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PENSOFT

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The first discovery of the genus *Pseudoalaocybites* Osella, 1980 from Ecuador, with a description of a new species in an alpine ecosystem (Coleoptera, Curculionidae: Molytinae)

Christoph Germann[1]

1 *Naturhistorisches Museum Basel, Biowissenschaften, Augustinergasse 2, CH-4001 Basel, Switzerland*

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Corresponding author: Christoph Germann (germann.christoph@gmail.com)

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Abstract

Pseudoalaocybites chimborazoi **sp. nov**. – a new microphthalmic weevil from the Ecuadorian Páramo is described, compared, and the discovery is discussed. The record enlarges the distribution area of the genus considerably to the South, furthermore it is the first record of a *Pseudoalaocybites* from the Páramo, an Andean ecosystem, which is also known as an evolutionary hot spot.

Key Words

South America, Chimborazo taxonomy, edaphic fauna

Introduction

Within the last 24 years, several discoveries of new endogean (Giachino and Vailati 2010) weevils from Ecuador became public. Anderson and Morrone (1996) described the cyclomine genus *Andesianellus*, among it five species from Ecuador. Bellò and Osella (2008) and Germann (2012) contributed three species of the genus *Howdeniola* Osella 1980 from Ecuador. And within the genus *Bordoniola* Osella, 1987, Baviera et al. (2012) described additional five species from elevated localities on Andean vulcanos from Ecuador.

The genus *Pseudoalaocybites* Osella, 1980, which belongs to Molytinae, Lymantini (Morrone and Hlaváč 2017), comprises at present 16 species in two subgenera distributed in the Caribbean basin on Jamaica and Cuba, the mainland of Columbia and Venezuela (Osella 1980, 1987), and one species from the Antilles (Osella 1989). Here the first species of *Pseudoalaocybites* from Ecuador is described based on a specimen found at the foothills of Chimborazo on an altitude of 4100 m a.s.l.

Materials and methods

Length is measured from the fore margin of the pronotum to the apex of the elytra. Photos were taken with the photosystem VHX-6000 (Keyence) at the Natural History Museum Basel, and re-worked using Adobe Photoshop version 12.1. Separate labels are indicated by double slash (//). The following abbreviations are used: NMB – Naturhistorisches Museum Basel.

Results

***Pseudoalaocybites chimborazoi* sp. nov**

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Figs 1–13

Type locality. Ecuador, Riobamba, Chimborazo.

Holotype. 1 female, ECUADOR, Riobamba, Chimborazo, superparamo bajo humedo, bajo piedras, 01°28'00"S, 78°44'57" W, 4100 m, 14.1.2007, [leg.] S. Lem // *Pseudoalaocybites chimborazoi* sp. nov. des. C. Germann 2020 Holotype [red label] // NMB-COLEO0009760

Description. Length: 3.3 mm.

Body colour: dark auburn, glabrous (Fig. 1).

Head, rostrum and antennae: Head (Fig. 3) globose, impunctate and glabrous, abruptly different from rostrum; eyes strongly reduced, one remaining yellowish ocellum visible (see arrow in Fig. 4). Rostrum about four times longer than wide, quadrate in cross-section at middle, spatulate, enlarged after fore half to tip, weakly attenuated at middle of spatulate tip (Fig. 2). Rostrum dorsally and ventrally coarsely punctate in first half, enlarged fore half with finer punctation (Figs 2 and 3). Epistome glabrous, fore margin prolongate in middle above mandibles, these well visible from above. Underside of mouth parts with long-oval ventrolateral grooves, outer margin vaulted; labium elongated; maxillae with last segment elongate, pen-shaped. Rostrum in lateral view bowed, scrobes lateral, reaching head (Fig. 4). Antennal insertion in spatulate fore half of rostrum, insertion grooves visible from above (Fig. 2). Antennal scape gradually thickened in distal half, as long as funiculus. Funicle (Fig. 2) consisting of eight antennomeres of following ratios (L/B): 1st: 1.5; 2nd: 1.4; 3rd: 1.1; 4th to 6th: 0.8; 7th: 0.75; 8th: 0.7. Club with cup-shaped first segment, following segments half round on top, circular in cross-section, densely clothed with yellowish setae.

Pronotum: index (L/B): 1.2. Oval, longer than wide, strongly constricted before fore margin, widest behind middle. Surface glabrous and deeply punctate, interspaces narrower than size of punctation. Prosternum coarsely punctate, fore margin regularly rounded without channel, solely with two faint longitudinal ridges (Fig. 3), margin in lateral view straight (Fig. 4). Scutellum absent.

