

NOTA CIENTÍFICA

Biological notes on two species of *Oxycorynus* (Coleoptera: Belidae) associated with parasitic plants of the genus *Lophophytum* (Balanophoraceae), and new distribution records in Argentina

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Notas biológicas sobre dos especies de *Oxycorynus* (Coleoptera: Belidae) asociadas con plantas parásitas del género *Lophophytum* (Balanophoraceae), y nuevos registros de distribución en Argentina

RUNNING TITLE. Weevils of genus *Oxycorynus* associated with Balanophoraceae

RESUMEN. Se brinda nueva información sobre la asociación de gorgojos del género *Oxycorynus* Chevrolat (Belidae: Oxycoryninae) con plantas parásitas del género *Lophophytum* Schott & Endl. (Balanophoraceae). Se proveen además nuevos registros de distribución de *Oxycorynus* en Argentina.

PALABRAS CLAVE. Gorgojos. Oxycoryninae. Plantas hospedadoras. Jujuy. Misiones.

ABSTRACT. This contribution provides new information on the association of weevils of the genus *Oxycorynus* Chevrolat (Belidae: Oxycoryninae) with parasitic plants of the genus *Lophophytum* Schott & Endl. (Balanophoraceae). New distribution records of *Oxycorynus* in Argentina are provided.

KEY WORDS. Weevils. Oxycoryninae. Hostplants. Jujuy. Misiones.

Weevils of the subtribe Oxycorynina (Belidae: Oxycoryninae) occur in Central and South America, and the species of its four genera are associated with root parasitic

dicots belonging to the families Hydnoraceae and Balanophoraceae (Marvaldi & Ferrer, in press). Three genera occur in South America from southern Peru, through Bolivia, to northern and central Argentina and southern Brazil. The South American genera are: *Hydnorobius* Kuschel, with three species endemic to Argentina, associated with species of *Prosopanche* de Bary (Hydnoraceae) (Ferrer & Marvaldi, 2010); *Alloxycorynus* Voss, with two species distributed in Argentina, Bolivia, and Peru, associated with species of *Ombrophytum* Poepp (Balanophoraceae) (Bruch, 1923; Anderson, 2005); and *Oxycorynus* Chevrolat, with five species from Argentina, Bolivia and Brazil, whose biology and host plant associations remained unknown (Kuschel 1959, 1995). The species *Balanophorobius gamezi* Anderson from Central America (Costa Rica), the only one of the genus, was described based on adults reared from larvae collected in inflorescences of a Balanophoraceae, most likely *Helosis cayennensis* (Sw.) Spreng. (Anderson, 2005). A weevil association with a balanophoraceous plant is provided by Borchsenius & Olesen (1990), who report the occurrence of adults and larvae of an unidentified weevil (“Curculionidae sp.”) on inflorescences and infrutescences of *Lophophytum mirabile* Schott & Endl. in Ecuador (observed from April to June). Access to reference specimens is not longer possible (Borchsenius & Olesen, *in litt.* 2009), but according to Figure 2 (p.503) such weevil species is almost certainly a member of the subtribe Oxycorynina. Anderson (2005) reported the association of species of *Oxycorynus* with parasitic plants of the genus *Lophophytum* Schott & Endl. (Balanophoraceae), from label data of two specimens from Argentina housed at the Canadian Museum of Nature, identified as *O. nigripes* Kuschel and *O. armatus* Buquet, although identification of the latter is not certain (Anderson, 2010 *in litt.*).

The plant family Balanophoraceae comprises 17 genera containing about 42 species of root holoparasites, distributed primarily throughout the tropical areas of the world (Nickrent, 2002). So far, the Neotropical species of the balanophoraceous genera *Lophophytum*, *Ombrophytum* and *Helosis* are the only known host plants of the oxycorynine weevils (Anderson, 2005; Marvaldi *et al.*, 2006, Marvaldi & Ferrer, in press).

In order to corroborate the association of *Oxycorynus* spp. with *Lophophytum* (Balanophoraceae), several localities from Northern Argentina were explored for balanophoraceous plants and their weevil hosts. Two field trips resulted in the finding of *Oxycorynus* spp associated to *L. leandrii* Eichler in Misiones (by A. M. G.) (Fig. 1) and to *L. mirabile* subsp. *bolivianum* (Wedd.) in Jujuy (by H. A. S.) (Fig. 2). Adult weevils

of both sexes were found feeding on the inflorescences of the plants (Fig. 3), that were dug out and kept in bags for further inspection in the laboratory. The weevils correspond to two different species of *Oxycorynus*: *O. missionis* Kuschel (Figs. 5, 6) associated to *L. leandrii*, and *O. nigripes* (Figs. 7, 8) associated to *L. mirabile* subsp. *bolivianum*. The adults were identified using Kuschel's (1995) key and by comparison with reference specimens of *O. missionis*, including types from the Bruch collection, from the "Museo Argentino de Ciencias Naturales" (MACN). The associated larvae found in the infrutescences (Fig. 4) have the diagnostic features of Oxycorynina according to Marvaldi (2005) and Marvaldi *et al.* (2006).

