



## Short Communication

## Female genitalia of *Pero obtusaria* Prout, 1928 (Lepidoptera: Geometridae)

Héctor A. Vargas 

Departamento de Recursos Ambientales, Facultad de Ciencias Agronómicas, Universidad de Tarapacá, Casilla 6-D, Arica, Chile



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## ABSTRACT

The female genitalia of *Pero obtusaria* Prout, 1928 (Lepidoptera: Geometridae) are described and illustrated for the first time and compared to congeners. The antrum with the dorsal part sculptured with two sinuous longitudinal stripes enables the identification of this species.

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The original description of the Neotropical geometrid moth *Pero obtusaria* Prout, 1928 (Lepidoptera: Geometridae: Ennominae: Azelinini) was based on a single male from Matucana, Lima, Peru. Poole (1987) reported additional specimens from close to the type locality, re-described and illustrated the male and its genitalia and described the female for the first time. The presence of *P. obtusaria* was subsequently reported from the eastern Andes of southern Ecuador (Brehm and Fiedler, 2005) and the coastal valleys of the Atacama Desert of northern Chile (Vargas and Hausmann, 2008), which represent the northern and southern limits of its range, respectively. Later fieldwork in the Atacama Desert revealed that the larvae of *P. obtusaria* feed on leaves of the shrub *Pluchea chingoyo* (Asteraceae), appearing to be highly host-specialized (Vargas, 2011). Its egg and first instar were described and illustrated recently (Vargas et al., 2017).

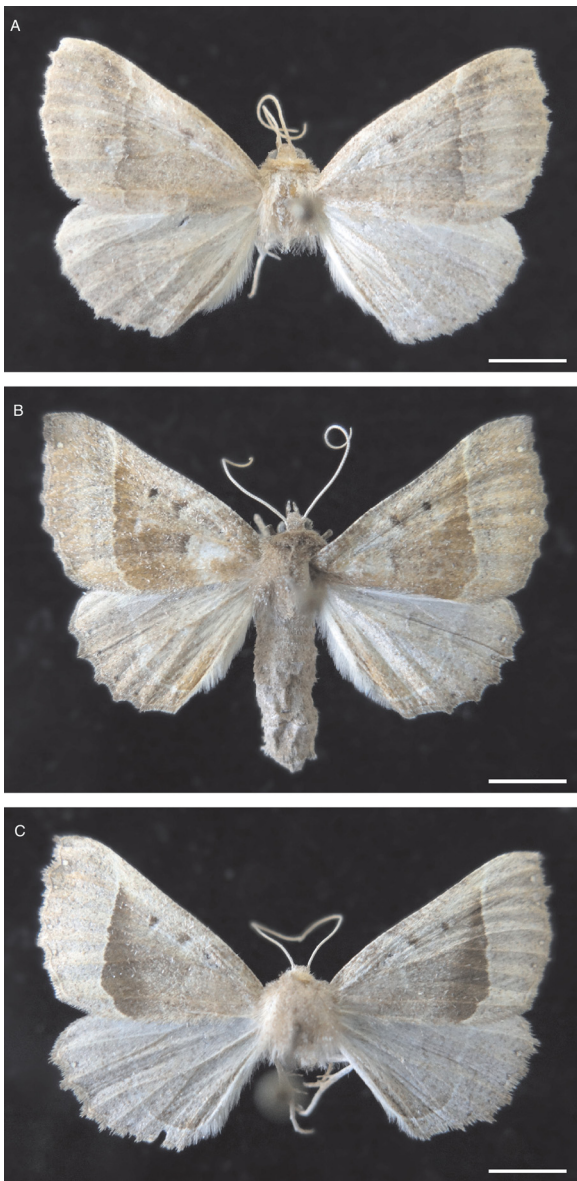
Poole (1987) indicated that the wing maculation of *P. obtusaria* appeared to be more uniform among the species belonging to Group 15, one of the 19 species groups recognized by him to arrange the more than 300 species included in the New World genus *Pero* Herrich-Schäffer, 1855. However, he also highlighted that only a few specimens of *P. obtusaria* from a narrow geographic range were known at that time. In accordance with his alert, variation in the wing pattern of this moth was subsequently found, at least in the southern limit of its range (Fig. 1).

The 19 species groups of *Pero* were defined based on morphological features of the male genitalia (Poole, 1987). However, the study of the female genitalia is needed to search for diagnostic characters and to understand better the relationships of the species belonging to this highly diverse genus (Lévêque, 2006, 2007; Dias, 2008). Accordingly, the previously unknown female genitalia of *P. obtusaria* are described and illustrated for the first time.

Specimens used in this study were collected as adults at light or reared in the laboratory from larvae collected on *P. chingoyo* in the coastal valleys of the Arica Province, northern Chile, between October 2003 and November 2009. The abdomen of two females was removed and placed in hot 10% KOH for a few minutes. The genitalia were removed, placed in a Petri dish with 70% ethanol for drawing and subsequently slide mounted in Canada balsam. Drawings were made using a stereomicroscope with a camera lucida. Images were captured with a Sony CyberShot DSC-HX200V digital camera. Vouchers are deposited in the “Colección Entomológica de la Universidad de Tarapacá” (IDEA), Arica, Chile.