Elytra: index (L/B): 1.6. Base narrow, equal in width to hind margin of pronotum, margin upwards bent, elytra long-oval, lacking humeral callus (apterous), fused along suture, widest in middle. Nine rows of deeply punctate striae, with stria six shortened along middle of elytra (Fig. 5, arrow), and stria nine reduced to punctures at base and towards apex. Bright setae raise from fore margins of punctures, these as long as diameter of one puncture. Intervals glabrous and weakly vaulted, with sparse, single standing raised bright setae around elytral decline, these setae twice as long as those in the punctures.

Venter: Five ventrites, first two fused, third to fifth free (Fig. 8, arrow indicates free third ventrite), all ventrites deeply punctate and glabrous; first one as long as second, third ¼ of the length of second, fourth similar in length, last ventrite blunt oval towards apex and flat (Fig. 8).

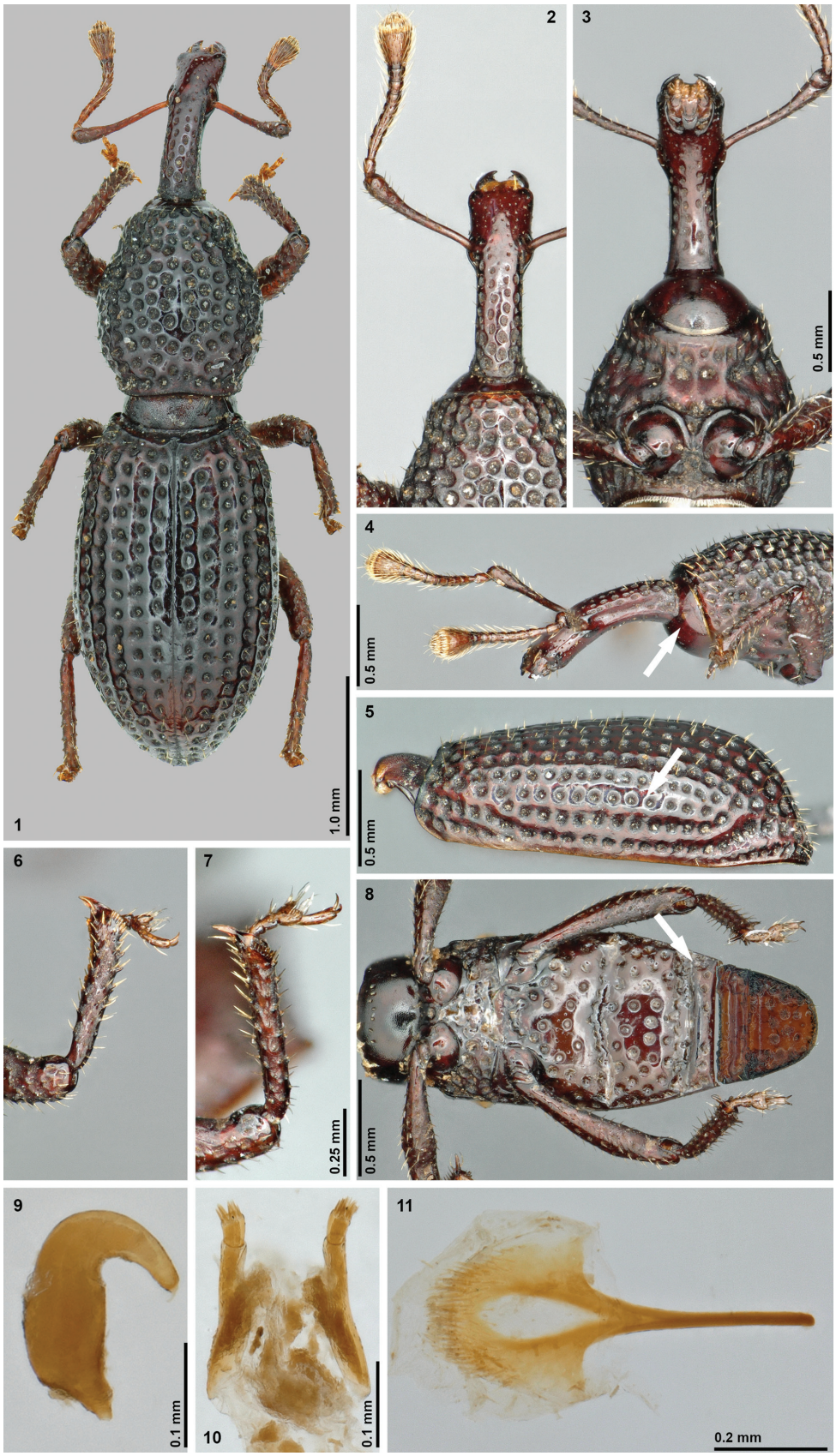
Legs: Coxae separated from each other as follows: procoxae by less than ¼ of

