pallidula* (BOHEMAN, 1854) = *G. insculpta* (BOHEMAN, 1855) syn. nov. The key to *Gratiana* species is given.

Keywords: entomology, taxonomy, new species, key, Coleoptera, Chrysomelidae, Cassidiinae, Cassidini, *Gratiana*, Bolivia

INTRODUCTION

The genus *Gratiana* SPAETH, 1913 contains six species associated with the plant family Solanaceae (BOROWIEC 1999; D. WINDSOR, pers. comm. 2010). One species, *G. pallidula* (BOHEMAN, 1854), is found in south USA and Mexico while remaining five are restricted to semiarid and savanna habitats in north Argentina, Bolivia, south Brazil, and Paraguay (BOROWIEC & ŚWIETOJANSKA 2011).

They have small to moderate body size and uniformly yellow colour only with infuscate distal antennomeres. The main characters to distinguish species are: body shape; shape, size and structure of explanate margin of elytra; and structure and punctuation of elytra. Individual species are quite well separated by these characters, however, sometimes the correct identification requires comparison to the series of properly identified specimens. The genus was never keyed nor systematically reviewed. I had an opportunity to study unidentified Neotropical cassids from Museum für Naturkunde in Berlin and recognized a new *Gratiana* species in this material. Its description is given below along with the key to the genus.

Gratiana pauxilla sp. nov.

ETYMOLOGY

The name is derived from Latin *pauxillus* meaning small after very small body size.

DIAGNOSIS

Gratiana pauxilla can be readily recognized from all remaining *Gratiana* species by very small size below 4 mm while all other species have size above 5 mm. *Gratiana boliviana* (SPAETH, 1926) differs in finely punctate elytra. *Gratiana conformis* (BOHEMAN, 1854), *G. gramminea* (KLUG, 1829) and *G. pallidula* (BOHEMAN, 1854) differ in broader and less declivous explanate margin of elytra. Moreover the first two differ also in densely punctate explanate margin of elytra with numerous punctures while *G. pauxilla* has explanate margin of elytra narrow with large and sparsely arranged punctures. *Gratiana lutescens* (BOHEMAN, 1854) and *G. spadicea* (KLUG, 1829) has narrow explanate margin as *G. pauxilla* but differs in oviform body while *G. pauxilla* has subquadratic body.

DESCRIPTION

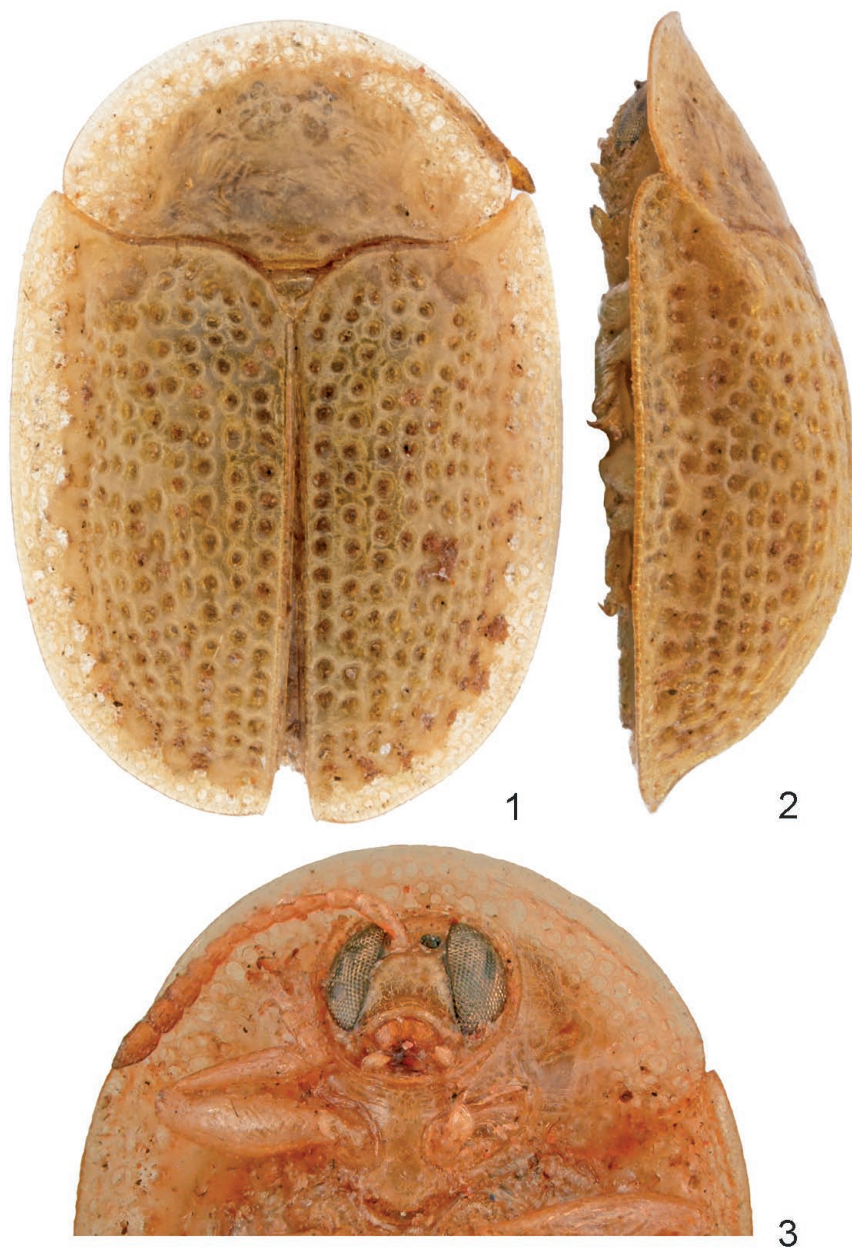
Measurements (n = 2): length of body 3.83-3.89 mm (mean: 3.86 mm), width of body: 2.72-2.83 mm (mean: 2.76 mm), length of pronotum: 1.36-1.42 mm (mean: 1.39 mm), width of pronotum: 2.21-2.36 mm (mean: 2.29 mm), length/width of body ratio: 1.37-1.41 (mean: 1.39), width/length of pronotum ratio: 1.63-1.66 (mean: 1.64). Body elongate and almost parallel-sided (Fig. 1).