Female genitalia (Fig. 2). Papillae anales lobe-like, with many hair-like setae. Posterior apophyses elongated, about 1.75 times the length of the papillae anales. Segment VIII cone-like; tergum and sternum fused laterally; anterior apophyses slightly differentiated as small projections on the antero-lateral margin. Lamella post-vaginalis with anterior margin broadly concave with small cleft at middle, posterior margin convex at middle, two short transverse stripes close to posterior margin. Lamella antevaginalis a narrow transverse stripe. Ostium bursae wide. Antrum funnel-shaped, dorsal part widely expanded, rectangle-like in ventral view,

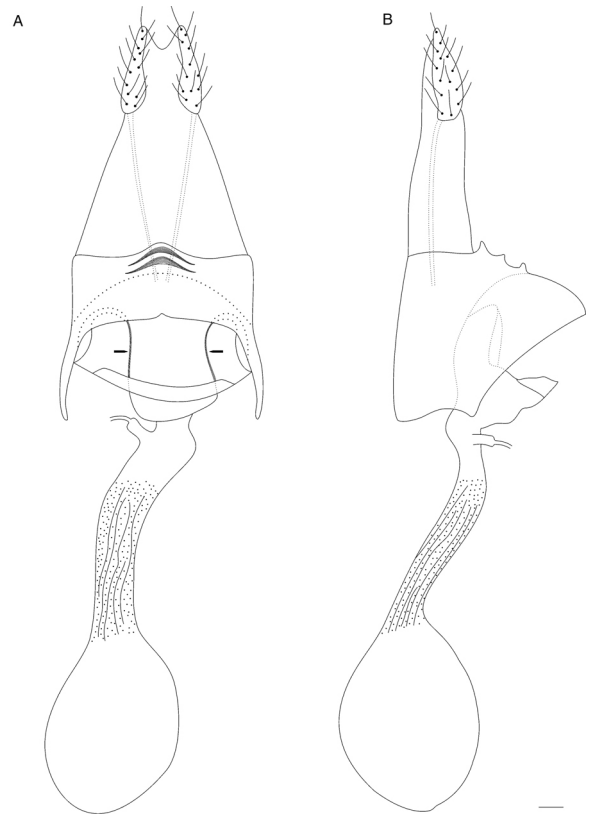
E-mails: [havargas@uta.cl](mailto:havargas@uta.cl), [lep Vargas@gmail.com](mailto:lep Vargas@gmail.com)



**Fig. 1.** Wing pattern of specimens of *Pero obtusaria* collected in the coastal valleys of the Atacama Desert. (A) Male in dorsal view. (B) Female in dorsal view. (C) Female in dorsal view. Scale bars 5 mm.

two sinuous longitudinal stripes. Ductus bursae mostly membranous, distal 2/3 slightly sclerotized and striated. Ductus seminalis arising on the left side of the base of ductus bursae. Corpus bursae membranous, spherical. Signum absent.

**Remarks.** The female genitalia are variable among the species of *Pero*. For instance, a signum can be absent or present, displaying a wide range of morphological patterns (Poole, 1987; Pitkin, 2002; Dias, 2008). Poole (1987) illustrated the sterigma and part the basal of the ductus bursae of 15 of the 33 species included at that time in Group 15. The morphology of these structures in *P. obtusaria* generally fits the pattern of this species group, with a well-developed antrum (Poole, 1987; Lévêque, 2007). Interestingly, two transverse stripes close to the posterior margin of the lamella postvaginalis, similar to those found in *P. obtusaria*, are found in *Pero jonesaria* (Schaus, 1897) described from southern Brazil (Poole, 1987). However, the antrum with the dorsal part characteristically sculptured with two sinuous longitudinal stripes enables the identification of *P. obtusaria*. The female genitalia of another Peruvian representative of Group 15, *Pero janichoni* Lévêque, 2007, were described



**Fig. 2.** Female genitalia of *Pero obtusaria*. (A) Ventral view; arrows indicate longitudinal stripes of the antrum. (B) Lateral view. Scale bar 0.2 mm.

and illustrated in detail (Lévêque, 2007), enabling further comparisons. The convex posterior margin of the lamella postvaginalis, the extreme reduction of the anterior apophyses and the slightly sclerotized ductus bursae in *P. obtusaria* contrast with the prominent posterior projection of the lamella postvaginalis, the spine-shaped aspect of the anterior apophyses and the well-sclerotized basal half of the corpus bursae in *P. janichoni*. All these findings reinforce the suggestion regarding the importance that the study of the female genitalia in *Pero* can have. Thus, their morphology should be studied in additional species of this highly diverse New World genus.

### Conflicts of interest

The author declares no conflicts of interest.

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