

***Neonympha mitchellii mitchellii* French, 1889**  
**Mitchell's Satyr**  
**(Satyridae: Satyrinae: Euptychiini)**

---

Profile prepared by Scott Hoffman Black and Mace Vaughan  
The Xerces Society for Invertebrate Conservation

---

## SUMMARY

With a historical distribution though southern Michigan, northern Ohio, northern Indiana, and New Jersey, Mitchell's Satyr is one of the most geographically restricted eastern butterflies. The butterfly is now considered extirpated in New Jersey and Ohio, although new records exist in isolated locations in Virginia, North Carolina, and Alabama.

The greatest threat to the Mitchell's Satyr is habitat destruction. Most of the wetland habitat that this butterfly depends on for survival has been drained and filled to make way for urban and agricultural development. Also, invasion of exotic weeds threaten the fens on which this butterfly depends. It is believed that some populations of the Mitchell's Satyr were eliminated by butterfly collectors, a continuing threat because the remaining populations of Mitchell's Satyr are so small.

### CONSERVATION STATUS

**Xerces Red List Status: Critically Imperiled**

**Other Rankings:**

Canada – Species at Risk Act:	N/A
Canada – provincial status:	N/A
Mexico:	N/A
USA – Endangered Species Act:	Endangered
USA – state status :	OH: Endangered
NatureServe:	G1G2T1T2
IUCN Red List:	N/A

---

## SPECIES PROFILE

### DESCRIPTION

This butterfly has a 1 ¾-inch wingspan with an overall rich brown color. A distinctive series of orange-ringed black circular eyespots with silvery centers are located on the

lower surfaces of both pairs of wings. Both the older larvae and the pupae are lime green in color.

### **TAXONOMIC STATUS**

*Neonympha mitchellii mitchellii* French, 1889.

### **LIFE HISTORY**

The habitat requirements of Mitchell's Satyr (*Neonympha mitchellii mitchellii*) are poorly understood, but it nearly always occurs in calcareous wetlands, commonly known as fens. These habitats are characterized by low-nutrient levels and alkaline water discharge from groundwater seeps. The plant communities are dominated by sedges, with upright (tussock) sedge (*Carex stricta*) occurring at every historic site. Deciduous shrubs and coniferous trees such as tamarack (*Larix laricina*) and eastern redcedar (*Juniperus virginiana*) are also found in plant communities associated with the butterfly, and the butterfly is often reported as occurring at the interface between open stands of sedge meadows and woody vegetation.

Adult butterflies mature during a two to three week period, usually in early to mid-July. One generation is produced each year. By the end of July, larvae are present on various sedges. Pupation takes place in June and lasts approximately two weeks.

### **DISTRIBUTION**

The Mitchell's Satyr butterfly is one of the most geographically restricted eastern butterflies. In the past, the known range of the Mitchell's Satyr spanned thirty locations scattered across southern Michigan, northern Ohio, northern Indiana and New Jersey. The butterfly is now considered extirpated from New Jersey and Ohio, although isolated records have recently been discovered in Virginia, North Carolina, and Alabama.

### **THREATS**

The greatest threat to the Mitchell's Satyr is habitat destruction. Most of the wetland habitat that this butterfly depends on for survival has been drained and filled to make way for urban and agricultural development. Also, invasion of exotic weeds threaten the fens on which this butterfly depends. Contamination of fen wetlands by pesticides, fertilizer, and nutrient runoff from adjacent agriculture, including livestock production, poses a threat to the butterfly's habitat. It is believed that some populations of the Mitchell's Satyr were eliminated by butterfly collectors. Because the remaining populations of Mitchell's Satyr are so small, the collection of even a few individuals could adversely impact this species.

### **CONSERVATION STATUS**

Historically known from thirty locations in four states, today Mitchell's Satyr is recorded from only seventeen sites in Michigan and two in Indiana. Searches for new locations are on-going and have been successful in recent years (such as the isolated records in North Carolina and Alabama), which gives hope that more populations will be discovered.

Mitchell's Satyr was listed as a Federal Endangered Species on May 20, 1992, (*Federal Register* 57:21564-21569).

Recovery Plan (ESA): *Recovery Plan for Mitchell's Satyr butterfly Mitchell's Satyr Butterfly*, *Neonympha mitchellii mitchellii* French. Approved 4/2/88  
Critical Habitat: None designated.

### **CONSERVATION NEEDS**

The primary need for this butterfly is habitat. Prairie fens and their Mitchell's Satyr populations are very sensitive to changes in groundwater and surface water flow. Alterations in hydrology resulting from disturbances such as roads, paths, residential development, and agricultural may have drastic results that affect nearby prairie fen communities and Mitchell's Satyr. Conservation of prairie fens is essential to protect Mitchell's Satyr from extinction. A Federal Recovery Plan for Mitchell's Satyr Butterfly has been completed.

