

# Project Summary

## Rocky Mountains Cooperative Ecosystem Studies Unit

**Project Title:** Analyze a 15-year bat monitoring program

**Discipline:** Natural  
**Type of Project:** Technical Assistance  
**Funding Agency:** National Park Service  
**Other Partners/Cooperators:** Montana State University  
**Effective Dates:** 8/1/2014 - 6/30/2016  
**Funding Amount:** \$21,031

### Investigators and Agency Representative:

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**Project Abstract:** The objectives of this project are to analyze and report on a 15 year dataset from bat monitoring activities at Chiricahua National Monument and Fort Bowie National Historic Site and to modify the protocol for future bat monitoring based on project findings. Year 15 of this monitoring program will be completed in September 2014. In the 14 years of this study, 19 bat species have been monitored through the mist-netting monitoring program. These data have been collected without comprehensively analyzing trends in the bat community across the years of the study. Analyzing this dataset alongside regional bat monitoring datasets and environmental drivers such as drought, perennial water sources, and large fires may reveal important information for continued management of this highly diverse bat community. Finally, based on the information from this study, we will collaboratively refine the monitoring protocol to increase efficiency for future bat monitoring efforts.

### Activities

- Synthesize and format dataset. The dataset has been collected by NPS staff and a bat biologist from the Arizona Sonora Desert Museum in Tucson, Arizona for the duration of the study. The dataset needs quality checked and formatted for analysis. The PI will work with NPS staff to incorporate other relevant monitoring data such as perennial water sources, climate data, and fire data. The final dataset will need to be formatted for archival with the NPS IRMA Data Store.
- Analyze dataset for trends in species richness, populations, and association or influence of environmental drivers. The dataset will be analyzed as a standalone entity and alongside regional bat monitoring data collected in southern Arizona and northern Mexico to identify deviations from regional bat community trends.
- Collaborate with NPS staff and the Arizona Sonora Desert Museum bat researcher to write an NPS technical report detailing the results of the analysis. The PI will be responsible for producing relevant tables, charts, and figures from the analysis formatted in compliance with NPS Technical Report Guidelines. The PI will also contribute to writing the text of the report, being the primary author for the methods and results sections.
- Collaborate with NPS staff to update the bat monitoring protocol based on findings from this study. This activity will utilize the results of the study to shape the future bat monitoring program at the Southeast Arizona Group. The PI will review the current protocol, collaborate with NPS staff to modify the protocol, and iteratively work with NPS staff during field testing to make any further modifications to the protocol before final approval.

YNP staff will provide ongoing review and guidance regarding as well as physical installation of equipment and technical design assistance for visual interface applications.

### Outcomes with Completion Dates:

Draft Final Report - October 31, 2015

Final Report, Investigator's Annual Report (IAR), Database, Collections/Specimens, Archives, and Maps provided to the NPS ATR or Technical Expert - December 31, 2015

**Keywords:** bat monitoring program, Southeast Arizona Group (Chiricahua National Monument, Coronado National Memorial, Fort Bowie National Historic Site), Montana State University