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Nota científica

Angelabella tecomae (Lepidoptera: Gracillariidae): an exotic hostplant in northern Chile and first record from Peru

Angelabella tecomae (Lepidoptera: Gracillariidae):
una planta hospedera exótica en el norte de Chile y primer registro para Perú

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Abstract: *Tecoma stans* (Bignoniaceae), an exotic ornamental tree, is mentioned for the first time as a host for larvae of *Angelabella tecomae* (Lepidoptera: Gracillariidae) in northern Chile. The presence of *A. tecomae* is reported for the first time from the coastal desert of southern Peru.

Key words: Bignoniaceae. Leaf-miner. Oecophyllembiinae. *Tecoma.*

Resumen: *Tecoma stans* (Bignoniaceae), un árbol ornamental exótico, es mencionado por la primera vez como hospedero de larvas de *Angelabella tecomae* (Lepidoptera: Gracillariidae) en el norte de Chile. La presencia de *A. tecomae* es indicada por la primera vez para el desierto costero del sur del Perú.

Palabras clave: Bignoniaceae. Minador foliar. Oecophyllembiinae. *Tecoma.*

Introduction

The Gracillariidae is the largest family of plant-mining Lepidoptera with more than 1800 described species (De Prins and De Prins 2005), and it is the only family of Lepidoptera with sap-feeding larvae (Davis 1987). Most species are leaf miners, but some are miners in fruits, shoots or bark (Davis and Robinson 1998). Post-embryonic morphogenesis of gracillariid moths is characterized by a striking hypermetamorphosis (Kumata 1978; Wagner *et al*. 2000). The larvae have at least two distinct forms and habits (Kumata 1978; Davis 1987).

Angelabella tecomae Vargas & Parra, 2005 (Lepidoptera: Gracillariidae, Oecophyllembiinae) was described from northern Chile, where the native shrub "chuve", *Tecoma fulva fulva* (Cav.) D. Don (Bignoniaceae), was its only known natural hostplant until now (Vargas and Parra 2005). *Tecoma fulva fulva* is also distributed along the southern desert of Peru (Wood 2008). However, *A. tecomae* was no reported from this area until now. In this paper the presence of *A. tecomae* is reported for the first time from Peru, and a new hostplant is mentioned for *A. tecomae* in northern Chile.

Results

In May 2008 several lepidopteran mines were found in leaflets of the exotic tree *Tecoma stans* (L.) Juss. ex Kunth (Bignoniaceae) in Arica City, northern Chile. *T. stans* is native to South America and its southern natural distribution extends to northern Argentina (Wood 2008). However, this species is more widely distributed because it is highly valued as an ornamental tree. Thus, in some cities of northern Chile *T. stans* is an introduced and cultivated tree. Some mined leaflets of *T. stans* were collected and carried to the laboratory where larvae of Gracillariidae were detected. Leaflets with spinning larvae or with pupae were placed in glass vials in order to obtain adults. In addition, in March 2009, gracillariid moths reared from larvae on *T. fulva* leaflets were sent to me by Mr. Josimar Luque from Tacna Department, southern Peru, approximately 50 km north of Azapa valley. Voucher specimens were deposited in the Museo Nacional de Historia Natural de Santiago, Santiago, Chile (MNNC) and in the Colección Entomológica de la Universidad de Tarapacá, Arica, Chile (IDEA).

Material examined. PERU, Tacna (5 males, 4 females): Tacna, Perú/ Marzo-2009/ Y. Luque coll.// ex-larva en *Tecoma fulva* (IDEA). CHILE, Arica (8 males, 1 female): Parque Centenario/ Arica-Chile/ Mayo-2008/ H.A. Vargas coll.//ex-larva en/ *Tecoma stans* (L.) (IDEA); 2 males, 2 females with same data (MNNC).

Angelabella tecomae Vargas & Parra, 2005
Adults obtained from both samples were identified as *A. tecomae*, based on the morphology of the male and female genitalia (Vargas & Parra 2005) which were mounted on slides in Canada balsam. Thus, Tacna is the first recorded locality for *A. tecomae* in Peru, and *T. stans* is a new and exotic hostplant record for *A. tecomae*.

Remarks. Based on available data, the geographic distribution of *A tecomae* is restricted to the Arica Province, in the coastal desert of northern Chile, and Tacna Department, southern Peru. However, its real geographic distribution probably includes additional localities of the southern coastal desert of Peru, thus fitting the distribution of its natural hostplant. Wood (2008) mentioned that another five subspecies of *T. fulva* are distributed between central Peru and northern Argentina. Collections along the distribution area of any subspecies of *T. fulva* would be useful in order to determine the effective geographical distribution of *A. tecomae*.

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The biology of *A. tecomae* is poorly known. As in *T. fulva*, the complete development of the immature stages of *A. tecomae* is carried out in only one leaflet of *T. stans*. Upon eclosion, the first instar larva (sap-feeding) introduces itself immediately into the epidermis, its feeding activity resulting in a serpentine mine. Subsequently, the larva does not feed in the epidermis, but in inner tissues of the leaflet, its activity resulting in a blotch mine. The spinning larva (last-instar larva) only spins to prepare the mine for pupation. In order to allow adult emergence, the pupa breaks the apex of the pupal chamber using the serrated margins of the anterior process of its head.

Among the 24 species included by Kumata (1998) in the subfamily Oecophyllembiinae 20 have hostplant records published: 15 are restricted to one hostplant; three have more than one hostplant, but are restricted to one plant genus; and two have more than one hostplant in more than one plant genus, but are restricted to one plant family. Thus, apparently the species of the subfamily Oecophyllembiinae have narrow host preferences. With the new host record here indicated, only two hostplants are now known for *A. tecomae* larvae, both in the genus *Tecoma* Juss., fitting the narrow host range mentioned by Kumata (1998) for Oecophyllembiinae. Additionally, both host species are Neotropical (Wood 2008). Another introduced ornamental species of *Tecoma* in northern Chile is *T. capensis* (Thunberg) Lindley, which geographical origin is in southern Africa. Exhaustive searches of mines of *A. tecomae* on *T. capensis* in the Azapa valley yield no positive results, suggesting that *T. capensis* is not a hostplant for this leaf miner.

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