

# A new species of *Glena* Hulst (Lepidoptera, Geometridae) from northern Chile

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ABSTRACT. A new species of *Glena* Hulst (Lepidoptera, Geometridae) from northern Chile. A new species of *Glena* Hulst (Lepidoptera, Geometridae) is described from two valleys of the coastal desert of northern Chile. Immature stages are associated with *Trixis cacalioides* (Kunth) Don. (Asteraceae). Holotype, male and female genitalia, and a sexual dimorphic feature are illustrated. This is the first record of a species of *Glena* from Chile.

KEYWORDS. Boarmiini; Ennominae; Neotropical; taxonomy.

RESUMO. Uma nova espécie de *Glena* Hulst (Lepidoptera, Geometridae) do norte do Chile. Uma nova espécie de *Glena* Hulst (Lepidoptera, Geometridae) é descrita de dois vales do deserto litoral do norte do Chile. Os estágios imaturos estão associados com o arbusto *Trixis cacalioides* (Kunth) Don. (Asteraceae). O holótipo, a genitália do macho e da fêmea, e um caráter com dimorfismo sexual são ilustrados. Este é o primeiro registro de uma espécie de *Glena* para o Chile.

PALAVRAS-CHAVE. Boarmiini; Ennominae; Neotropical; taxonomia.

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*Glena* Hulst, 1896 is a genus of New World geometrid moths (Ennominae, Boarmiini) with 45 species: 35 Neotropical and 10 Nearctic (Pitkin 2002). Neotropical species of *Glena* are present in many countries of South America, including those bounding with Chile: Peru, Bolivia and Argentina (Rindge 1967).

Rindge (1965) indicated that *Glena* is closely related to the Nearctic genus *Stenoporpia* McDunnough, 1938. However, the male genitalia of the species of *Glena* have a wide median extension in the gnathos, a broad juxta, a broad attachment of the valva to the tegumen, and the sacculus with a narrow sclerotized projection covered with scales. The vesica may have a very large single cornutus or a dense group of short deciduous cornuti. In the female genitalia of the species of *Glena* the ductus bursae is short and membranous, the signum is present or absent, and the sterigma have median and lateral sclerotized areas.

Species of *Glena* have not been reported from Chile until now. However, some specimens of one undescribed species of *Glena* were recently collected in northern Chile. Thus, the purpose of this work is to present a description of the male and female adults of this new species.

The first specimen, one male, was collected at light in the Chaca valley, Arica Province, northern Chile, in October 2003. Subsequently, between September 2008 and January 2009, some folivorous larvae were collected on leaves of the shrub *Trixis cacalioides* (Kunth) D. Don (Asteraceae) in the same locality and Azapa, another coastal valley in the Arica Province. In order to obtain adults, larvae were reared on leaves of *T. cacalioides* until pupation. Adults were pinned and labelled. Type material will be deposited in the "Museo Nacional de Historia Natural de Santiago", Santiago, Chile (MNNC).

## *Glena mielkei* sp. n.

(Figs. 1, 2, 3, 4, 5, 6, 7)

Diagnosis. Easily separated from any other species of *Glena* by male and female genitalia features. Male genitalia with apex of the costa forked; a short conical cornutus ornamented with many points. Female genitalia with lateral area of the sterigma elliptical; corpus bursae without a signum.

Male (Fig. 1). Head: front grayish brown; vertex yellowish brown with some scattered brown scales; antenna with scape yellowish brown, pedicel and flagellum grayish brown; labial palpi grayish brown, short; chaetosemata in little groups behind compound eyes. Thorax: dorsal surface grayish brown; lateral surface yellowish brown; legs yellowish brown, foreleg with epiphysis arising at basal third of the tibia (Fig. 2), apex of tibial epiphysis beyond apex of foretibia, midleg with one pair of spurs, hindleg with two pairs of spurs and with hair pencil; forewing (11–12 mm length) yellowish brown with some scattered reddish brown and grayish brown scales; hindwing similar to forewing. Abdomen: yellowish brown with grayish brown scales scattered.

