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***Pseudomeloe maculivertex* n. sp. of Pyrotini from the Antofagasta Region, Chile (Coleoptera: Meloidae)**Andrés RAMÍREZ-CUADROS<sup>1</sup>, Mauricio CID-ARCOS<sup>2</sup>, Marco A. BOLOGNA<sup>3,\*</sup><sup>1</sup> Los Olivos 12179-2, Las Condes, Santiago, Chile – aramirezcuadros@gmail.com; ORCID: 0000-0001-7772-1832<sup>2</sup> Calle 6 Poniente #1338, Talca, Chile – mauriciocid.4@gmail.com; ORCID: 0000-0003-0394-013X<sup>3</sup> Dipartimento di Scienze, Università degli Studi “Roma Tre”, Viale G. Marconi 446, 00146 Roma, Italy and NBFC, National Biodiversity Future Center, Palermo, Italy – marcoalberto.bologna@uniroma3.it; ORCID: 0000-0003-2498-8917

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**Abstract**

A new species of *Pseudomeloe* Fairmaire & Germain, 1863 (Coleoptera: Meloidae), *P. maculivertex* n. sp., is described from the Andean valleys of the Antofagasta Region, northern Chile. It is compared with a similar Chilean species; photographs of adults, male genitalia and habitat of the new species are provided, and a map of its known geographic distribution is presented.

**Key words:** taxonomy, blister beetles, Meloinae, Andean Region, biogeography.

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**Introduction**

The strictly Neotropical genus *Pseudomeloe* Fairmaire & Germain, 1863, still has unclear relationships among the subfamily Meloinae and in the past it was erroneously related to *Meloe* Linnaeus, 1758, due to the convergent character of elytral reduction, which actually is present also in other meloine genera of the tribes Meloini, Eupomphini, Epicautini, and Lyttini (Pinto & Bologna, 1999). Afterwards it was referred to the American tribe Pyrotini according to larval morphology (Bologna & Pinto 2001). The monophyly of this heterogeneous tribe has not yet been ascertained (Bologna et al. 2008; Ricciari et al. 2022). *Pseudomeloe* includes 42 species (Safenraiter et al. 2019; Cid-Arcos & Ramírez-Cuadros 2022), plus numerous others still undescribed. It is distributed from Ecuador to the Tierra del Fuego, especially in the Andean areas at higher elevations in temperate or cold ecosystems, or also in plain cold areas in the Argentinean-Chilean Patagonia. Only three species are distributed in the temperate transitional region of Buenos Aires (Argentina) and in southern Uruguay. The single record from the tropical SE Brazilian State of Minas Gerais (Safenraiter et al. 2019) remains doubtful.

The genus *Pseudomeloe* has never been studied taxonomically in detail (Pinto & Bologna 1999) and remain several problems of identifications from the literature records. Recently, were published a few taxonomic contributions especially on the Chilean species (Cid-Arcos & Ramírez-Cuadros 2018, 2021, 2022; Ramírez-Cuadros & Cid-Arcos 2021), enriched by biogeographic and ecological information on the genus, as well as a Catalogue of the species (Safenraiter et al. 2019; Cid-Arcos & Ramírez-Cuadros 2022).

The present contribution is part of a general project of revision of the genus *Pseudomeloe*, which before requires the clarification of the taxonomic problems pointed out above, and the description of numerous new species in its whole range.

Until now, fourteen species have been recorded from Chile (Cid-Arcos & Ramírez-Cuadros 2022; Ramírez-Cuadros & Cid-Arcos 2021), distributed between the regions of Arica, Parinacota and Magallanes (Cid-Arcos & Ramírez-Cuadros 2018, 2022; Ramírez-Cuadros & Cid-Arcos 2021). The Chilean range shows an unclear interruption between the regions of Los Lagos and Aysén.