Pronotum, scutellum and elytra uniformly yellow. Ventrites including legs and antennae uniformly yellow only three terminal antennomeres slightly infusate.

Pronotum moderately broad, semicircular, 1.6 times as wide as long, and widest close to base. Anterior margin regularly convex and sides broadly rounded. Disc more or less distinctly separated from explanate margin, moderately convex. Base of disc with three shallow impressions; one, transverse, is situated in front of scutellum and two other, oval, are situated on each lateral slope. The basal impression is more distinct than the lateral ones. Explanate margin moderately broad, flat, subhorizontal, and with honey-comb structure on underside. Whole surface of pronotum micro-reticulate and moderately shiny.

Scutellum triangular, micro-reticulate, moderately shiny and with shallow sulcus in the middle.

Base of elytra just slightly wider than base of pronotum, humeral angles broadly rounded and weakly protruding anterad. Basal margin indistinctly serrate. Elytral disc regularly convex with depressed top plate. Basal impressions indistinct. Humeral calli distinct, slightly convex, micro-reticulate, shiny and impunctate. Punctuation of disc regular, coarse and dense, punctures impressed and foveolate. Scutellar row present, short, formed by 3-4 punctures. Punctures regularly arranged in rows, interspaces narrow, 0.2-0.4 times as wide as puncture diameter and gradually coarser from suture to marginalia. Intervals narrow, approximately 0.3 times as wide as puncture diameter,



1-2. *Gratiana pauxilla* sp. nov.: 1 – dorsal, 2 – lateral, 3 – head, antennae, prosternum, and fore leg

micro-reticulate, flat and moderately shiny. Fifth and sixth row on lateroapical slope slightly impressed and bordering intervals elevated. Penultimate row slightly coarser than others. Ultimate interval wider than others and slightly elevated. Marginal row much coarsely punctate than any other, punctures deeply impressed and interspaces slightly elevated, with two vacancies around midlength. Explanate margin narrow, as wide as 1/5 of width of disc, moderately declivous, and sparsely punctate. Punctures moderately impressed, interspaces narrow and micro-reticulate. Surface appears irregular due to large punctures and slightly elevated interspaces. Underside of explanate margin with honeycomb structure. Apex of elytral epipleura bare.