their diameter, almost contiguous, mesocoxae by 1/3 and metacoxae by two times of their diameter (Fig. 8). Femora unarmed, punctate, with straight yellowish bristles and fine rasp teeth on dorsal side. Tibiae with rasp teeth on inner and outer edges and set with straight long yellowish bristles (Figs 6, 7). Apex of tibiae with long curved uncus at inner apical angle, and with combs of stiff yellowish spines at outer margins. Tarsi (Fig. 7) with five tarsomeres, first three steady broadening, set with long setae, third tarsomere fused but distally roundish emarginate, fourth minute and hidden in third. Onychium as long as preceding three tarsal segments, claws free and simple.

Genitalia: Spermatheca with corpus bottle-shaped, cornu regularly bowed and attenuated, ramus reduced, nodulus protruding and narrowed towards duct (Fig. 9). Ovipositor (gonocoxites) (Fig. 10) with well developed broad styli, apex flattened with stiff setae. Spiculum ventrale with base of apodeme not broadened, plate bell-shaped, with spindle-shaped window along middle, apical margin of plate densely set with strong and bowed setae (Fig. 11). Male unknown.

Etymology. Named from Chimborazo – one of the most beautiful vulcanos of the World, dominating the landscape around the type locality where the new species evolved (Fig. 12).

Diagnosis. The new species known only from a female clearly belongs to the genus *Pseudoalaocybites* based on the rostrum with long and deep lateral antennal grooves, the dorsal-ventrally flattened and broadened last fifth of the rostrum, and the eight antennomeres. Based on the free third ventrite (Fig. 8, arrow), and the short first antennomere as well its distribution, *P. chimborazoi* sp. nov. may furthermore belong to the subgenus *Croizatius*, after the original description given by Osella (1980), adapted by Howden (1992) and Morrone and Hlaváč (2017), although the respective relationships within the genus are surely far from being resolved, as already Howden (1992) highlighted, and e.g. the belonging of *Pseudoalaocybites squamirostris* Osella, 1987 to *Pseudoalaocybites* s.str., or of *Pseudoalaocybites aelleni* Osella, 1989 from the Antilles to *Croizatius* is supported by weak morphological evidence. However, a revision of the relationships at subgenus- and genus-level is beyond the scope of the present contribution. Based on the rather big size of *P. chimborazoi* sp. nov. only *P. squamirostris* from Venezuela (length 3.57 mm) and *P. negreai* Osella, 1977 from Cuba (length 3 mm) are other comparatively big sized species, whereas the remaining described ones measure less than 2.9 mm. In comparison with the geographically closest *P. latithorax* Osella, 1980, *P. chimborazoi* can easily be distinguished by i) bigger size, ii) pronotum narrower than elytra, iii) rostrum punctate without striae, iv) cup-shaped first club segment, and v) bottle shaped spermatheca.



Figures 1–11. *Pseudoalaocybites chimborazoi* sp. nov., holotype. **1.** habitus dorsal. **2.** rostrum with antenna, dorsal view. **3.** ditto ventral view. **4.** fore margin of pronotum, head, rostrum and antennae in lateral view, arrow indicates the single yellow ocellum. **5.** elytra in lateral view, arrow indicates shortened 9th striae. **6.** right fore leg, dorsal view. **7.** right hind leg, ventro-lateral view. **8.** underside, arrow indicates free last three ventrites (ventrites 4 and 5 digitally re-mounted, as taken away for dissection). **9.** spermatheca. **10.** vulva with ovipositor. **11.** spiculum ventrale.

Figure 12. Habitat aspect at foothills of Chimborazo at 4100 m a.s.l.

