

**October 2005. Summary of Glacier Snowshoe Hare Research Project
Ellen Cheng, University of Montana**

Glacier 2005 Pilot Season Summary

During the summer 2005 pilot season, the Glacier Hare Crew collected preliminary data toward: 1) relating snowshoe hare distribution in Glacier National Park to patch- and landscape-level habitat variables, and 2) determining if there is genetic divergence among snowshoe hare populations within Glacier National Park and, if so, evaluating potential habitat fragmentation/landscape barriers and conduits to snowshoe hare gene flow.

We conducted vegetation sampling and collected hare fecal pellets from 15 (20 ha) randomly selected sites distributed throughout Glacier National Park. We additionally live-trapped hares in three of these sites. Our pilot season data suggest that snowshoe hare densities across Glacier National Park may vary greatly, with a high concentration in the southern third of the Park.

In 1120 trap-nights across three study sites, we captured a total of one snowshoe hare. Our low trap success was unlikely due to our trapping methodology, since we have successfully used these methods to capture and mark hares throughout Montana and in Washington over the past 7 years. More likely, the sites we trapped (2 of which were in the northern part of the Park) had low hare densities.

We had considerably more success with pellet data. From 10 study sites, we collected approximately 700 fresh hare fecal pellets for genetic analysis and mark-recapture abundance estimation. These pellets were obtained by clearing existing hare pellets from 80 randomly located 1m² pellet plots at each site and returning two weeks later to collect any freshly deposited hare pellets in those plots. The majority of these pellets (~90%) came from three study sites in southeast GNP (Sites 49, 65, 75).

The pilot season provided insight into the feasibility, and indeed highlighted the potential advantages, of using non-invasive molecular techniques to estimate hare abundances in Glacier National Park. At the study site where we captured one snowshoe hare in five nights of live-trapping (Site 65--80 traps per night), we had collected 232 fresh fecal pellets from 30 1m² pellet plots randomly distributed throughout the site. This suggests that hares were indeed present at the site during the time of trapping. Genetic analysis of these pellets will almost certainly reveal that these pellets were produced by more than the one individual hare that we successfully captured.

We will need to complete genetic analysis of fecal pellets in order to evaluate (at a preliminary level) hare-habitat associations, distribution across the Park, and the existence of genetic structure among hare populations in Glacier National Park.