Recent surveys carried out in the Andean valleys of the Antofagasta region, as well as the study of specimens

housed in different collections collected in this region, permitted the discovery of a new species of *Pseudomeloe*, distinct from the known species and morphological similar to *P. flavotibialis* Cid-Arcos & Ramírez-Cuadros, 2022. The aim of this paper is the description of this new species from the Chilean Antofagasta region.

## Material and Methods

Taxonomic information from the literature concerning the *Pseudomeloe* species from Chile and neighbouring countries was evaluated and several specimens from different collections were examined (Cid-Arcos & Ramírez-Cuadros 2018, 2022). In particular, we compared our specimens with those of *P. flavotibialis*, the morphologically most similar species.

The description is based primarily on the holotype, but morphological variations pointed out in paratypes are summarized. Specimens were cleaned and dried, and male genitalia were dissected, cleaned and clarified by KOH 10% at ambient temperature, for eight hours; afterwards they were studied in glycerine under stereomicroscope and photographed, and finally mounted on a separate label and pinned with the specimen.

The punctuation was defined as dense, moderately dense or sparse; dense if the distance between two punctures is similar to the diameter of each puncture; moderately dense if the distance is ca. 2-4 diameters; and sparse if the distance is 5 diameters or more. Elytral alveoli are defined as marked (Fig. 17), slightly marked (Fig. 18) or lacking (Fig. 19).

The examined material is housed in the following public or private collections: Museo Nacional de Historia Natural, Santiago, Chile (MNNC), Museo Entomológico Luis Peña, Universidad de Chile, Santiago, Chile (MEUC), Marco A. Bologna, University Roma Tre (CMAB, Roma, Italia); Mauricio Cid A. (CPMC, Talca, Chile), Andrés Ramírez C. (CARC, Santiago, Chile), Francisco Ramírez F. (CFRF, Santiago, Chile), Víctor Manuel Diéguez M. (CVMD, Santiago, Chile), Sergio Roitman R. (CSRR, Santiago, Chile), Javier Villablanca R. (CJVP, La Serena, Chile), Vicente Villablanca M. (CVVP, La Serena, Chile).

## Results

### *Pseudomeloe maculivertex* nov. sp.

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(Figs 1-14, 18)

### Diagnosis

Integuments shiny black. Temples almost parallel, with an orange semicircular spot on the middle of each side of vertex; antennae posteriorly extending just over the humerus;

pronotum hexagonal, transverse, almost twice as wide as long with lateral margins forming an angle in the middle; elytra quite elongate with a circular orange spot on humerus and alveoli slightly marked.

**Etymology.** The name of the species refers to the orange spots on vertex exhibited by most of the examined specimens, and derives from the Latin words “*macula*” (spot) and “*vertex*” (vertex).

