Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Population structure and dispersal of Black-backed woodpeckers

Discipline: Natural
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: University of Montana
Effective Dates: 3/1/2007 – 12/31/2008
Funding Amount: $16,000

Investigators and Agency Representative:
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Abstract: Black-backed woodpeckers are important to monitor to ensure post-fire habitat health, and also because they are a keystone species in early successional habitat. These woodpeckers are primary cavity nesters, creating important habitat for numerous secondary cavity nesting species including bluebirds, wrens, swallows and flying squirrels. Unlike many other woodpecker species, black-backed woodpeckers are able to excavate nests in very hard, freshly killed trees, thereby creating this habitat earlier than other primary cavity nesting species. Because black-backed woodpecker's primary prey are bark and wood-boring beetles, they also play an important role in regulating beetle outbreaks in recently burned forests. Federal and state land management agencies have targeted black-backed woodpeckers as one of species of importance on which to focus wildlife monitoring efforts. To maintain sustainable populations, managers must ensure there are reservoir populations to colonize newly burned habitats. The objective of this project is to determine the genetic population structure and dispersal ability of black-backed woodpeckers and use this information to decide the appropriate scale for surveying, monitoring and managing black-backed woodpecker populations. We will use non-harmful genetic techniques to examine population structure and dispersal. Woodpeckers will be sampled from landscapes affected by 2003 fires within Glacier NP.

We will obtain genetic samples by locating woodpecker nests to facilitate capture of birds. With the assistance of a field crew, we will locate a minimum of 20 nests (40 individuals) per local site in Montana, a local site being all areas within 50 km of Missoula and Columbia Falls respectively. To assist in nest location, we will use playbacks of vocalizations to elicit responses from woodpeckers and then follow birds once we hear a response. We will visit a minimum of 10 nests (20 individuals) per year. Woodpeckers will be captured at their nest site using modified butterfly nets or target nets. We will collect 100 µl of blood from the brachial vein, store the blood in a lysis buffer and place a unique color band combination on each bird's leg to ensure resampling does not occur. DNA will be extracted and both mtDNA and nuclear DNA will be used for genetic analysis. We will collect a minimum of 20 samples per year over three years, for a minimum total of 60 samples. The spatial location of each bird captured will be recorded with a GPS unit for use in individual based spatial analysis.

Outcomes with Completion Dates: Due by December 31, 2008: Investigators Annual Report, Final summary report (dissertation), with access to raw data files, Peer-reviewed articles

Keywords: black backed woodpeckers, DNA, fire, Glacier NP, University of Montana

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