

**Laying the Foundation for Establishment of New Mitchell's Satyr
(*Neonympha mitchellii mitchellii*) Populations in Indiana and Michigan
and Securing Populations through Updated Species Management Plans**

FY 2013 Semi Annual Progress Report
April 1, 2014- September 30, 2014



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Cover photograph: Mitchell's Satyr, Jackson County, MI. Adrienne Bozic

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Project Description:

The purpose of this project is to help secure Mitchell's satyr (MS) populations at 4 viable sites and to lay the groundwork for the introduction of MS at 2 potential introduction sites where suitable habitat has been restored. We will update 4 site conservation plans, identify factors that threaten the MS and its habitat at these sites and develop a 5 year action plan to address these threats. In addition we will develop or update conservation plans at 2 potential introduction sites to identify management needs and recommend future actions. We will lay the groundwork for MS introduction by 1) development of standardized protocols for the translocation and/or introduction of MS, 2) assessment of MS populations at two Michigan sites proposed as collection sites for the captive rearing project and the Indiana site proposed as the source for the translocation of butterflies and 3) preliminary evaluation of the translocation of MS if this effort is initiated. We will also assist with MSB Working Group tasks.

Statement of Work

There are five goals for this one year project. 1) Update site conservation/management plans at 4 viable sites and 2 introduction sites 2) Develop standardized protocols for translocation and/or introduction of MS and 3) Evaluate the population status at sites proposed for collection or translocation of MS, 4) Conduct a preliminary evaluation of the MS translocation if initiated and 5) assist with coordination of MS Working Group tasks

1) Update site conservation/management plans at 4 viable sites and 2 introduction sites.

Management plans will be updated or created for the following 4 viable sites: Grand River Fen, Coldwater Lake Fen, Cook Lake Rudy Road Fen and Shavehead Lake. In addition plans will be updated or developed for the 2 potential introduction sites: Swamp Angel Fen, (Indiana TNC preserve) and Park Lyndon Fen (Washtenaw County Parks). A template was developed which incorporates elements of existing plans and focuses objectives and actions on Mitchell's satyr recovery. After further review, we determined that useful information could be gathered during Mitchell's satyr surveys in June and July of 2014 that would be useful for updating and revising current plans for these sites (e.g. updating threats such as invasive species, Mitchell's satyr distribution and photos of the site, etc.). Thus, the plans will be completed in the fall of 2014. We requested a no-cost extension for the project so that we could complete this task and will provide these plans with the final report.

2) Develop standardized protocols for translocation and/or introduction of MS

Preliminary protocols for the translocation and/or introduction of Mitchell's satyr were developed by John Shuey, Indiana, TNC and David Cuthrell, MNFI. Additional investigation of case studies of the introduction of rare insects and protocols developed by organizations in other states was conducted. Further revisions to these protocols including specific guidelines for translocation and/or introductions of MS will be finalized during the fall of 2014.

3) Evaluate the population status at sites proposed for collection or translocation of MS

Surveys were conducted during the satyr flight at the three sites proposed for collection or translocation of MS including Cedar Lake Fen in La Grange Co, IN, Coldwater Fen in Branch County, MI and Grand River Fen in Jackson County, MI. A brief summary of these results is presented below.

Cedar Lake Fen: A survey was conducted at the site on July 7, 2014 by Daria Hyde, MNFI, Tameka Dandridge, USFWS and John Shuey and Matt Williams from TNC. We documented 15 MS in a one-hour survey of the portion of the site where we were granted access. Permission was not provided to survey the portion of the site which borders Cedar Lake. Ten MS were documented on the west side of the stream that bisects the fen and 5 satyrs were found on the east side of the stream. Although portions of the fen complex appear to be intact and contain a diversity of prairie fen indicator plants much of the site is becoming closed in by shrubs and inundated with invasive reed canary grass and cattail. The stream is quite wide in places and it was difficult to find a suitable crossing site. We estimated that there are approximately 5 acres of potential fen habitat that could be utilized by MS although it is critical that habitat management is initiated to secure the viability of this site. Current landowners have communicated that they are not interested in having management conducted on their property.