Male genitalia (Figs. 4, 5, 6). Uncus narrow, with round apex; gnathos with a small median projection amply rounded; tegumen narrow, not separate of dorsal arms of the saccus; anterior projection of the saccus round; valva with costa broad, with abundant scales, apex forked, with a conspicuous ventral projection also covered with scales; sacculus with a narrow sclerotized projection covered with scales not reaching distal margin of the valva; juxta simple, narrow at basis, broad at apex, posterior margin straight; aedeagus cylindrical, strongly curved at basis; vesica with a short conical cornutus, surface of the cornutus ornamented with many points (Fig. 6).

Female. Similar to male, but head with filiform antenna;

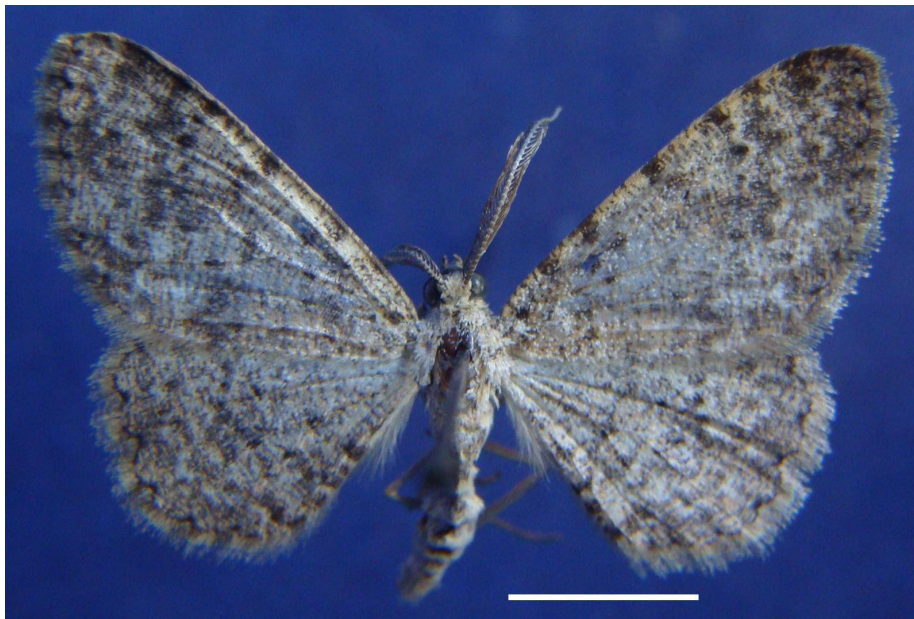


Fig. 1. *Glena mielkei*. Holotype male in dorsal view, scale: 0.5 cm.

foreleg with tibial epiphysis arising at distal third with the apex little beyond the tibial apex (Fig. 3); and hindleg without a hair pencil.

Female genitalia (Fig. 7). Sterigma with a triangular lamella postvaginalis, lateral area of the sterigma elliptical; ductus bursae short, membranous; corpus bursae long, membranous, without a signum; ductus seminalis arising dorsally at basis of the corpus bursae.

Type material. Holotype male, CHILE, Arica: Azapa, Arica, Chile, May 2009, H.A. Vargas coll., reared from larva on *Trixis cacalioides* (MNNC). Paratypes, CHILE, Arica: three males, two females, same data as holotype; one male, one female, Chaca, Arica, Chile, December 2008, H.A. Vargas coll., reared from larva on *Trixis cacalioides*; one female: Azapa, Arica, Chile, September 2008, H.A. Vargas coll., reared from larva on *Trixis cacalioides*; one female: Azapa, Arica, Chile, February 2009, H.A. Vargas coll., reared from larva on *Trixis cacalioides*; one male: Chaca, Arica, Chile, October 2003, Y. Cortés & H.A. Vargas coll. (MNNC).

