

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Development and Testing of a Bat Monitoring Plan including WNS detection

Discipline: Natural
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: University of Wyoming
Effective Dates: 5/15/2014 - 7/30/2018
Funding Amount: \$35,000

Investigators and Agency Representative:

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Project Abstract: Bats are ecologically and economically important, providing many valuable ecosystem functions. Bighorn Canyon National Recreation Area (BICA) supports a diverse and large bat population (Keinath 2005). Currently, many bat species face threats from sources including but not limited to habitat loss, wind energy development, and White-nose Syndrome (WNS). Since its discovery in 2005, WNS has killed at least 5.7 - 6.7 million bats in North America (Froschauer and Coleman 2012). One of the most common species in BICA, the Little Brown Myotis (*Myotis lucifugis*), was recently petitioned for protection under the Endangered Species Act (Kunz and Reichard 2011, United States Fish and Wildlife Service 2011b) due primarily to WNS concerns. Although WNS has not yet been documented near BICA, the range of the disease continues to expand (Butchkoski 2013) and could impact bats in the region in the near future. In this context, it is important to monitor populations of potentially susceptible bat populations (United States Fish and Wildlife Service 2011a).

PROJECT DESCRIPTION:

Phase 1: WYNDD will develop and test a bat monitoring plan for BICA. This plan will draw upon evolving national bat monitoring strategies (Loeb et al. 2012), but will be tailored to meet the needs of BICA managers. Specifically, WYNDD will investigate the use of occupancy-based sample designs (MacKenzie 2006) that would allow inference regarding long-term bat population trends on and near the park. This design will incorporate established survey methodologies, likely including a combination of acoustic monitoring (e.g., ANABAT and Songmeter echolocation detectors) and live-capture of bats using mist-nets. To the greatest extent possible, survey methods will conform to recommended guidelines (e.g., Kunz and Parsons 2009, Sikes et al. 2011) and will be documented per recommendations in Wyoming's bat conservation plan (Hester and Grenier 2005), including appropriate WNS documentation and decontamination procedures (Reichard and Kunz 2009). Further, WYNDD will assess the efficacy of implementing survey methodologies designed to provide early detection of WNS on the park.

A draft of the monitoring plan will be developed over the winter of 2014-2015 and discussed with BICA staff. Implementation of the plan will be tested by WYNDD personnel in cooperation with BICA staff during the summer of 2015. The extent of these field efforts is contingent upon funding (as outlined in the budget below). If additional 2015 funding were obtained, initial monitoring could be increased. Information gained from summer 2015 field efforts will be used to refine the monitoring plan, which will be finalized by February 2016 and subsequently published as a General Technical Report. WYNDD will provide BICA the finalized monitoring plan, budget for monitoring, occurrence data for all bat species detected during testing surveys, and a memorandum that synthesizes results.

Phase 2: The above work will result in a formal bat monitoring plan for BICA, but full implementation of this plan will ideally entail a second phase, beginning in 2015 or 16 and requiring additional funding(not covered In this agreement). Phase 2 will entail one or two field seasons in which WYNDD conducts the first set of formal monitoring surveys according to the finalized plan and trains BICA personnel on how to implement those surveys. This phase will end in the fall of 2017 with a formal report to BICA summarizing the results of monitoring efforts and providing recommendations for long-term implementation.

Outcomes with Completion Dates: July 30, 2018 (project reports/deliverables are due)

Keywords: Bat monitoring, White-nose Syndrome, interpretive talk, Bighorn Canyon National Recreation Area, University of Wyoming, Wyoming Natural Diversity Database (WYNDD)