Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Home Range and Resource Use of Clark's Nutcrackers

Type of Project: Research
Discipline: Natural Resources
Funding Agency: National Park Service
Other Partners/Cooperators: University of Montana
Effective Dates: 5/20/2009-5/30/2012
Funding Amount: $70,000 [FY10: $25,000; FY09: $45,000]

Investigators and Agency Representative:
NPS Contact: Tara Carolin, Glacier National Park, West Glacier MT 59936; (406) 888-7919; tara_carolin@nps.gov

Investigator: Kim Sullivan, Department of Biology, Utah State University, Logan, UT 84322-5305; (435) 797-3713; yejunco@biology.usu.edu

Project Abstract: This study will provide the data necessary to develop guidelines for managing habitats, including whitebark pine and alternative foraging habitats, for Clark's Nutcracker in Glacier National Park. The study will determine which habitats are required for reproduction, food caching, and survival in Clark's Nutcracker. Successful management of Clark's Nutcracker also requires a method for monitoring populations over time. In this study we will determine the most reliable methods for monitoring Clark's Nutcracker and thus be able to assess nutcracker populations and the success of future management efforts. Both the guidelines for nutcracker habitat management and the creation of an effective user-friendly monitoring protocol will assure that nutcrackers will not become locally eradicated from Glacier National Park and that natural regeneration of whitebark pine will continue for whitebark pine restoration.

The current study will specifically investigate the following gaps:

1. Whitebark pine is an obligate mutualist with Clark's Nutcrackers; nutcrackers are a facultative mutualist for whitebark pine. Nutcrackers do not require whitebark pine for survival and reproduction and they forage predominately on foods available outside of whitebark pine forests. There is currently no data on the proportional use of habitats containing these alternate food sources.
2. Year-round survivorship is dependent on the autumn seed-harvest season. In autumn, nutcrackers are known to forage on and cache the seeds of multiple species of conifer; yet the relative importance of habitats containing these conifers is unknown.
3. Population-wide fecundity is dependent on the spring breeding season. Information is lacking on home range size and habitat use by nutcrackers during the spring breeding season; in the literature, only 4 nests have been monitored, all in one location, and there is little information on the habitats used by breeding birds.
4. As whitebark pine populations continue to decline, there has become a recognized need for a standardized, cost-effective monitoring protocol for Clark's Nutcracker; the accuracy and effectiveness of the methods under consideration needs to be determined before any protocol is widely used.

Outcomes with Completion Dates: Annual report summarizing activities and findings to date after first field season. MS thesis on home range and resource use of Clark's Nutcrackers, including archival quality copies of associated field data sheets, tabular data, GIS data, photographs, data collection protocols and data documentation along with any other reports and/or publications generated from this data. All reports are due by December 31, 2011.

Keywords: Clark's Nutcracker, Whitebark Pine, home range, resource use, Clark's Nutcrackers, Glacier National Park, Utah State University.