## Material examined

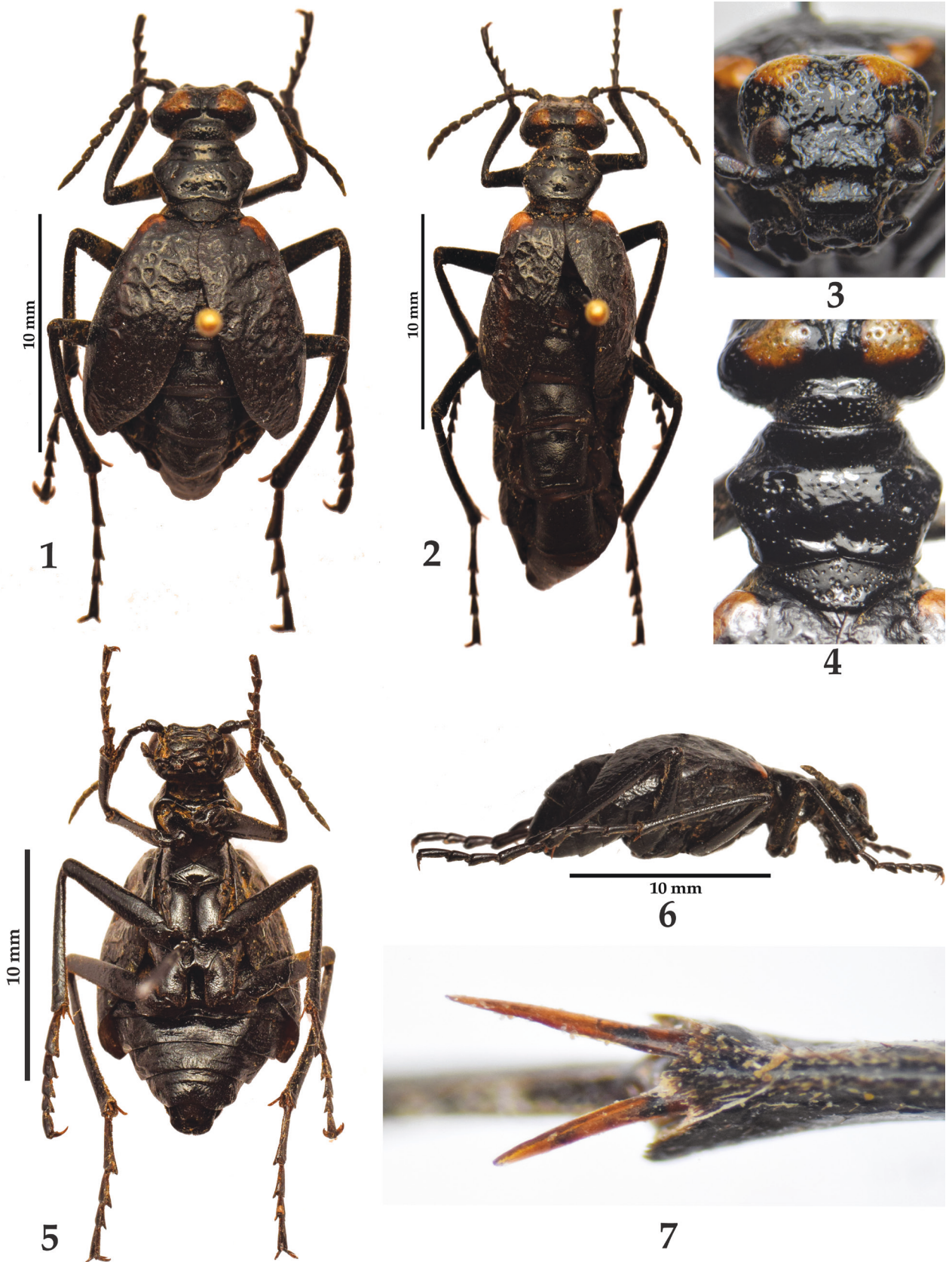
**Type material:** ♂ Holotype; **CHILE: Antofagasta Region**, San Pedro de Atacama, Socaire, 3500 m, xi.2016, leg. M. Cortes, with the additional label: *Pseudomeloe maculivertex* ♂/ Det. Ramírez-Cuadros, Cid-Arcos y Bologna 2025 [red, printed] (MNNC).

Paratypes (29 ♂ and ♀). **CHILE: Antofagasta Region**, Volcán Poruña (-21.890460, -68.497754), 3.iv.2019, leg. M Cid A. (1 CPMC); Catarpe, 7.x.1955, leg. L. E. Peña (1 MEUC); San Pedro de Atacama, 30.ix.1970, leg. A. Mesa (1 MNNC); *ibidem*, but xi.2015, leg. M. Cortes (1 CRFF, 1 CSRR); Quebrada de Jere (-23.179436, -67.973903), Tocoñao, 7.iv.2019, leg. M Cid A. (7 CPMC); Talabre, SW. Vn. Lascar, 19-29.I.1969, leg. F. Soza (1 MEUC); Socaire, San Pedro de Atacama, 3400 m, xi.2012, leg. M. Cortes (4 CVMD, 2 CARC, 1 MNNC); *ibidem*, but II Región, 3500 m, xi/xii.2012, leg. M. Cortes (1 CMAB); *ibidem*, but xi.2016 (1 MNNC, 1 CARC, 3 CJVP, 3 CVVP).

