

IDAHO DEPARTMENT OF FISH AND GAME

Virgil Moore, Director

Project F16AC00381

Northern Idaho Ground Squirrel Recovery

Final Performance Report



Performance Period
01 October 2016 to 31 March 2018

Compiled and edited by: Diane Evans Mack

September 2018
Boise, Idaho

Idaho Department of Fish and Game (IDFG) adheres to all applicable state and federal laws and regulations related to discrimination on the basis of race, color, national origin, age, gender, disability or veteran's status. If you feel you have been discriminated against in any program, activity, or facility of IDFG, or if you desire further information, please write to: Idaho Department of Fish and Game, PO Box 25, Boise, ID 83707 or US Fish and Wildlife Service, Division of Wildlife and Sport Fish Restoration Program, 5275 Leesburg Pike, MS: WSFR, Falls Church, VA 22041-3803, Telephone: (703) 358-2156.

Findings in this report are preliminary in nature and not for publication without permission of the Director of the Idaho Department of Fish and Game.

Please note that IDFG databases containing this information are dynamic. Records are added, deleted, and/or edited on a frequent basis. This information was current as of 30 August 2018. Raw data do not have the benefit of interpretation or synthesis by IDFG.

IDFG requests that you direct any requests for this information to us rather than forwarding this information to third parties.

This publication will be made available in alternative formats upon request. Please contact IDFG for assistance.

**FEDERAL AID IN WILDLIFE RESTORATION
FINAL PERFORMANCE REPORT**

1. State: Idaho

Grant number: F16AC00381

Grant name: Northern Idaho Ground Squirrel Recovery

2. Report Period: 1 October 2017 to 31 March 2018

Report due date: 30 June 2018

3. Location of work: Adams and Valley Counties, Idaho

4. Objectives

1. Coordinate recovery implementation activities for the northern Idaho ground squirrel (*Urocitellus brunneus*; NIDGS).
2. Monitor NIDGS populations with established methods and provide an annual report of findings to the U.S. Fish and Wildlife Service and other Partners.
3. Provide technical assistance to recovery partners and outside groups related to projects potentially affecting NIDGS.
4. Participate and serve on various NIDGS committees, teams and local working groups and organize meetings of these groups.

5. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This project is part of an interagency collaboration to advance NIDGS recovery, outlined in a conservation agreement (2007) among the Payette and Boise National Forests, the U.S. Fish and Wildlife Service (Service), Idaho Department of Fish and Game (IDFG), and Dr. Eric Yensen, Emeritus, College of Idaho. In 2012 the Fish and Wildlife Cooperative Research Unit at the University of Idaho joined as a partner, implementing a long-term monitoring study on the ecological response of NIDGS to habitat changes. The entities involved in this collaboration focus on different aspects of recovery. IDFG covers population monitoring. Extant populations of NIDGS found on Federal land are managed by the Payette National Forest (PNF). The Payette and Boise National Forests focus on habitat enhancement and restoration. University partners focus on research to inform management of both habitat and populations, including such topics as diet, NIDGS response to thinning and prescribed fire in potential habitat, and the potential impact of plague on NIDGS populations.

This grant covered coordination of NIDGS recovery efforts and a portion of the field work that comprises population monitoring. Specifically, it supported a Coordinator who functions

as liaison among the various recovery partners, provides oversight of recovery activities, and offers technical assistance and review of projects proposed within NIDGS occupied range. This grant also supported technician salaries to contribute to 2017 population monitoring surveys and mark-recapture work. Other funding for the survey component of this project came from a Section 6 grant. Funding for the University of Idaho research project is supported by the national Collaborative Forest Landscape Restoration Program (CFLRP). Under the CFLRP the PNF has two broad-scale (>50,000 ac) projects underway that include a component to improve NIDGS habitat with thinning and prescribed fire.