According to the recovery plan, site protection will be partially accomplished through negotiating cooperative agreements and conservation easements with land owners and managers, and acquiring lands from willing sellers.

### **RESEARCH NEEDS**

Surveys to locate additional populations of Mitchell's Satyr should continue. A better understanding of the dynamics of the fen ecosystem and appropriate ways to manage it would be good, as would life history studies of the butterfly.

---

## **RESOURCES**

### **CONTACTS**

U.S. Fish & Wildlife Service: Mark Hodgkins, East Lansing Field Office, 2651 Coolidge Road. East Lansing, MI 48823-6316. Telephone: (517) 351-6289.

Michigan Department of Natural Resources: Mason Building, Fourth Floor, P.O. Box 30444, Lansing, MI 48909-7944. Telephone: (517) 373-1263.

### **REFERENCES**

Lee, Y. 2000. *Special animal abstract for Mitchell's Satyr butterfly*, *Neonympha mitchellii mitchellii* (*Mitchell's Satyr butterfly*). Michigan Natural Features Inventory, Lansing, MI. 4 pp.

Rabe, M.L., M.A. Kost, H.D. Enander, and E.H. Schools. 2002. *Use of a GIS-based habitat model to identify potential release sites for Mitchell's Satyr butterfly*, *Neonympha mitchellii mitchellii* in Michigan. Report to the U.S. Fish and Wildlife Service - Region 3 Office, Fort Snelling, MN. 34 pp.

Shuey, J.A. 1997. Conservation status and natural history of Mitchell's Satyr butterfly, *Neonympha mitchellii mitchellii* French (Insecta: Lepidoptera: Nymphalidae). *Natural Areas Journal* 17(2):153-163.

Szymanski, J.A. 1999. *Population and spatial ecology of the Mitchell's Satyr butterfly, Neonympha mitchellii mitchellii* French, in southwestern Michigan. Master's Thesis. Univ. of Minn., Minneapolis-St. Paul, MN. 78 pp.

U.S. Fish and Wildlife Service, 1997. *Recovery Plan for Mitchell's Satyr butterfly Mitchell's Satyr Butterfly, Neonympha mitchellii mitchellii* French. Ft. Snelling, MN. Viii+71 pp.

#### WEBSITES

U.S. Fish & Wildlife Service, Threatened and Endangered Species System; Species Profile: Mitchell's Satyr Butterfly  
[http://ecos.fws.gov/species\\_profile/servlet/gov.doi.species\\_profile.servlets.SpeciesProfile?spcode=I00K](http://ecos.fws.gov/species_profile/servlet/gov.doi.species_profile.servlets.SpeciesProfile?spcode=I00K)  
(Accessed 4/6/05)

U.S. Fish & Wildlife Service, Region 3; Endangered Species Fact Sheet: Mitchell's Satyr.  
<http://www.fws.gov/midwest/Endangered/insects/mitchell.html>  
(Accessed 4/6/05)

U.S. Geological Service, Northern Prairie Wildlife Research Center; Butterflies of North America: Mitchell's Satyr.  
<http://www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/usa/131.htm>  
(Accessed 4/6/05)

U.S. Forest Service North Central Research Station, Great Lakes Ecological Assessment; Threatened and Endangered Species: Mitchell's Satyr Butterfly range map.  
<http://www.ncrs.fs.fed.us/gla/tens/mitchell.htm>  
(Accessed 4/6/05)

Michigan Department of Natural Resources; Mitchell's Satyr Butterfly.  
[http://www.michigan.gov/dnr/0,1607,7-153-10370\\_12145\\_12204-33013--,00.html](http://www.michigan.gov/dnr/0,1607,7-153-10370_12145_12204-33013--,00.html)  
(Accessed 4/6/05)

University of Michigan Museum of Zoology; Animal Discovery Web: *Neonympha mitchellii* (Mitchell's Satyr).  
[http://animaldiversity.ummz.umich.edu/accounts/neonympha/n.\\_mitchellii\\$narrative.html](http://animaldiversity.ummz.umich.edu/accounts/neonympha/n._mitchellii$narrative.html)  
!  
(Accessed 4/6/05)

Princeton University; The objectives and obstacles in reintroducing Mitchell's satyr butterfly (*Neonympha mitchellii mitchellii*) in New Jersey.

[http://www.princeton.edu/~fecelik/Mitchells\\_Satyr\\_Butterfly\\_in\\_New\\_Jersey.pdf](http://www.princeton.edu/~fecelik/Mitchells_Satyr_Butterfly_in_New_Jersey.pdf)  
(Accessed 4/9/05)