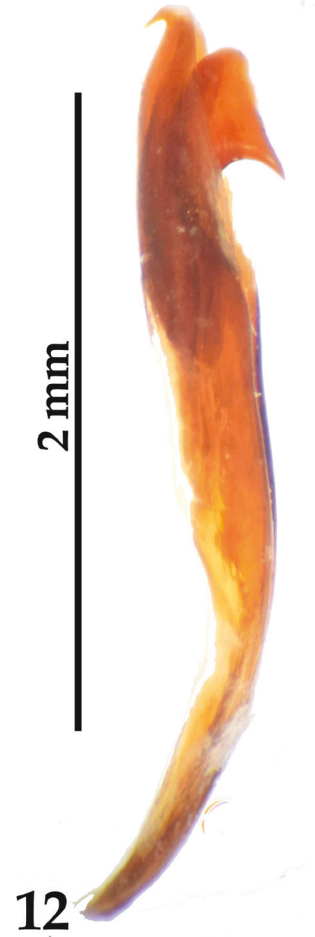
## Description

Body length: 11-23 mm; width: 6-11 mm. Head (Fig. 3) with labrum transverse and sub-cordiform, setated punctures moderately dense and middle sized, setae short and dark; fore margin emarginate with dense, short brown setae; labro-clypeal suture well distinct; clypeus sub-rectangular, sides rounded with short setae; fronto-clypeal suture well visible; frons almost bilobed, with a longitudinal depression from the interocular area to the vertex; interocular area rugose; vertex with wide, deep and moderately dense punctures, with an orange semicircular spot in the middle of each side; temples subparallel and widely rounded posteriorly; eyes anteriorly emarginate. Antennae posteriorly extending just over the humerus; antennomeres with short setae, progressively denser to the distal antennomeres; antennomere I longer than wide, tapered at basal third and widened on the distal two-third, rounded at apex; II sub-annular, the shortest, the only one wider than long; III-IV sub-rectangular, quite depressed; V-X sub-cylindrical slightly decreasing in length; XI sub-conical, about as long as I. Post occiput (Fig. 4) slightly wider than half width of the basal margin of head, punctures fine and denser than on vertex, setae on lateral sides short and brown.

