



## Rediscovery and redescription of *Hystrichophora loricana* (Grote) (Tortricidae: Olethreutinae)

TODD M. GILLIGAN<sup>1</sup>, TERRY HARRISON<sup>2</sup> & LORAN D. GIBSON<sup>3</sup>

<sup>1</sup>Colorado State University, Department of Bioagricultural Sciences and Pest Management, Fort Collins, Colorado 80523.  
E-mail:tgilliga@gmail.com

<sup>2</sup>University of Illinois, Department of Entomology, 320 Morrill Hall, 505 S. Goodwin Ave., Urbana, Illinois 61801

<sup>3</sup>2727 Running Creek Drive, Florence, Kentucky 41042

Here we provide information on the recently rediscovered *Hystrichophora loricana* (Grote) (Fig. 1). Previously known only from the male Holotype (Fig. 2), *H. loricana* was brought to the attention of the second author after a brief description of the species was published in “Olethreutine moths of the Midwestern United States” (Gilligan *et al.*, 2008). The second author has observed and collected *H. loricana* over the last 15 years at two locations in Coles County, Illinois, usually in association with *Orbexilum onobrychis* (Nuttall) Rydberg (Fabaceae). Subsequent searches for stands of this plant in Kentucky by the third author led to discovery of a colony of *H. loricana* and collection of the first female. This paper provides the first biological notes on this species, as well as the first complete description of the adult and male and female genitalia.

Grote described *Phoxopteris* [= *Ancylis*] *loricana* in 1880 from a single male collected in Dayton, Ohio. Grote’s description was based solely on wing pattern, and he placed the species in *Phoxopteris* [= *Ancylis*] because of similarity in forewing shape to that of moths in that genus. The species remained in *Ancylis* until Heinrich’s (1929) treatment of the genus *Hystrichophora*. Heinrich dissected the holotype of *Ancylis loricana* and placed *loricana* in *Hystrichophora* based on the male genitalia. No other information was published on the species until a brief description appeared in Gilligan *et al.* (2008).

Recent observations and collections of *H. loricana* have occurred at Charleston Lake View Park in Coles County, Illinois, dating back to 1990. The second author has observed adults sitting on leaves of *Orbexilum onobrychis* during the day, and, although a single specimen of *H. loricana* has been collected nocturnally at light, the preponderance of diurnal observations suggests that this species normally is active only during the day. Adults prefer shaded areas, where the vegetation is taller and greener, rather than open, dry, sunny areas, where vegetation is shorter. Males sit on the upper side of leaves and extend their relatively long and robust antennae (Fig. 3), possibly for the purpose of detecting a female pheromone plume. Male and female specimens collected near Stanford, Lincoln County, Kentucky by the third author were found diurnally in habitat similar to that in which the moth was observed in Illinois. Adult capture dates range from 7–28 August.

*Orbexilum onobrychis* is recorded from 12 eastern states (Arkansas, Iowa, Illinois, Indiana, Kentucky, Missouri, North Carolina, Ohio, South Carolina, Tennessee, Virginia, West Virginia) (USDA, NRCS, 2009). We hypothesize that *H. loricana* may be found in association with this plant in many of these states, and we hope that this correspondence will bring attention to this poorly known tortricid.

We thank the Kentucky State Nature Preserves Commission, Donald S. Dot Jr., Director, for permission to survey Lepidoptera on Commission lands. J. W. Brown provided access to the type specimen of *H. loricana* at the USNM. William Miller and Michael Sabourin provided access to a Coles Co., Illinois specimen at the University of Minnesota. Two anonymous reviewers provided helpful comments.

