# Project Summary
# Rocky Mountains Cooperative Ecosystem Studies Unit

**Project Title:** Bat and Terrestrial Mammal Inventories in the Greater Yellowstone Network (years 1, 2, and 3)
**Discipline:** Natural
**Type of Project:** Research
**Funding Agency:** National Park Service
**Other Partners/Cooperators:** University of Wyoming
**Effective Dates:** 6/30/2002 - 12/30/2006
**Funding Amount:** $99,219
**Investigators and Agency Representative:**

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**Project Abstract:**

The Greater Yellowstone I&M network (GRYN) and the Wyoming Natural Diversity Database (WNDD) have worked together since June 2002 on bat inventories at the three GRYN parks: Yellowstone, Grand Teton NPs, and Bighorn Canyon NRA BICA). The WNDD has worked on mammal surveys at BICA. These four task agreements will result in final biological inventories for the three parks, to allow them to certify species lists at the 90% completeness level.

Years 1 and 2:
A two-year survey of terrestrial mammals in Bighorn Canyon NRA began in September 2002. In the second year of this effort small mammals (i.e., rodents, shrews, gophers, chipmunks) will be surveyed via extensive trapping efforts. Traps will be laid out in grids that will be stratified by habitat type to maximize chances of capturing habitat specialists. Visual encounter surveys in appropriate habitat will be conducted to search for evidence of prairie dogs, ground squirrels, fox squirrels, and marmots. If burrows or other evidence of presence are found, but no animal activity is seen, we may supplement such visual surveys (as time and resources permit) by targeted trapping in areas of high burrow density. Evidence for the occurrence of swift fox, spotted skunks, marten and lynx will be obtained via a combination of bait stations with remotely tripped cameras and track plates, as well as some nocturnal spotlight surveys. Discovering evidence for moose in BICA will be strictly opportunistic. When visiting suitable habitat during summer surveys, scat and/or track evidence of moose will be documented if encountered. Some limited, opportunistic snow tracking for moose may also be done during winter surveys.

A three-year bat inventory beginning in FY02 will start with preliminary analyses of potential bat habitat in YELL and GRTE. This effort, which was previously completed for BICA, includes identifying and compiling geographically referenced digital data on all natural and built features that might be important in predicting areas of bat habitat within the two parks. From this information GIS models will be constructed to identify critical habitat for bats where on the ground survey efforts can be concentrated. Following the identification of high probability bat habitat or areas where bats are considered likely to occur, field reconnaissance will be conducted of these sites using acoustic sensors to obtain preliminary evidence for the validity of the modeling effort. Areas where the presence of bats has been verified using this technique will become the primary areas where field efforts to identify species and obtain information on abundance will initially be concentrated.

Year 3:
The purpose of the project is to have analysis completed on ANABAT calls recorded at Yellowstone National Park during a Bat Survey along the Gardiner to Golden Gate Road Corridor in 2002. The Wyoming Natural Diversity Database is currently working on a Bat Inventory for the Greater Yellowstone Network funded last in FY03. Since then, new evidence (several ANABAT recordings) of bat presence in Yellowstone National Park has surfaced and both the GRYN and WNDD have an interest in analyzing these tapes as part of the bat inventory project.

**Outcomes with Completion Dates:**

Years 1 and 2:
Annual reports of findings will be due at the end of November of each year of this inventory program. Arcview GIS themes, and an MS Access relational database of all information collected during the project are to be delivered with the final report. Following the completion of analysis and reporting of the first field sampling season the network will convene a meeting of the network technical committee, the cooperator, and other park service staff to review the results of the sampling program and to make recommendations for developing the sampling

strategy for the second field season. Items to be covered include: 1. a summary presentation of the results of the sampling effort, 2) a debriefing of all field activities that impacted the sampling process, 3) a review of data products, 4) a formulation of recommendations for preparing the following year sampling plan, and 5) assignment of tasks to complete the following year sampling plan.

Year 3:
Submit a short (1-2 page) interim and final report that summarizes the results of the ANABAT analysis.

**Keywords:** Greater Yellowstone Network, bats, terrestrial mammals, Bighorn Canyon NRA, biological inventory, Yellowstone NP, Grand Teton NP, University of Wyoming, biological inventory

**For Administrative Use Only:**

Date Annual Report Received:
Date Final Report Received:
Publications, etc. on file: