

# National Park Service Project Completion Report

## Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)

**Project Title: Northern Long Eared Bat Roost and Habitat Assessment, Devils Tower National Monument**

**Project Code: UWY-208, P15AC00931**

**Type of Project: Technical Assistance**

**Funding Agency: National Park Service**

**Partner University: University of Wyoming**

**NPS Agreement Technical Representative:** Rene Ohms, Chief of Resource Management Devils Tower National Monument, Devils Tower, WY 82714, rene\_Ohms@nps.gov

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**Start Date of Project: 6/15/2015**

**End Date of Project: 12/31/2015**

**Funding Amount: \$15,093**

### **Project Summary,**

The northern long-eared bat (*Myotis septentrionalis*) (MYSE) was recently listed as threatened under the Endangered Species Act, and Devils Tower National Monument (DETO) is near the edge of the species range. Relatively little is known about the bat's basic ecology and habitat associations in this area. University of Wyoming's Wyoming Natural Diversity Database (WYNDD) conducted a northern long-eared bat roost identification and habitat study at DETO to determine where the bats are roosting in the monument and quantify characteristics of these roosts. WYNDD scientists captured bats, determined their reproductive status (age, sex, and breeding status), and radio tagged 8 northern long-eared bats. These bats were then tracked to potential roost sites.

WYNDD also participated in the 2015 Devils Tower National Monument Bat Festival, a public event aimed at educating visitors on the importance of bats and their habitat, the threat of white nose syndrome, and bat science and management. WYNDD researchers presented a program at the Festival about the bats of Devils Tower. The project fulfills a public purpose by engaging the local community and park visitors in shared environmental stewardship.

University of Wyoming conducted 6 mist net sessions over three visits to DETO, during which they captured 37 bats of 8 species, including the first Long-legged Myotis (*Myotis volans*) ever captured in the park. Captured species included Big Brown Bat (*Eptesicus fuscus*), Silver-haired Bat (*Lasiurus noctivagans*), Western Small-footed Myotis (*Myotis ciliolabrum*), Western

Long-eared Myotis (*Myotis evotis*), Little Brown Myotis (*Myotis lucifugus*), Northern Long-eared Myotis (*Myotis septentrionalis*), Fringed Myotis (*Myotis thysanodes*), and Long-legged Myotis.

We placed radio tags on 8 MYSE, 7 of which were males and one of which was a non-reproductive female. Bats were tracked an average of 5 days, although two bats were never located following transmitter attachment. Ten roost locations were documented. Mean distance from capture locations to roosts was 410 meters (standard deviation 437 meters), and most roosts were located in snags occurring in forested drainages. Most roosts were moderate to large ponderosa pine snags, but several were in small burr oak snags and one was in a rock crevice. To our knowledge, this is the first evidence of MYSE roosting in rock crevices. Bats seemed to show fidelity to roosting areas, roosting in the same one or two locations for the duration of the tracking period. MYSE often switched between roosts every few days, but this seemed to differ by individual, with some individuals staying in the same roost for the entire tracking period.

The Progress Report, *PILOT STUDY OF NORTHERN LONG EARED BAT ROOST AND HABITAT USE AT DEVILS TOWER NATIONAL MONUMENT*, by Douglas A. Keinath, Senior Zoologist and Ian Abernethy, Zoologist, Wyoming Natural Diversity Database, University of Wyoming, includes roost location information for an ESA listed species, and so is only available by contacting Dr. Brendan Moynahan, RM-CESU Research Coordinator, [Brendan\\_moynahan@nps.gov](mailto:Brendan_moynahan@nps.gov).

**Number of students participating in this project: None**

**Lessons Learned from this project:** This pilot study proved the efficacy of radio tagging and roost location, and we recommend expansion of this effort in coming years. To make analyses meaningful, we would need to double or triple the sample size of the current pilot effort. This means tagging 15 – 30 bats from a wider array of areas across the monument, so that captures (and associated roost locations) are not biased toward one location. Also, captures would ideally occur throughout the summer, beginning in late May or early June and extending through August. Extensive searching of the monument has not revealed many sites with a high potential for capturing MYSE. This is primarily due to the lack of suitable bodies of water in forested portions of the monument. Without such waterbodies, we need to find suitable flight corridors within which multi-tier canopy nets can be deployed. Even under ideal conditions, nets in flight corridors have low capture rates, and the open structure of the forests at DETO means such sites are also limiting in the environment. Therefore, in order to increase sample size to 15 – 30 bats, we anticipate needing to at least quadruple the mist netting effort (i.e., roughly 24 nights of mist netting spread across the summer).

**Other RM-CESU agencies or research partners who participated in this project: None**