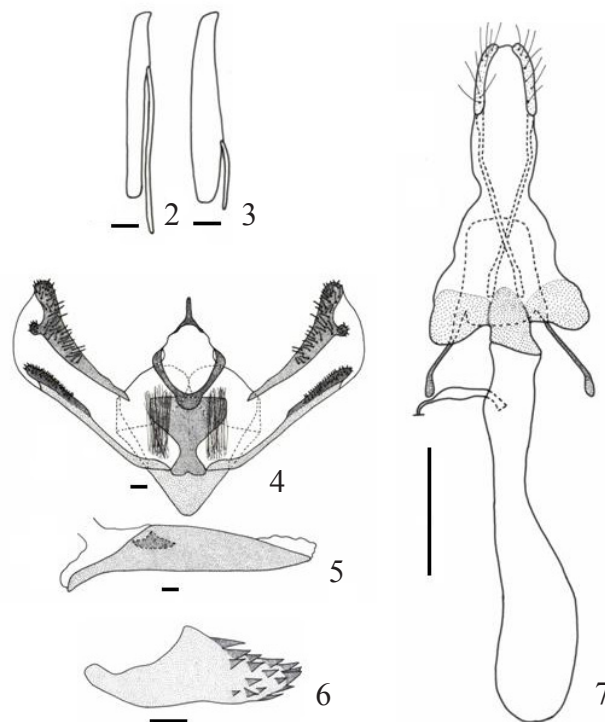
Etymology. *Glena mielkei* is named in honor of the Prof. Dr. Olaf H.H. Mielke, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil, by his outstanding work on Neotropical Lepidoptera.

Host plant. Larvae of *G. mielkei* are folivorous on the shrub *Trixis cacalioides* (Kunth) Don. (Asteraceae). Five males (holotype, and four paratypes) and five females (paratypes) were collected as larvae on this shrub.

Remarks. *Glena mielkei* is the first species of this genus described from Chile. The small size of *G. mielkei* is rare among Neotropical *Glena*, although some Nearctic species are also small (Rindge 1965). As for many Boarmiini geometrid moths (Pitkin 2002), wing maculation is not a reliable feature for identification among Neotropical species of *Glena* (Rindge 1967). Thus, genital features should always be used for accurate identification. However, many Nearctic

species can also be recognized by the wing maculation (Rindge 1965).

Some morphological characteristics in male and female genitalia are very interesting when comparing this species with remaining Neotropical species of *Glena*. Absence of a signum in the female genitalia is shared only with *G. asaccula*



Figs. 2–7. *Glena mielkei*. Foretibial epiphysis and genitalia. 2) Male foretibial epiphysis, scale: 0.2 mm; 3) female foretibial epiphysis, scale: 0.2 mm; 4) male genitalia in ventral view, aedeagus removed, scale: 0.1 mm; 5) aedeagus in lateral view, scale: 0.1 mm; 6) cornutus in lateral view, scale: 0.05 mm; 7) female genitalia in ventral view, scale: 0.1 mm.

Rindge, 1967, described from southern Brazil. However, sclerotized lateral areas of the sterigma are present in *G. mielkei*, but are absent in *G. asacula*. On the other hand, a sclerotized projection of the sacculus in the male genitalia is absent in *G. asacula*, while this structure is present in *G. mielkei*. Moreover, *G. mielkei* is the first Neotropical species of *Glena* without a very large sinuous cornutus, which is present in all Neotropical species of *Glena* previously known (Rindge 1967), probably being an apomorphy for the genus (Pitkin 2002), although secondarily modified or absent in some Nearctic species (Rindge 1965; Pitkin 2002).

Biology and host plants of species of *Glena* are little known, including the Nearctic species (Rindge, 1967). However, Marconato *et al.* (2008) have reared four Neotropical *Glena* on *Erythroxyllum microphyllum* St. Hilaire (Erythroxyllaceae). *Trixis cacalioides*, the host plant of *G. mielkei*, is a native shrub growing in the coastal valleys of northern Chile (Zöllner 1976), also distributed in Argentina, Bolivia and Perú (Katinas 1996). Unfortunately, native vegetation of the Azapa and Chaca valleys is readily being replaced by many cultivated plants used in agricultural production (Luebert & Plissock 2006), with the obvious threat for the associated phytophagous insects.

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