

## **Citizen Science in Glacier's High Country: Monitoring Mountain Goats, Pikas and Nutcrackers**

Introduction: Glacier National Park resource managers need baseline information about the status of mountain goats (*Oreamnos americanus*), pikas (*Ochotona princeps*), and Clark's Nutcrackers (*Nucifraga columbiana*) to detect future population changes. The High Country Citizen Science project engages trained volunteers to collect data on these three species whose habitat may be adversely impacted by climate change.

### Goals:

- develop an abundance estimate and map park-wide distribution of mountain goats
- document locations of pikas and Clark's Nutcrackers
- develop protocols for long-term volunteer monitoring of mountain goats, pikas and Clark's Nutcrackers
- contribute to ongoing research on these 3 species

Methods: High Country Citizen Science volunteers attend a one-day training. Once trained, they choose hiking routes and complete systematic mountain goat and/or pika surveys. Our goal is to complete at least 3 surveys at each site per season. While hiking, volunteers also look in appropriate habitats for Clark's Nutcrackers and document any seen or heard.

Mountain goat surveys: We randomly selected 36 mountain goat survey sites from a park-wide goat habitat model. Volunteers conduct mountain goat surveys during a one-hour observation period, documenting number of goats observed in 4 directional quadrants and behavior upon detection. Goats are also classified by sex and three age categories (adult, young of year and yearling). Our goal is to survey each site at least three times per season; once during Mountain Goat Days in mid-August, once before and once after.

Pika surveys: We identified pika locations from current research in Glacier and selected 20 pika survey sites based on proximity to mountain goat survey sites for convenient access. Volunteers conduct pika surveys by sitting in a talus field for 30 minutes, then traversing the talus for 30 minutes, documenting the number of animals sighted and presence of scat, haypiles, or calls. Pika scat and photographs of haypiles are collected.

### 2008 Results:

- 86 High Country Citizen Science volunteers recruited and trained
- Citizen scientists are mostly local and range in age from 20 to 74
- Citizen scientists completed 186 mountain goat surveys
- 46 citizen scientists participated in first annual Mountain Goat Days population count (August 15 – 17)
- Mountain Goat Days volunteers helped ground-truth aerial surveys conducted by park biologists
- Citizen scientists completed 59 pika surveys
- Citizen scientists documented 44 Clark's Nutcrackers observations

Citizen Science in Glacier National Park: Glacier National Park's citizen science program helps resource managers address the need for baseline information and monitoring. The use of citizen scientist volunteers to collect research data is growing in National Parks and agencies. Citizen science projects generally are low in cost, engage large numbers of people to gather large datasets, use non-invasive monitoring methods, educate participants about resource issues and foster stewardship amongst participants. Due to concerns about the scientific validity of data gathered by volunteers with varying levels of experience, we are analyzing the efficacy of using observational data gathered by citizen scientists.

Project sponsored by Glacier National Park Fund

For more information or to get involved contact the CCRLC at (406)888-5827