

Paracorsia repandalis (Lepidoptera: Crambidae) in North America

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The crambid moth *Paracorsia repandalis* (Denis & Schiffmuller, 1775), first reported in North America in 2015 on the basis of two specimens collected by Jim Vargo in Indiana and identified by James Hayden (Scholtens & Solis, 2015), has become widely established in the northeastern United States and southeastern Canada. Specimens have now been collected at two locations in Pennsylvania, and photographic records exist from Ontario.

P. repandalis is native to Europe and central Asia, where its hosts are various species of mullein (*Verbascum* spp.) (Emmet, 1979). While I am unaware of any observations of the immature stages of this species in North America, the widespread presence of the non-native common mullein (*Verbascum thapsus*) in disturbed habitats throughout the United States and Canada makes it a likely candidate for the species' host here. The two specimens collected in Pennsylvania were both found in open, disturbed habitats, one in a powerline cut and one in an old field, and *V. thapsus* was present in both locations. Stephanie Hill also reports that both *V. thapsus* and *V. blattaria* are common in the park in Ontario where her photographic records were obtained (personal communication). If *V. thapsus* is the moth's preferred host in North America, then *P. repandalis* has the potential to continue expanding its range, as *V. thapsus* occurs in every U.S. state and Canadian province (USDA Plants Database).

P. repandalis (Figure 1) has likely been overlooked by most observers in North America due to its superficial similarity to several common North American Crambidae. The wing expanses of the two Pennsylvania specimens of *P. repandalis* are 21 mm (male) and 26 mm (female).

Photographic records of this species online have been confused with the larger *Ostrinia nubilalis* (Hübner, 1796) and with various similarly-sized species of *Hahncappsia* Muntze 1976. With specimens in hand, the species can be separated from these relatives by examining the ventral wing surface, and one of the Ontario photographic records included a ventral photograph of the moth, allowing for easy identification. The ventral surface of *P. repandalis* (Figure 2) is white, suffused with gray scaling throughout, with the pattern on the dorsal surface of the wings mirrored on the ventral surface in dark gray. This bold ventral pattern separates this species from any superficially similar species in eastern North America. On the dorsal surface, the smoothly curving PM line distinguishes this species from similar northeastern *Ostrinia* spp. (*O. nubilalis* (Hübner, 1796), *O. penitalis* (Grote, 1876), and *O. obumbratalis* (Lederer, 1863)), all of which have jagged PM lines. The ground color of the forewings of *P. repandalis* is pale dull yellow to gray, and the ground color of the hindwings is white, which distinguishes it from *H. neomarculeta* (Capps, 1967), *H. neoblitalis* (Capps, 1967), and *H. marculeta* (Grote & Robinson, 1867), all of which have a brighter yellow ground color throughout. Specimens of *H. pergivalis* (Hulst, 1886) and *H. mancalis* (Lederer, 1863) from the Northeast also tend to be yellower in color and have the PM line greatly reduced on the hindwing compared to *P. repandalis*. In addition to these features, the ST line on the forewing of *P. repandalis* is complete, similar in thickness to the PM line, and curves inward at the costa, while the ST lines of the five northeastern *Hahncappsia* spp., when complete, are straight and tend to be more diffuse than the PM lines. The male genitalia (Figure 3) are amply distinct from those of *Hahncappsia* and *Ostrinia*, bearing a closer resemblance to *Sitochroa*.



Figures 1 & 2. Female *Paracorsia repandalis*, dorsal aspect (left); ventral aspect (right)

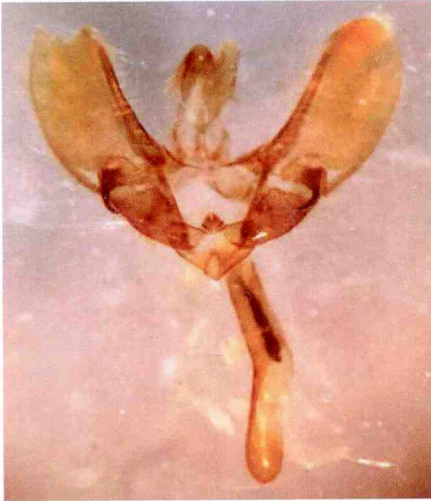


Figure 3. *Paracorsia repandalis*, male genitalia

The valves are broad, the uncus narrow and rounded, and the claspers large and strongly arched.

In addition to Jim Vargo's two specimen records from St. Joseph County, Indiana, collected on 11 Aug 2010 and 14 Aug 2012 and reported by Scholtens & Solis, I have collected two specimens of the species in Pennsylvania with the following data: one female, "Pennsylvania: Montour County, Hess Field property: wetland along Mahoning Creek 40.9738°N 76.6208°W, 17 May 2017, Paul Dennehy leg.", and one male, "Pennsylvania: Huntingdon County, Juniata College Peace Chapel, 1 mile NE of Huntingdon 40.5044°N 77.99846°W, 15 September 2017, Paul Dennehy leg." Both these specimens were taken at 175 W mercury vapor lights and are deposited in my personal research collection. Jim Vargo has not encountered the species again in Indiana since collecting the first two specimens (personal communication). In addition to these four specimens, five photographic records from Ontario were located on BugGuide.net with the following data: "Scarborough, Ontario, Canada; 14 Jun 2009; photo by John Lee", "Scarborough, Ontario, Canada; 2 Aug 2015; photo by John Lee", "Riverwood Park, Mississauga, Peel Region, Ontario, Canada; 24 Aug 2016; photo by Stephanie Hill", "Riverwood Park, Mississauga, Peel Region, Ontario, Canada; 17 Aug 2016; photo by Stephanie Hill", and "Toronto, High Park, Ontario, Canada; 31 Aug 2016; photo by Ken Sproule". All records for which method of collection was given indicate that the moth was attracted to lights nocturnally. The date range of these nine records collectively suggests the species is double-brooded, with dates of sightings ranging from 17 May to 15 September.

This species should be sought out in additional states in the northeastern United States to better understand its distribution. It certainly already occurs in more states than those reported here, and has the potential to expand its range even further. Searches for larvae should also be conducted on *V. thapsus* and other *Verbascum* spp. established in the United States and Canada to clarify the specific host or hosts that *P. repandalis* is using in North America.

Acknowledgements

I would like to thank James Hayden for identifying my first Pennsylvania specimen of *P. repandalis* and suggesting that I write this article. I would also like to thank Jim Vargo for sharing his experience with the species in Indiana. Also, thanks to Stephanie Hill for her insight on the habitat where her photographic records were obtained, and to John Lee and Ken Sproule for sharing their photographic records on BugGuide. Further, I would like to thank the Montour Area Recreation Commission for giving permission to collect on their properties. And finally, thanks to Juniata College in Huntingdon, PA, for hosting the BioBlitz during which the Huntingdon Co. specimen was collected.

Literature Cited

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- "Plants Profile for *Verbascum thapsus* (common mullein)." USDA PLANTS Database. Accessed October 16, 2017. <https://plants.usda.gov/core/profile?symbol=VETH>.



Hemileuca chinatiensis. Fort Davis, Texas, larva collected on *Condalia ericoides* in March 2016, moth emerged in August 2017 (they normally fly in October). Collected and photographed by Ric Peigler.