

## SHORT COMMUNICATION

# First host plant records for *Iridopsis hausmanni* Vargas (Lepidoptera, Geometridae) in the coastal valleys of northern Chile

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**ABSTRACT.** First host plant records for *Iridopsis hausmanni* Vargas (Lepidoptera, Geometridae) in the coastal valleys of northern Chile. The trees *Haplorhus peruviana* Engl. and *Schinus molle* L. (Anacardiaceae) are mentioned as the first host plant records for the little known native moth *Iridopsis hausmanni* Vargas, 2007 (Lepidoptera, Geometridae, Ennominae) in the coastal valleys of the northern Chilean Atacama Desert. This is also the first record of Anacardiaceae as host plant for a Neotropical species of *Iridopsis* Warren, 1894.

**KEYWORDS.** Anacardiaceae; Atacama Desert; Fabaceae; Insecta.

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The Geometridae (Lepidoptera) is one of the most diverse moth families, which is well represented in the Neotropical Region (Heppner 1991). More than 280 species have been described from Chile, 252 of which are endemic (Parra & Villagrán-Mella 2008). The Chilean fauna of geometrid moths is better known in the central and south zones of this country (Bocaz & Parra 2005; Hausmann & Parra 2009; Zamora-Manzur *et al.* 2011); however, the species which inhabit the northernmost part of Chile are still poorly sampled.

Larvae of Geometridae are generally phytophagous (Scoble 1995), with the outstanding exception of some representatives of *Eupithecia* Curtis, 1825 of the Hawaiian Islands, which are ambush predators (Montgomery 1982). Regardless of the host range, plant feeding species may be specialized to eat specific plant organs, generally leaves. External feeding is the predominating behaviour, but endophagy has been also recorded (Parra & Ibarra-Vidal 2002).

Geometrid larvae may be involved in many interactions in natural and human-modified environments. On one hand, their most commonly acknowledged function is herbivory, because their abundance levels may be high among the external chewers of some plants (Bodner *et al.* 2012). On the other hand, they may be also extremely important as prey for insectivorous organisms (Matthews & González 2004; Marconato *et al.* 2008).

At the local level, although only a few species of Geometridae are currently known from the coastal valleys of the northern Chilean Atacama Desert, their larvae are important components among the florivorous caterpillars on *Acacia macracantha* Willd. (Fabaceae) (Vargas & Parra 2009), and are the only prey of the potter wasp *Hypodynerus andeus*

(Packard, 1869) (Hymenoptera, Vespidae, Eumeninae) (Méndez-Abarca *et al.* 2012). Thus host plant documentation for species of this moth family is important in order to know and understand their field biology adequately. Moreover, these records may be valuable in order to plan ecological studies or conservation practices.

*Iridopsis* Warren, 1894 is a New World genus of Boarmiini, whose greatest diversity is concentrated in the Neotropical Region (Rindge 1966; Pitkin 2002). However, the biology of the Neotropical species is little known, with only a few host plant records published (Passoa 1983; Vargas 2007; Marconato *et al.* 2008; Bodner *et al.* 2010; Robinson *et al.* 2010). In contrast, host plant relationships are better documented for the Nearctic species, many of which are polyphagous (Robinson *et al.* 2010).

The genus has been recently recorded from Chile, where it is represented by two described species, both from the Atacama Desert (Vargas 2007). *Iridopsis parrai* Vargas, 2007 is restricted to the Pampa del Tamarugal, and its larvae are folivorous on the native tree *Prosopis tamarugo* Phil. (Fabaceae). Its immature stages have been recently described and illustrated (Vargas & Parra 2013). *Iridopsis hausmanni* Vargas, 2007 has been reported only from the Azapa valley, Arica Province, and nothing has been published about its host plant relationships.

