

USACE Natural Resource Management

Insects



Mitchell's Satyr Butterfly & Rattlesnake-master Borer Moth

Mitchell's Satyr Butterfly (*Neonympha mitchellii mitchellii*): This is a medium-sized butterfly. Forewing length ranges from 0.6-0.8 inches with females being slightly larger than males. The upper wings are dark brown with no markings. The lower wings base color is also dark brown, but have two conspicuous pattern elements. First, there is a linear series of four to five sub-marginal eye-spots on both the forewings and hindwings. Second, there is a pair of orange lines which encircle the eye-spot rows on both wings. The eyespots tend to be larger and more conspicuous in females. These patterns may show through the thinly scaled dorsal wing surfaces. (USFWS)

Status: *Endangered, listed 1992*

NatureServe: *Imperiled Subspecies*



Rattlesnake-master Borer Moth (*Papaipema eryngii*): Adults grow to have a wing span of 1.4-1.9 inches. The primary color is purple-brown with small, scattered yellow and white spots. Flying and crawling through vegetation causes dark scales to fall away, making the wings appear lighter. White spots typically remain distinctive. Rattlesnake-master borer moth larvae appear similar to other *Papaipema* larvae. However, RMB moth larvae retain white and purple striped markings until the last instar. Then, the larvae become mostly yellowish-white with scattered, raised, dark-brown spots. (USFWS)

Status: *Listing Warranted, but precluded by higher priority actions, 2013*

NatureServe: *Critically Imperiled*



Order: *Lepidoptera* is one of the largest and most well-known orders of insects which contains moths and butterflies. The main characteristics of this order are 2 pairs of membranous wings covered in tiny scales, large compound eyes, antennae present, and mouthparts which form a sucking tube. (CSIRO)

Photos Left to Right: Mitchell's Satyr (Doug Landis, Michigan State University), Mitchell's Satyr (USFWS), RMB Moth (USFWS), & RMB Moth (USFWS)

Management and Protection:

- Habitat for the Mitchell's Satyr Butterfly is best characterized as sedge-dominated fen community. Common vegetation includes sedges, bulrushes, and rushes. Additionally, there is typically an alder shrub component. Overgrazing by domesticated animals and frequent mowing creates conditions unsuitable for the species. (USFWS)
- Habitat loss and the disruption of ecological processes which create and maintain species' habitat is thought to be the primary reasons for Mitchell's Satyr population declines. Pesticides and neonicotinoid insecticides may also be negatively impacting Mitchell's Satyr. (USFWS)
- In the Midwest, the rattlesnake-master borer moth occurs in mesic prairies which are often, but not always, calcareous. Important features in occupied habitat are a substantial amount of *Eryngium yucafolum* and a lack of complete dormant season fires. (NatureServe)
 - Grazing, mowing, or any reduction in rattlesnake-master plant height during the early larval stage of the borer moth may remove some larvae. (USFWS)
 - Management actions (e.g., grazing, mowing, prescribed fire), natural fire regime, and habitat loss and fragmentation are all factors in species' viability. (USFWS)



USACE ROLE: On June 20, 2014, a Presidential Memorandum titled, “Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators” directed agencies to develop plans to enhance pollinator habitat. Under section 3, subsection K of the Memorandum, “The Army Corps of Engineers shall incorporate conservation practices for pollinator habitat improvement on the 12 million acres of lands and waters at resource development projects across the country, as appropriate.” In response to the Memorandum, the USACE set out to work with others to promote education, awareness, and management practices that provide for improved bee and pollinator populations and habitat. Efforts were made to identify existing policy and/or guidance and modify it for pollinator health. Additionally, USACE strived to implement conservation and best management practices for pollinator health.

What is USACE NRM Doing: Within the states with reported occurrences of either Mitchell’s satyr butterfly or the Rattlesnake-master Borer Moth, there are more than 170 USACE projects. In the FY20 NRM Assessment, these projects reported that over 4,200 acres were being managed or maintained as pollinator specific habitat. Additionally, these projects reported that over 2,500 acres had been improved, restored, or enhanced for pollinators during the 2020 Fiscal Year.

One such project is St. Louisville District’s Lake Shelbyville. Lake Shelbyville Project was selected as Handshake Partnership Program recipient in FY17. The Project received \$20,000 to improve pollinator habitat around the lake. In total, 100 acres of old field habitat that had been choked with invasive species were treated and replaced with a diverse pollinator mix of native wildflowers vital to numerous insects, like the rattle-snake-master borer moth. This undertaking not only benefits pollinators, but the ecosystem as a whole.



Photo: An aerial image of Lake Shelbyville dam.

This fact sheet has been prepared as an unofficial publication of the U.S. Army Corps of Engineers (USACE). This online publication is produced to provide its readers information about best management practices related to special status species. Editorial views and opinions expressed are not necessarily those of the Department of the Army. Mention of specific vendors does not constitute endorsement by the Department of the Army or any element thereof.