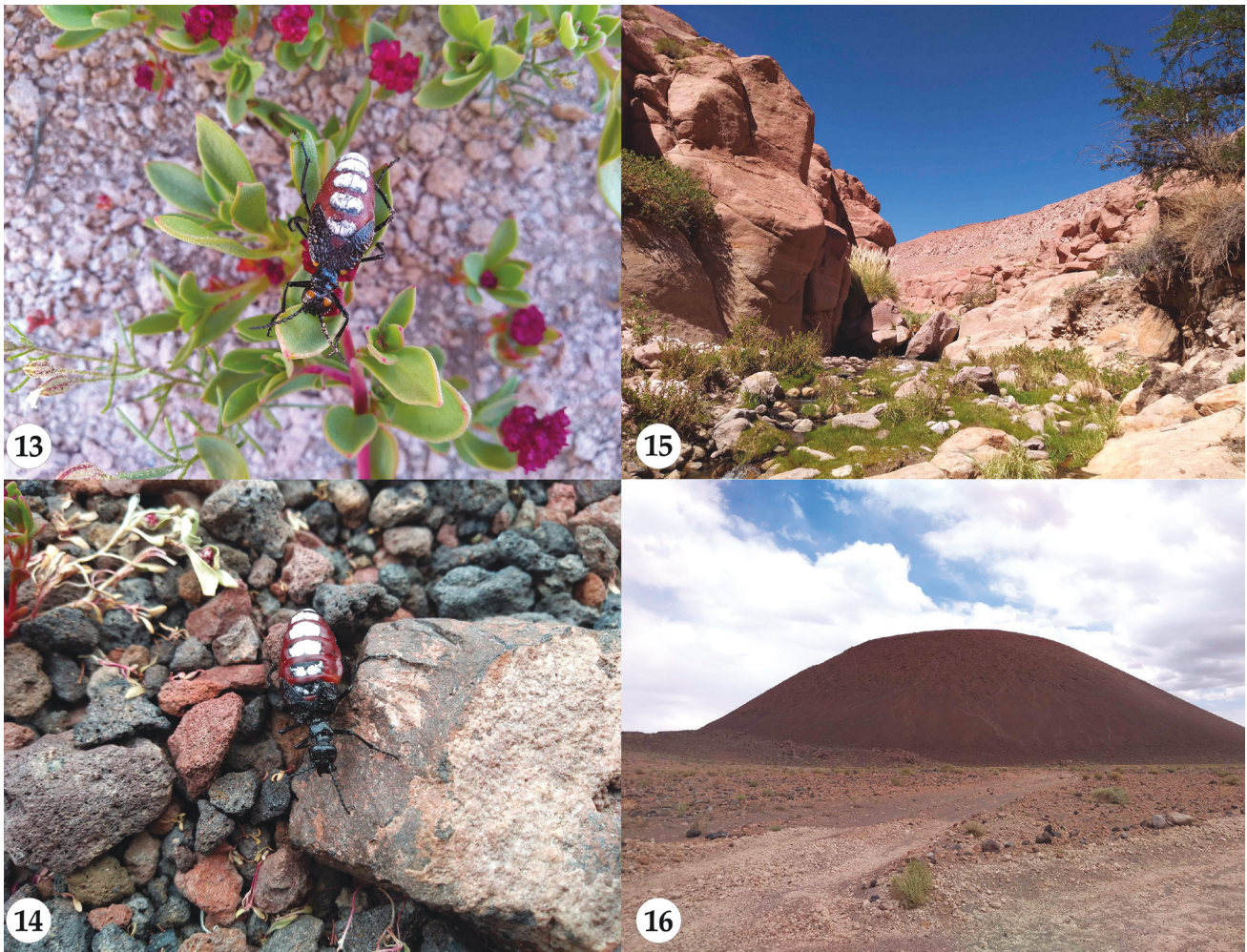
Pronotum (Fig. 4) hexagonal, transverse, almost twice as wide as long, punctures fine and sparse, almost smooth



**Figs 1-7** – *Pseudomeloe maculivertex* n. sp. – 1, male holotype, habitus in dorsal view; 2, female paratype, habitus in dorsal view; 3, head detail; 4, details of post-occiput, pronotum and scutellum; 5, male holotype, habitus in ventral view; 6, *idem*, habitus in lateral view; 7, metatibial spurs.



**Figs 8-12** – *Pseudomeloe maculivertex* n. sp. – 8, male pygidium; 9, female pygidium; 10, tegmen, ventral view; 11, tegmen, lateral view; 12, aedeagus, lateral view.



**Figs 13-16 – Habitat of *Pseudomeloe maculivertex* n. sp. – 13, individual on *Cistanthe* sp. (Montiaceae); 14, individual on volcanic soil; 15, Quebrada de Jere, Toconao; 16, Volcán Poruña, Antofagasta.**

in the middle of the distal third, where there is a wide and transverse depression; dorsal surface convex, with a middle longitudinal furrow slightly visible; maximal width on the middle third, with a shallow fovea close to the lateral margin; basal third with a transverse depression scarcely deep, widened on their extremes, not reaching lateral margin; distal margin slightly concave; sides forming an angle slightly rounded in the middle; posterior margin emarginate, slightly wider than distal one. Prosternum transverse, distinctly wider than long, convex, subtriangular and concave anteriorly; surface depressed with a line of great and dense punctures; prosternal extension subtriangular, slightly projecting to procoxae. Mesonotum visible, punctuation wider and deeper than pronotum, posteriorly rounded; scutellum triangular, slightly visible, with very fine and dense micro-punctures. Elytra (Fig. 18) quite elongate, dehiscent, with a circular orange spot on humerus; alveoli scarcely marked, moderately wide and shallow; inner margin straight in the basal 1/5, oblique in the distal 4/5. Legs totally black, coxae visible, longer than wide,