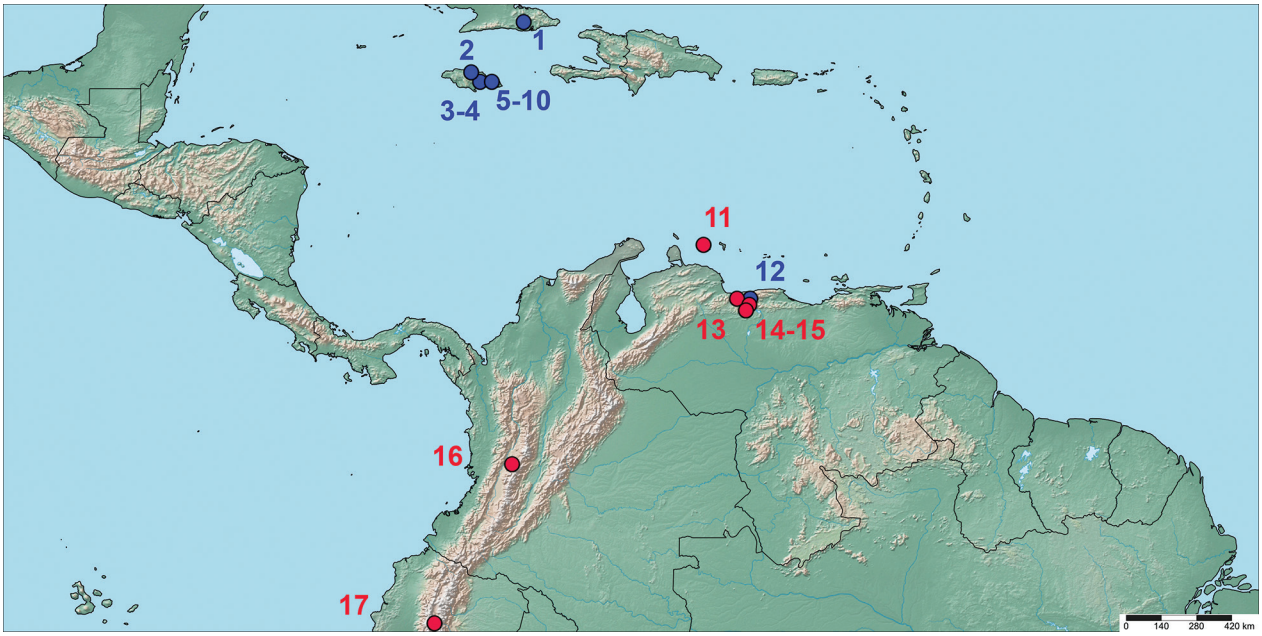


Figure 13. Distribution map for all described species of *Pseudoalaocybites* (blue: nominal subgenus; red: *Croizatius*): 1. *Pseudoalaocybites negreai* (Osella, 1980), 2. *P. jarmilae* Osella, 1980, 3. *P. affinis* Osella, 1980, 4. *P. annae* Osella, 1980, 5. *P. armatus* Osella, 1980, 6. *P. diversesculptus* Osella, 1980, 7. *P. inermis* Osella, 1980, 8. *P. pacei* Osella, 1980, 9. *P. persimilis* Osella, 1980, 10. *P. stewarti* Osella, 1980, 11. *P. aelleni* Osella, 1989, 12. *P. squamirostris* Osella, 1987, 13. *P. elegans* Osella, 1987, 14. *P. margheritae* Osella, 1987, 15. *P. venezuelanus* Osella, 1980, 16. *P. latithorax* Osella, 1980, 17. *P. chimborazoi* sp. nov. (basic layer by Simple Mappr).

Discussion

The new species described here enlarges the distribution of the genus considerably towards the South. The locality nearby Chimborazo (point 17 in Fig. 13) is located at an impressive altitude of 4100 m a.s.l. in an alpine ecosystem, and more than 700 km southwestern from the closest known species *Pseudoalaocybites latithorax* from Colombia (Fig. 13). Nevertheless, it fits well into the large-scale distribution and follows the Cordillera Occidental reaching from Colombia to Ecuador. The record in the ecosystem of the Páramo is furthermore noteworthy, as all other species of the genus were collected in humus layers of forest ecosystems (Osella 1980, 1987, 1989). The upper Páramo (see Moret 2005, page 10) on the other side is characterised by often humid or even wet soils, dominated by grasses (Poaceae), including a very diverse number of vascular plants, but no trees at all. However, the Páramo of Chimborazo is of a drier type. Madriñán et al. (2013) provided an up to date overview and highlight that the Páramo – often underestimated and underexplored – clearly belongs to the evolutionary hot spots of the World. The hereby presented result of a clearly unexpected discovery, outside the typical forest soils, highlights the need to further explore also the underworld of this fascinating Andean ecosystem.

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