### *Hystrichophora loricana* (Grote)

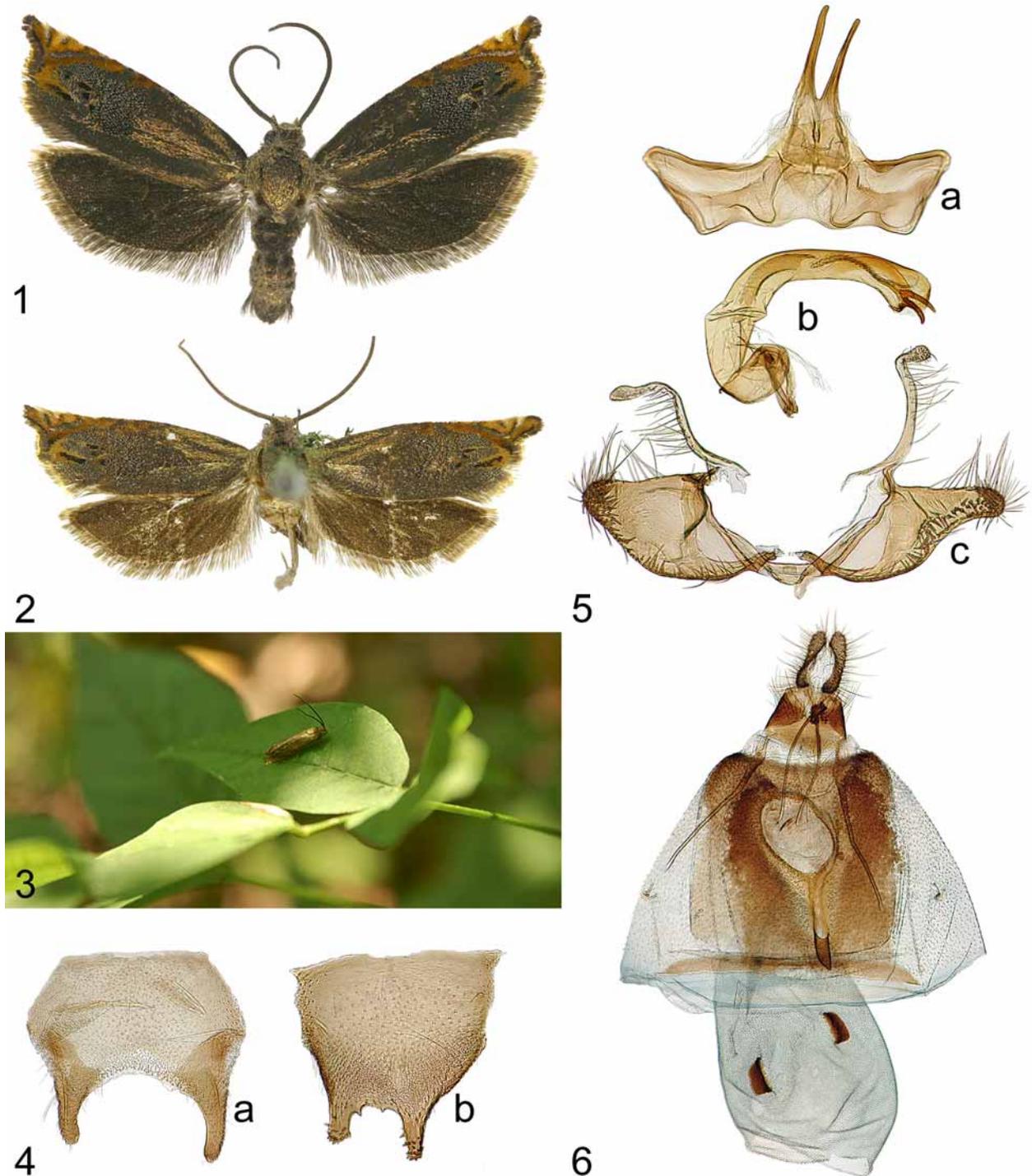
*Phoxopteris loricana* Grote 1880:218.

*Ancylis loricana*: Fernald [1902]:468; Barnes and McDunnough 1917:174; Heinrich 1923:253; Forbes 1923:408.

*Hystrichophora* [sic] *loricana*: Heinrich 1929:20; McDunnough 1939:52.

**Type.** Holotype: ♂, “630; *Grapholitha taleana* Grote Type.; Fernald Collection,” [Dayton, Ohio, G. R. Pilate], “male genitalia slide, 19 June 1925, C. H. #17” [slide is lost], deposited in the USNM.

**Diagnosis.** *Hystrichophora loricana* can be recognized by the projecting apex, prominent orange markings, and strong metallic reflections of the forewing. Forewing pattern is similar to *H. taleana* and two undescribed species near *taleana* (Gilligan, unpublished); however, these species lack the projecting apex and metallic reflections of the forewing.



**FIGURES 1–6.** Adults and genitalia of *Hystrichophora loricana*. **1.** Adult male. **2.** Holotype male. **3.** Male resting on leaf of *Orbexilum onobrychis* (note raised antennae). **4.** Male eighth abdominal segment: **a.** sternite; **b.** tergite. **5.** Male genitalia: **a.** tegumen; **b.** aedeagus; **c.** valvae. **6.** Female genitalia.