Clypeus 1.6 times wider than long, slightly convex, smooth, shiny and micro-reticulate. Clypeal lines not visible. Labrum shallowly emarginate. Antennae moderately long, length ratio of antennomeres: 100:52:55:39:43:36:46:40:49:57:94. Second and third antennomere subequal in length, fourth 0.7 times as long as the third. Antennomeres 9 and 10 as wide as long. Prosternal collar normal, slightly impressed on sides, smooth and shiny. Prosternal process broad and strongly explanated apically; its surface micro-reticulate, shiny, and with shallow impression between coxae (Fig. 3).

Tarsal claws divergent and all with large basal tooth.

DISTRIBUTION

Bolivia: Tarija department.

TYPE MATERIAL

Holotype, glued: 'Bolivien | Villa Montes | 12.6.1930 | Eisentraut S.G. [green, handwritten and cardboard label]' (preserved at the Museum für Naturkunde, Berlin, Germany); paratype, glued: same data as holotype (preserved at the Department of Zoology, Faculty of Science, University of South Bohemia, České Budějovice, Czech Republic). Both specimens provided with red, printed and cardboard label: 'HOLOTYPE [or PARATYPE respectively] | *Gratiana* | *pauxilla* sp. nov. | L. Sekerka des. 2011'.

NOTE ON *Gratiana insculpta* (BOHEMAN, 1855)

All but one species of the genus *Gratiana* have been established by old authors (BOHEMAN, KLUG) in the genus *Cassida* LINNAEUS, 1758. BOHEMAN (1855) described *Coptocycla insculpta* from a single specimen collected in Yucatan peninsula. The species was first transferred to *Cassida* by CHAMPION (1894) and then to *Gratiana* by SPAETH (1913). Besides those transfers it was cited only in catalogues and the type specimen remained as the only known. The species was reported from Panama based on three specimens published by CHABOO (2002), however, this record is erroneous. I examined those specimens (housed at the United States National Museum, Smithsonian Institution, Washington D.C., USA) and they represent the pale form of *Charidotis abrupta* BOHEMAN, 1855. I have also studied the type specimen of *G. insculpta* deposited in the Natural History Museum in London and in my opinion it is conspecific with *G. pallidula* (BOHEMAN, 1854). I compared the holotype to extensive series of

G. pallidula specimens collected in Mexico and USA and it is fully within their variability and not being distinct. Therefore its synonymy is proposed here.

KEY TO *GRATIANA* SPECIES¹

1. Elytra coarsely punctate, punctures large and foveolate; intervals narrower than rows of punctures. Body oval to parallel-sided but with distinctly tapering posteriorly on apical third of elytra 2.
- Elytra finely punctate, punctures small and weakly impressed; first four intervals much broader than rows of punctures. Body parallel-sided and subquadratic, apex of elytra almost truncate *boliviana* SPAETH, 1926
2. Explanate margin of elytra narrow and declivous not wider than 1/5 of the disc. Body outline rather elongate and oviform 3.
- Explanate margin of elytra broad and almost horizontal, wider than 1/5 of the disc. Body outline oval and stout 5.
3. Moderately large species, body length over 5.5 mm. Two or five terminal antennomeres more or less infuscate 4.
- Small species, body length below 4 mm. Three terminal antennomeres only slightly darker than remaining ones *pauxilla* sp. nov.
4. Elytra at most with shallow and indistinct impression on posterolateral slope. Elytral surface always regular as well as punctuation of elytra. One to two terminal antennomeres more or less infuscate *lutescens* (BOHEMAN, 1854)
- Elytral slope in posterior half with obvious impression on 5th and 6th row of punctures. Elytral surface appears irregular. Punctuation of elytra mostly irregular, only two to three sutural rows more or less regularly arranged. Five terminal antennomeres pitchy brown or black *spadicea* (KLUG, 1829)
5. Explanate margin of elytra with numerous small punctures between marginal row and outer margin. At least four terminal antennomeres dark brown or black. South American species 6.
- Explanate margin of elytra with few punctures between marginal row and outer margin. Three terminal antennomeres more or less distinctly infuscate. Sometimes also 8th antennomere slightly darker than previous ones. Southern USA and Mexico species *pallidula* (BOHEMAN, 1854)
6. Elytra with shallow but distinct impression on posterolateral slope on 5th and 6th row of punctures bordered externally with rib-like 4th interval. Smaller species, body length 5.5–6.0 mm *graminea* (KLUG, 1829)
- Elytra with indistinct impression, 4th interval never forming rib. Bigger species, body length above 7 mm *conformis* (BOHEMAN, 1854)

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¹Colour photos of all species are available in BOROWIEC & ŚWIETOJANSKA (2011).

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