Biological observations. Both plant species of Balanophoraceae consist on a subterranean body or tuber, and inflorescences emerging from the soil (Gonzalez & Mauseth, 2010). The inflorescences can reach 50 cm in height, being the female flowers located at the basal portion and the male flowers at the apex (Figs. 1, 2). In Misiones, *L. leandrii* blooms by the end of the winter season (September), and in Jujuy, *L. mirabile* shows its flowers during the summer (January).

In both cases adult weevils were found feeding nectar (Fig. 3) and mating on the female flowers which are at ground level. No pollen feeding was observed, although the weevils may carry pollen in their bodies, from the male flowers (located above) to the female flowers (located below) (Fig. 1). Their function as pollinators is not confirmed though. Larvae were found inside the female inflorescences, in the parenchymatic tissue, one larva per inflorescence branch (Fig. 4), and then continue their development in the vegetative tissue of the infrutescence. Although no pupae were found, pupation most likely takes place *in situ*, in the plant tissues, as it is known to occur in other oxycorynine species (Marvaldi, 2005; Marvaldi *et al.* 2006).

The association of *Oxycorynus missionis* with *Lophophytum leandrii* is herein documented for the first time, as well as the association of *Oxycorynus nigripes* with *Lophophytum mirabile* subsp. *bolivianum*. The collecting localities are new distribution records for both weevil species, being the record of *O. nigripes* the first one for Jujuy province. The previous known distribution, host plant data, and the new records are provided below. Voucher weevil specimens are deposited in the entomological collection of IADIZA (two individuals of each species dry pinned and the other specimens preserved in pure ethanol) and in the MACN collection. Voucher plant specimens of *L. leandrii* and *L. mirabile* subsp. *bolivianum* are deposited in the herbarium of IBONE (Instituto de Botánica del Nordeste, Corrientes, CTES).

Oxycorynus missionis Kuschel 1995

Previous known distribution. Argentina, Misiones: Loreto.

Previous host plant association: Unknown.

New records. Argentina, Misiones, Colonia Aborígen Andresito, San Ignacio, 27°15'32'' S, 55°31'9'' W. (11/09/2010), A. M. González, 20 adult specimens (16 specimens deposited in IADIZA, 4 (2♂, 2♀) deposited in MACN), *ex.* flowers of *Lophophytum leandrii* parasitizing *Parapiptadenia rigida* Benth. (Fabaceae).

Oxycorynus nigripes Kuschel 1959

Previous known distribution. Southern Bolivia: Villa Montes; Argentina: Chaco.

Previous host plant association: Unknown.

New records. Argentina, Jujuy, sendero Herradura del Parque Nacional Calilegua, 23°41'12.3'' S, 64°53'51'' W, 1611 m.s.n.m. (21/01/2011), H. A. Sato, 7 adult specimens (6 specimens, both sexes, deposited in IADIZA, 1 deposited in MACN), *ex.* flowers of *Lophophytum mirabile* subsp. *bolivianum*.