depressed in the middle, punctures dense and setae scarce, distal margin distinctly emarginate, latero-distal margins distinctly projecting; trochanters densely punctuate; femurs densely punctuate and setate, with short and robust spiniform setae; tibiae scarcely punctuate with short and robust spiniform setae; metatibial spurs (Fig. 15) pointed, inner one slightly longer than outer, brown, lighter on distal margin; tarsomeres black, sub-triangular, gradually widened to the distal margin; protarsomeres I and V longer than others, similar in length, II-IV decreasing in length, IV shortest; mesotarsomere I longest, almost as long as II-IV together, IV shortest, V as long as II; metatarsomere I longest, II similar in size to IV, III shortest. Claws with two smooth blades, brown, ventral blade shorter and finer than dorsal one.

Abdomen with sclerotized sclerites sub-rectangular, rounded on margins, not reaching the dark brown distal margin, coriaceous; last two tergites sub-trapezoidal, shiny black; pleura dark brown in died specimens (see paragraph of Ecology for the colour in living specimens).

Male genitalia in dorsal view (Fig. 10) with gonocoxal plate longer than wide, basally rounded; membrane between gonocoxal plate and gonoforceps subtriangular, distinctly wider than long, gonoforceps narrower and longer than gonocoxal plate, with apex rounded, middle longitudinal notch subparallel in the basal 2/3, slightly diverging in the apical third. In lateral view (Fig. 11), apical third of gonoforceps distinctly curved posteriad, with a wide, oval, shallow depression on the apical 2/3, with fine whitish micro-setae, delimited by a sclerotized longitudinal narrow area; aedeagus in lateral view (Fig. 12) narrow and curved at base, maximal width on the middle third; one single distal hook, short and acutely pointed, distinctly longer than wide, laterally straight and basally concave; endophallic hook short, uncinated, acutely pointed. Female genitalia as in the other species of the genus.

#### Variability

The head orange spots in some specimens less visible or lacking (Fig. 14). Pronotum in some specimens with a narrow, longitudinal red stripe on lateral margins. The humeral spot can extend as a dark red stripe on the margin of basal third of elytra and the alveoli are less marked in a few individuals.

#### Ecology

*Pseudomeloe maculivertex* is distributed in the Andean valleys of the Antofagasta Region, in desert ecosystem with scarce vegetation, adjacent to ravines and oases. Some of the collected specimens were found during the day feeding on sheets of *Cistanthe* sp. (Montiaceae) (Fig. 13). The adult phenology extends between September and April. Living individuals have a well visible dorsal coverage of white film on tergites and red pleurites; the same characteristics is present in the similar Chilean species *P. flavotibialis* Cid-Arcos & Ramírez-Cuadros, 2022.

In the same area *P. maculivertex* is sympatric with *P. oglobini* Martínez, 1954, a small, myrmiciform species, observed by one of us (MCA), feeding on *Aloysia deserticola* (Phil.) Lu-Irwing & O’Leary (Verbenaceae), in different periods at Volcán Poruña.

#### Taxonomic comparative remarks

*Pseudomeloe maculivertex* n. sp. is morphologically similar to *P. flavotibialis*. The new species can be distinguished from the latter because of the following characters: a) head with an orange spot on each side of vertex, rather than without spots; b) elytra shiny black rather than brown-reddish; c) elytral alveoli scarcely marked and shallow, rather than



17



18



19

**Figs 17-19** – Detail of elytral alveoli – 17, *Pseudomeloe picipes* (Fairmaire & Germain, 1860); 18, *P. maculivertex* n. sp.; 19, *P. mineaceomaculatus* (Blanchard, 1846).