Coldwater Fen: A survey was conducted at this site on July 2, 2014 by a group of nine individuals from several organizations including MNFI, Kalamazoo Nature Center, Southwest MI Land Conservancy, Toledo Zoo and Blue Heron Ministries. A total of 278 MS were documented at this site in a three hour survey. It is estimated that there is approximately 60 acres of potential habitat that is suitable for MS. Although some areas of the fen are becoming inundated with shrubs and invasive plants (purple loosestrife, reed canary grass and cattail), overall the quality and integrity of the fen complex appeared to be good. Locations of MS and invasive plants were mapped during the survey.

Grand River Fen: This site was visited on July 3, 2014 but a survey was not conducted as it was too cool (lower '60's) and few MS were seen during a brief walk-through of the main fen. We revisited the site the following week on July 10, 2014, and although the temperatures were still cool (hi '60's to low '70's) five individuals from MNFI and MDOT counted 74 MS in the main fen during a 2 hour survey. A TNC employee, Rodolfo Villegas, documented 168 MS in other areas of the fen on June 30, 2014. Overall the quality of the site appeared to be very good with occasional occurrences of invasive plants.

It is recommended that surveys be conducted at these sites next year. If > 200 MS are documented again at Coldwater Fen and Grand River Fen in 2015, then it is recommended that up to 20 females ($\leq 10\%$ of the population) could be collected at each site by Toledo Zoo for captive rearing. Females would be released back to the site once eggs have been collected. The population at Cedar Lake Fen in Indiana appears too small to meet collection criteria unless special consideration is made regarding the long term viability of this site or if it is determined that captive rearing is necessary to preserve the genetic stock from this site. Further discussion is needed to determine the best course of action at this site.

Finally, visits were made to two sites that have been proposed as potential reintroduction sites: Swamp Angel Fen in Noble Co. Indiana and Park Lyndon Fen in Washtenaw Co. MI. Both sites appear to be highly suitable for MS with large areas of quality prairie fen and limited inundation by invasive plants or other threats from the surrounding landscape.

4) Conduct a preliminary evaluation of the MS translocation if initiated

The Mitchell's satyr working group decided that no translocations would be conducted in 2014 but rather the Indiana site being considered as a source population for a potential translocation would be evaluated during the Mitchell's satyr flight in June and July of 2014. A preliminary evaluation was conducted during a site visit on July 7, 2014 and described under Goal 3. Further discussion with the Mitchell's satyr working group is needed to come to a final determination on this question

5) Assist with coordination of MSB Working Group tasks

Assistance was provided to Tameka Dandridge with follow up tasks associated with the March 31, 2014 Mitchell's satyr working group meeting, including summarizing discussion and action items and distributing documents to group members. Element occurrence ranks for the MS were updated on April 10, 2014 and a table of updated MS site ranks and viability was provided to Tameka on May 2, 2014 to distribute to the working group.

Tameka Dandridge and I met with staff from Washtenaw County Parks on June 23, 2014 to discuss the potential for introducing the Mitchell's satyr into Park Lyndon Fen in Washtenaw Co., MI. We provided staff with an overview of the status of the MS as well as the need to establish MS populations at quality prairie fen sites which are in public ownership or protected by a conservation organization. We discussed the legal ramifications of introducing a federally endangered species onto public land and reviewed various alternatives for providing assurances to the parks so that introduction would not result in an unreasonable burden to park staff. Parks staff planned to share this information with their Board of Commissioners and Tameka will follow up with the parks to learn if they have made a determination. I made arrangements to visit Park Lyndon in July 2014, to assess potential release locations with Dave Cuthrell, MNFI, who is familiar with the site.

In addition, I conducted a survey of the Turner Creek Fen in Barry County, MI to determine if MS were still present at this site. Unfortunately, for the second year in a row, no MS were found. A survey should be conducted next year to confirm whether this site is still extant or if MS have become extirpated here. A brief survey was conducted late in the flight at the Shavehead Lake site in Cass County, MI to assist Jennifer Seltzer, a researcher from Mississippi State University, with collection of a satyr for her DNA research. Three MS were documented during the 90 minute survey and a much worn male satyr was collected. I also provided Jennifer Seltzer, with logistical assistance and helped her to coordinate with partners in the MS working group during July 2014 so that she could visit viable satyr sites to for collection of satyrs for her DNA research. I also assisted a Central Michigan University student in obtaining permission to conduct fen research at a previously occupied MS site.

Finally, in August, 2014, I provided information to staff at the Kalamazoo Nature Center who were developing a habitat assessment protocol for potential MS sites at the Fort Custer Training Center.