The two Chilean representatives of *Iridopsis* are apparently closely related, based on male genital morphology (Vargas 2007), thus it was supposed that larvae of *I. hausmanni* could be associated with some host plant in the family Fabaceae. One female of *I. hausmanni* was collected at light in the type locality in September 2009, and was placed into a plastic bag and laid 54 eggs. After eclosion, leaves of

native Fabaceae trees of this locality were offered to first instar larvae: *Acacia macracantha*, *Geoffroea decorticans*, *Leucaena leucocephala* and *Prosopis alba*. Additionally, leaves of the exotic *Medicago sativa* were also offered. The larvae died in the first instar, because they were not able to feed on the leaves of these plants. Thus a Fabaceae host plant for *I. hausmanni* could be discounted, at least in the coastal valleys of the northern Chilean Atacama Desert.

Surprisingly, three adults of *I. hausmanni* were reared from folivorous larvae collected on *Schinus molle* (Anacardiaceae) in the Azapa valley between September 2010 and July 2013. Additionally, more two folivorous larvae were collected and reared to the adult stage on another Anacardiaceae tree, *Haplorhus peruviana*, in another locality, the Chaca valley, Arica Province, in July, 2013.

This is the first report of host plants for *I. hausmanni*. Furthermore, this is also the first record of Anacardiaceae as host plant for a Neotropical species of *Iridopsis*. Previously known records for Neotropical *Iridopsis* included Asteraceae, Erithroxylaceae, Fabaceae and Viburnaceae (Passoa 1983; Vargas 2007; Marconato *et al.* 2008; Bodner *et al.* 2010; Robinson *et al.* 2010).

The trees used by *I. hausmanni* are native in the study area (Muñoz-Pizarro 1966). *Schinus molle* is widely distributed in South America, and is frequently used as an ornamental tree. *Haplorhus peruviana* is the only species included in the Neotropical genus *Haplorhus*, with geographical range restricted to a relatively small area of southern Peru and northern Chile (Rodríguez *et al.* 1983). Population levels of this tree are extremely low in the study area.

Although plants of additional families were not offered to larvae of *I. hausmanni* in the laboratory, surveys for geometrid larvae have been performed on representatives of other plant families in the study area with no additional records of *I. hausmanni*. This fact, together with the rejection of Fabaceae as alimentary substrate, suggests a level of host specificity for *I. hausmanni*, which contrasts with the polyphagy reported for some Nearctic *Iridopsis* (Robinson *et al.* 2010). More restricted host plant ranges for the Neotropical representatives compared to the Nearctic ones have been previously reported for the geometrid genus *Pero* Herrich-Schäffer (Poole 1987; Vargas 2011).

Among phytophagous insects it is frequently true that taxonomically related species are associated with taxonomically related host plants, although some exceptions have been also reported (Erich & Raven 1964; Lopez-Vaamonde *et al.* 2003; Ohshima & Yoshizawa 2006). In the present case, differing from the host plant pattern reported for the supposed closely related species, larvae of *I. hausmanni* were associated with Anacardiaceae and strongly rejected Fabaceae. This unexpected discovery may indicate an interesting host change history which should be studied in the future.

Voucher specimens will be deposited in the *Museo Nacional de Historia Natural de Santiago* (MNNC), Santiago, Chile, and in the *Colección Entomológica de la Universidad de Tarapacá* (IDEA), Arica, Chile.

Material examined. CHILE, Arica. One male: Azapa, Arica, Chile, October 2010, reared from larva on *Schinus molle*, September 2010, H. A. Vargas coll. (MNNC); one male, one female: Azapa, Arica, Chile, September 2013, reared from larva on *Schinus molle*, July 2013, H. A. Vargas coll. One male: Chaca, Arica, Chile, August 2013, reared from larva on *Haplorhus peruviana*, July 2013, H. A. Vargas coll.; one male: Chaca, Arica, Chile, September 2013, reared from larva on *Haplorhus peruviana*, July 2013, H. A. Vargas coll. (IDEA).

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