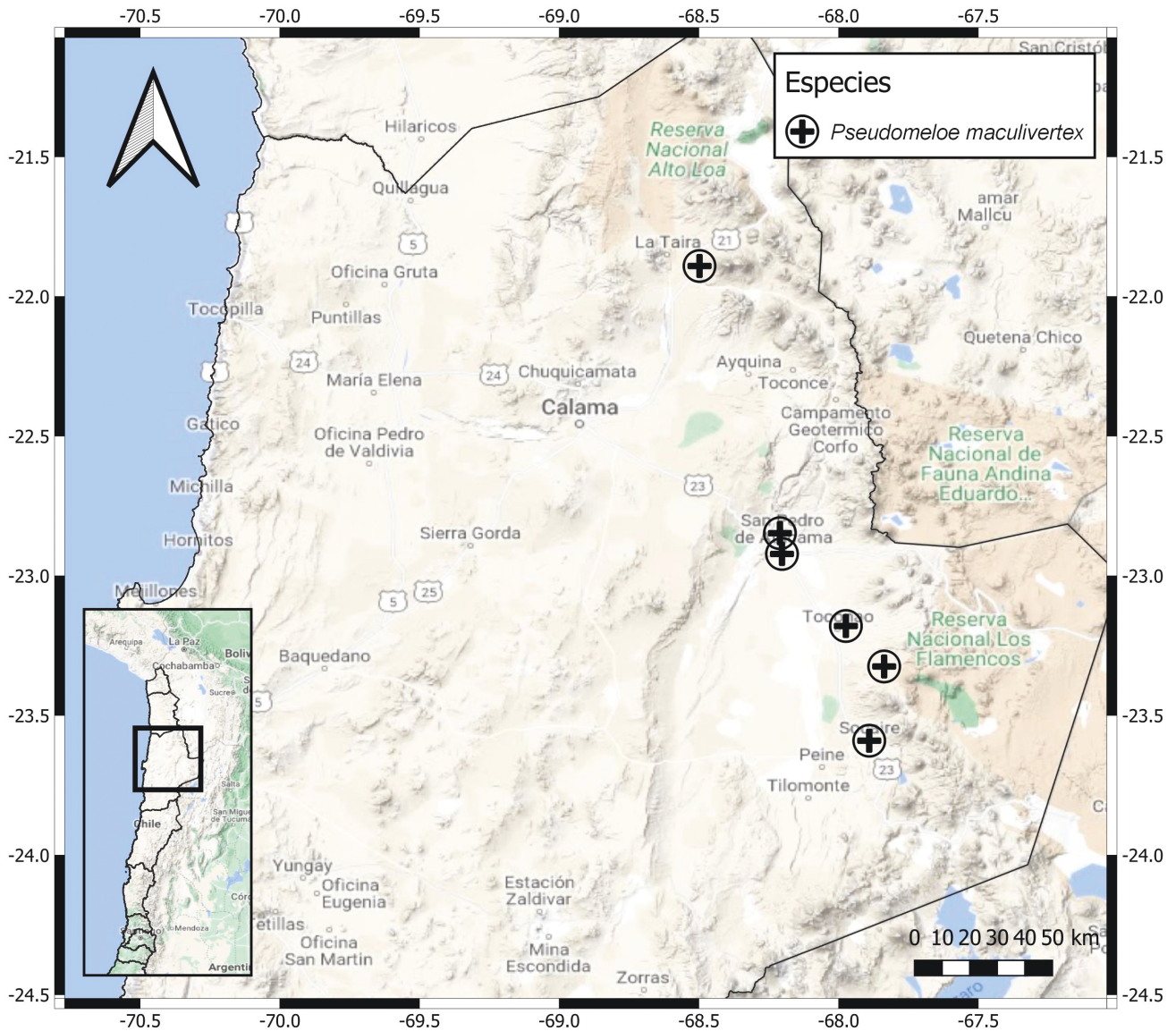


Fig 20 – Distribution of *Pseudomeloe maculivertex* n. sp. in the Antofagasta Region, Chile.

distinctly marked and deep; d) tibiae and tarsi black rather than orange-brown.

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