**Redescription.** Head: Frons and vertex bronze; labial palpus with lateral surface concolorous with head, medial surface lighter, second segment as long as head; antenna length 0.6 X forewing length, antenna and scapus concolorous with head. Thorax: Tegulae and mesonotum concolorous with head; legs concolorous with mesonotum, tarsomeres ringed with lighter scales distally. Forewing (Figs. 1–2): FWL 7.0–8.5 mm (mean = 7.8 mm, n = 6); costal margin slightly curved from base to apex; apex strongly projecting; termen concave between veins  $R_5$  and  $CU_1$ ; wing bronze from base to median fascia with a longitudinal patch of dark-brown white-tipped scales anterior to ocellus and extending basally into median area and posteriorly along proximal margin of ocellus; costal strigulae pairs 9 and 10 clearly visible; preterminal fascia pale orange, extending from costa at  $R_3$  towards termen, not reaching  $R_4$ ; postmedian fascia orange, extending from costa at  $R_1$  to the termen, dislocated along  $M_3$ ; median fascia orange, present as a small patch on the costa at  $Sc$ ; ocellus consisting of remnants of preterminal, postmedian, and median fasciae; preterminal remnant a longitudinal row of black scales with surrounding pale orange extending to termen; postmedian remnant with two short longitudinal rows of black scales bordered anteriorly by pale orange; median remnant a small patch of black scales bordered anteriorly and posteriorly with pale orange; tornus and central field of ocellus bronze; striae silvery bronze; stria arising from strigulae pair 7 running the length of the postmedian fascia; fringe bronze, scales becoming darker near the apex. Hindwing: Ground color dark grayish brown, fringe scales lighter. Abdomen (Fig. 4): Eighth abdominal sternite modified to form two finger-like projections, one with length 1.25 X that of the other; tergite of eighth abdominal segment asymmetrical and excavate medially, forming two strongly sclerotized distal projections with numerous short spines. Male Genitalia (Fig. 5): Uncus well developed, elongate, asymmetrically bifid, with distal projections strongly sclerotized; socii and gnathos absent; tegumen broad, asymmetrical, with anterior margin sinuate; aedeagus curving ventrally, vesica with three rows of about 25 cornuti (n = 1), distal three cornuti stout, 2 X length of others; valvae asymmetrical, divided into costal and saccular lobes; costal lobe long and slender, the apex forming a densely setose club; left saccular lobe broad, ventral margin with a row of short setae, apex rounded with numerous short setae, sacculus a poorly defined rounded ridge; right saccular lobe elongate with a patch of stout setae arising ventromedially and extending distally, distal end with numerous short setae, sacculus a poorly defined rounded ridge. Female genitalia (Fig. 6): Papillae anales broad, densely setose, lateral margins with row of longer setae; tergum VIII with numerous setae on ventrolateral surface, dorsoanterior surface strongly sclerotized and microspinulate, anterior margin poorly defined between the apophyses anteriores; apophyses anteriores thin, with length approximately 0.75 X that of abdominal segment VII and equal in length with apophyses posteriores; ostium bursae located medially on genital plate, asymmetrical, membranous, circular; posterior margin of sternum VII invaginated to entire length of sterigma, strongly sclerotized, fused with lamella postvaginalis and lamella antevaginalis; lamella postvaginalis a sclerotized ridge; lamella antevaginalis forming a channel extending anteriorly from ostium to a strongly sclerotized pocket on the anterior margin of sternum VII; ductus bursae membranous, arising posteriolaterally from ostium; corpus bursae large, oval, membranous covered with short, blunt, rounded projections, two signa blade or finlike and of equal size.

**Material Examined.** We examined the holotype male and six specimens (5 ♂, 1 ♀) from the following locations: KENTUCKY: Lincoln Co., near Stanford, L. D. Gibson, 28 August 2008 (1 ♂, genitalia slide TMG455; 1 ♀, genitalia slide TMG456). ILLINOIS: Coles Co., Charleston Lake View Park, N 39° 28.309' W 088° 09.000', T. Harrison, 19 August 1990 (1 ♂), 16 August 2008 (1 ♂), 21 August 2008 (1 ♂); Coles County, Charleston, T12N, R9E, NW 1/4 Sec. 11, T. Harrison, 7 August 1996 (1 ♂, genitalia dissection, wing slide M. Sabourin).

## Literature cited

- Barnes, W., McDunnough, J. (1917) *Checklist of the Lepidoptera of Boreal America*. Herald Press, Decatur, Illinois. 392 pp.
- Brown, J. W., Baixeras, J., Brown, R., Horak, M., Komai, F., Metzler, E., Razowski, J., Tuck, K. (2005) *World Catalogue of Insects - Tortricidae (Lepidoptera)*. Apollo Books. 741 pp.
- Fernald, C. H. (1902) In Dyar, H. G. A list of North American Lepidoptera. *United States National Museum Bulletin*. 52, 1–723.
- Forbes, W. T. M. (1923) The Lepidoptera of New York and neighboring states. Part 1. *Cornell University Agricultural Experiment Station Memoir*, 68, 1–729.
- Gilligan, T. M., Wright, D. J. & Gibson, L. D. (2008) *Olethreutine moths of the Midwestern United States, an identification guide*. Ohio Biological Survey Bulletin New Series, Vol. XVI, No. 2. 334 pp.
- Grote, A. R. (1880) New Species of N. Am. Moths. *Canadian Entomologist*, 12, 218.
- Heinrich, C. (1923) Revision of the North American moths of the subfamily Eucosminae of the family Olethreutidae. *United States National Museum Bulletin*, 123, 1–128.

- Heinrich, C. (1929) Notes on some North American moths of the subfamily Eucosminae. *Proceedings of the United States National Museum*, 75, 1–23.
- McDunnough, J. H. (1939) Check list of the Lepidoptera of Canada and the United States of America. Part II. Microlepidoptera. *Memoirs of the Southern California Academy of Sciences*, 2, 3–717.
- Powell, J. A. (1983) Tortricidae, pp. 31–41. In R. W. Hodges et al. (Eds.), *Check list of the Lepidoptera of America north of Mexico*. E. W. Classey & Wedge Entomological Research Foundation, London.
- USDA, NRCS. (2009) *The PLANTS Database*. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. Available from: <http://plants.usda.gov> (1 March 2009).