

SCIENTIFIC NOTE

First Host Plant Record for *Pero obtusaria* Prout (Lepidoptera: Geometridae)

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Abstract

The shrub *Pluchea chingoyo* is mentioned as the first host plant record for larvae of the little known moth *Pero obtusaria* Prout.

Pero Herrich-Schäffer is restricted to the New-World and is the most diverse among the Neotropical Azelinini genera, with little more than 300 described species, most of which distributed in the Neotropical region (Poole 1987, Pitkin 2002, Clifford 2003, Lévêque 2006, 2007, Brown 2007, Vargas 2007). *Pero* was recently discovered in northern Chile, where it includes two described species: *Pero obtusaria* Prout and *Pero rodriguezi* Vargas. *Pero obtusaria* was originally described from Peru, and has been subsequently recorded from the coastal valleys of the Arica Province (Vargas & Hausmann 2008). *Pero rodriguezi* was described from Precordillera of the Parinacota Province, at 3000 m altitude (Vargas 2007). Host plants and immature stages are unknown for both north Chilean species.

Despite the great diversity in the Neotropics, with more than 290 species described, the fauna of *Pero* is better known in the Nearctic region, where host plant records and studies on morphology of immature stages are available for some species (McGuffin 1963, Poole 1987). Robinson *et al* (2010) indicated host plants for eleven Nearctic species, many of which are polyphagous. On the other hand, only basic taxonomical aspects are

known for the Neotropical species, mostly based on wing maculation and genital morphology of the adult, while biological information on the immature stages remains largely unknown. The only information available on hosts for any Neotropical *Pero* is from Bodner *et al* (2010), who indicated *Myrica pubescens* (Myricaceae) as host for larvae of *Pero maculicosta* Warren in Ecuador.

Poole (1987) tried to rear several Neotropical species of *Pero* in Venezuela, but he was not able to find a suitable food source for any of the larvae. This fact could be suggesting a high degree of host specialization of this fauna, contrasting with the polyphagy of many Nearctic species. A similar situation was observed with *P. obtusaria* in northern Chile, where a female was collected in the Azapa valley in December 2007 and placed in a polyethylene bag in order to obtain eggs. More than sixty eggs were laid and larvae hatched 9-11 days after oviposition. Plants previously known as suitable host plants for larvae of other geometrid moths of northern Chile (i.e.: Anacardiaceae, Fabaceae and Nyctaginaceae) were offered to the first instars of *P. obtusaria*. However, larvae were not able to feed on these plants and died.

On the other hand, in January, 2008, one last instar of

a folivorous geometrid was collected on *Pluchea chingoyo* (Asteraceae) in the Azapa valley, among 18:00h and 19:00h. The larva was placed in a glass vial and brought to the laboratory. Leaves of *P. chingoyo* were supplied when necessary until pupation. The pupa was periodically observed until adult emergence. This procedure was successfully replicated in August 2008 and December 2009, resulting in additional five last-instar larvae collected and reared to the adult stage. Adults obtained were mounted, labelled and identified as *P. obtusaria* based on the genital morphology of the male (Poole 1987). Voucher specimens are deposited in the Museo Nacional de Historia Natural de Santiago, Santiago, Chile (MNNC).

Pluchea chingoyo is the first host plant known for *P. obtusaria*. Apparently, larvae of *P. obtusaria* are host plant specialists, because these were not able to feed on other hosts offered in laboratory. However, additional field and laboratory studies are required in order to determinate the effective host range of this species. On the other hand, larvae were always collected at afternoon, among 18:00h and 19:00h. Then, larvae of *P. obtusaria* could be mostly nocturnal feeders, because additional ten previous and subsequent surveys on *P. chingoyo* undergone near midday in the same location were not successful.

The plant family more frequently mentioned as host for larvae of Geometridae in northern Chile is Fabaceae (e.g.: Vargas & Parra 2004, 2005, Vargas *et al* 2005). Recently, Nyctaginaceae has been also indicated as a host for larvae of the geometrid moth *Chrimopteryx undularia* (Blanchard) in the same area (Vargas *et al* 2010). *Pero obtusaria* is the second north Chilean species of this family with larvae feeding on an Asteraceae host plant. Another geometrid moth with immature stages associated with this plant family in the same area is *Glena mielkei* Vargas, which larvae are folivorous on the shrub *Trixis cacalioides* (Asteraceae) (Vargas 2010).

An adequate knowledge of host plants of herbivore insects is a key aspect in order to design basic studies on immature morphology and biology. Additionally, this information is also important in relation to insect conservation, especially in highly disturbed areas as the coastal valleys of northern Chile, where the intensive agriculture has prompted a strong habitat modification and loss (Luebert & Plissock 2006), besides many other negative effects associated with this anthropic activity.

Material examined. CHILE. Arica. Two males, one female Azapa, Arica, Chile, January 2010, H.A. Vargas coll., reared from larva on *Pluchea chingoyo*, December 2009 (MNNC); two females Azapa, Arica, Chile, September 2008, H.A. Vargas coll., reared from larva on *Pluchea chingoyo*, August 2008; one female Azapa, Arica, Chile, February 2008, H.A. Vargas coll., reared from larva on *Pluchea chingoyo*, January 2008.

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