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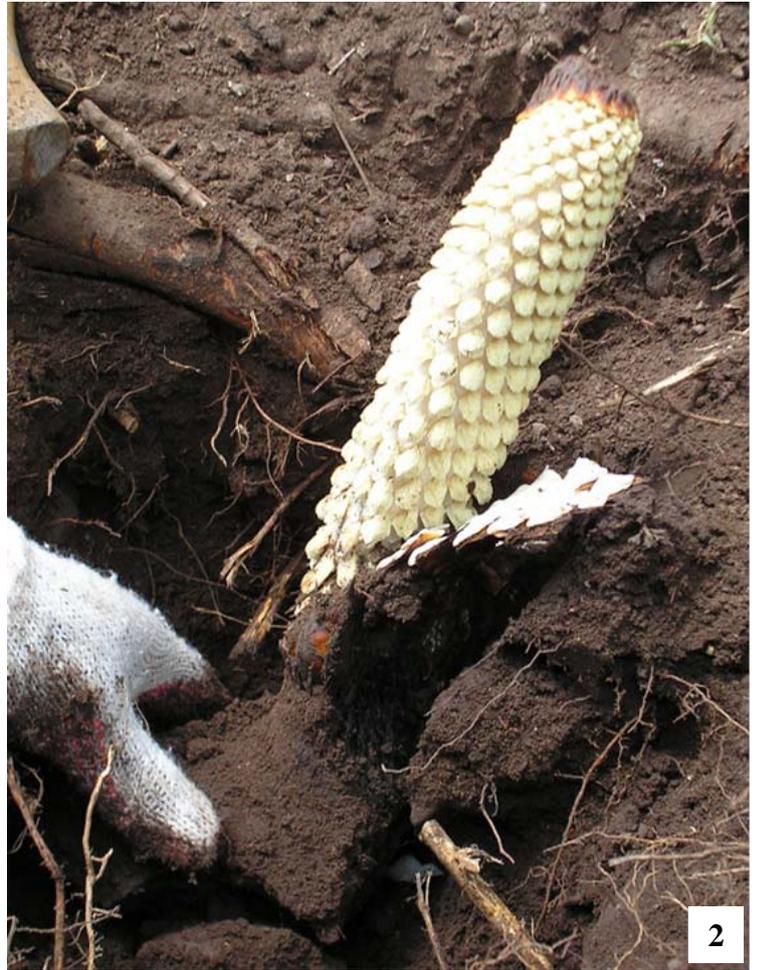
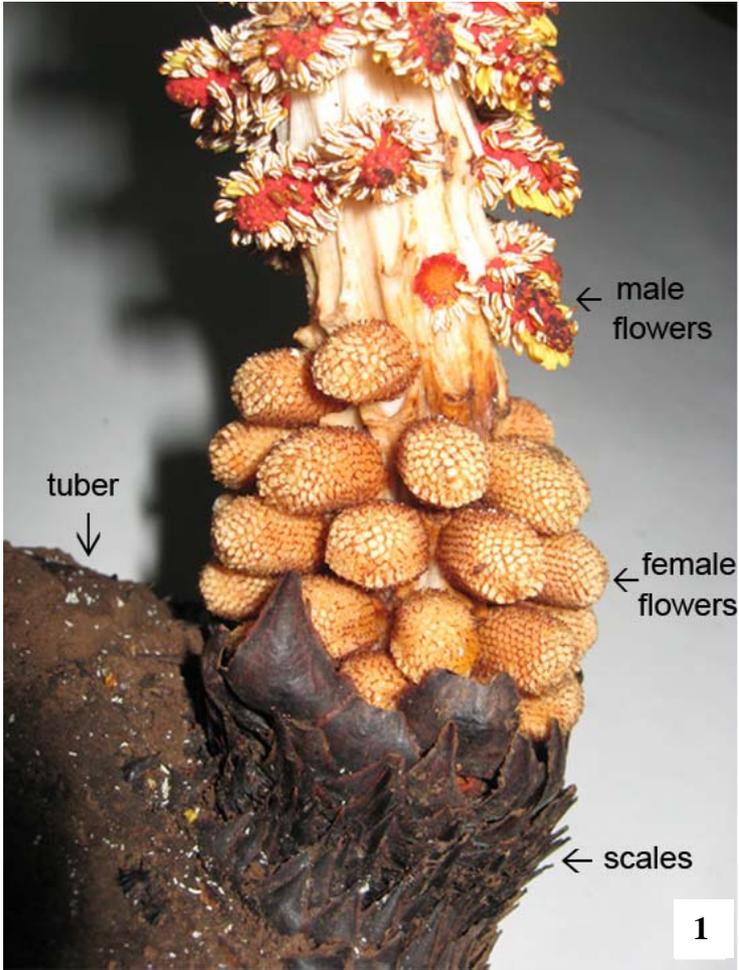
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Figure legends

Figs. 1-4. 1, 2: The balanophoraceous hostplants of *Oxycorynus* spp. 1, habitus of *Lophophytum leandrii*, hostplant of *O. missionis*, detail of tuber and basal portion of the inflorescence, some scales that cover the inflorescence are still attached to the base; 2, habitus of *Lophophytum mirabile* subsp. *Bolivianum*, hostplant of *O. nigripes*. 3, 4: Biology of *Oxycorynus missionis*. 3, adult feeding between female flowers; 4, larva developing in the infrutescence. Scale = 5mm. Photos 1-3: A. M. Gonzalez, photo 4: A. E. Marvaldi.

Figs. 5-8. Habitus of *Oxycorynus* species associated with *Lophophytum*. 5-6, *Oxycorynus missionis*, 5, female; 6, male. Scales = 1mm. 7-8, *O. nigripes*; 7, female; 8, male. Scales = 5 mm. Photos: A. E. Marvaldi.





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