Habitat enhancements implemented by the PNF aim to maintain early-successional characteristics of habitat, rejuvenate forage plants, and create corridors to link populations. These actions have had a positive effect on NIDGS populations. Population monitoring provides baseline information on population status to assess recovery. In addition, these results allow continued collaboration with land managers, regulatory agencies, and research partners by providing a range-wide reference point from which to identify objectives or compare results from other site- or topic-specific studies. Changes in distribution detected on surveys will influence management decisions and land management practices that will aid in developing appropriate conservation strategies and, ultimately, recovery of the species.

Activities on private lands, led by the Service, also promote recovery. Within NIDGS occupied habitat 2 Safe Harbor Agreements (SHA) and 1 Low-Impact Habitat Conservation Plan (HCP) have been authorized under section 10 of the Endangered Species Act. The first SHA, signed in 2000, and the adjacent HCP, signed in 2007, collectively covered 4 acres within the larger Price Valley population site. The first agreement expired in 2010, the HCP expires in 2027. The other SHA, finalized in 2009, covers 4,227 acres on the OX Ranch and encompasses several population sites near Bear, Idaho. It remains in effect for 10 years and expires in 2019.

6. Describe how the objectives were met.

As described in the Interim Report, during October 2016 through September 2017 this grant contributed to Coordinator salary and travel; data analysis and preparation of the 2016 population monitoring annual scientific report; technician salaries, supplies, and vehicles for population monitoring surveys in 2017; and preliminary data summary of 2017 results. For the final 6 months of the project (October 2017 through March 2018), this grant contributed to analysis of 2017 survey data, preparation and distribution of the 2017 annual NIDGS population monitoring report, and additional Coordinator activities. Collectively these efforts met all 4 objectives under #4 above.

Recovery Coordination (Objective 1)

This grant supported the Recovery Coordinator's activities during October 2017 through March 2018. During that time the Coordinator convened 1 meeting of the NIDGS Technical Working Group, at which a variety of topics were reviewed and discussed, and organized 1 conference call among Technical Team members specifically to address a revision of the Recovery Plan. The Coordinator served as liaison between the NIDGS Technical Working Group and habitat restoration undertaken on behalf of NIDGS under the Payette National

Forest's CFLRP. The Coordinator participated in 3 monthly meetings and 1 field trip of the Payette Forest Coalition, the collaborative group that helps guide the CFLRP. The Coordinator's role on the Coalition is to identify opportunities to strategically enhance NIDGS habitat, examine thinning and prescribed fire treatments on the ground to see if they achieve the envisioned changes once implemented, improve prescriptions for habitat treatments, and guide implementation of projects to reduce impacts during treatments. The Coordinator also continued to advance the University of Idaho's research project assessing NIDGS response to various habitat treatments and potential effects of sylvatic plague.

To provide recovery partners and other public and private land management agencies current information on NIDGS population status and trend, the Coordinator distributed the 2017 annual report on NIDGS population monitoring. The written report was distributed to 26 partners representing the U.S. Fish and Wildlife Service, Payette National Forest, Boise National Forest, Idaho Cooperative Fish and Wildlife Research Unit, Idaho Department of Lands, Idaho Governor's Office of Species Conservation, USDA APHIS Wildlife Services—Idaho, OX Ranch, Southern Pine Plantations, and College of Idaho emeritus. The Coordinator also developed and distributed to recovery partners updated spatial data showing current distribution and detections of NIDGS.

Population Monitoring (Objective 2)

During October through December 2017, data from NIDGS population surveys conducted earlier in 2017 were compiled and analyzed, culminating in distribution of the 2017 population monitoring annual report. Survey data included 1,478 detections of NIDGS groups along 1,769 transect lines (100-m transects) in 885 grid cells. We detected NIDGS at 481 (54%) of the grid cells. From these data program DISTANCE estimated a detection probability of 0.60, a density of 1.21 squirrels/ha, and a total population size of 2,120 squirrels (95% CI: 1,879–2,444). Applying a correction factor based on a comparison of survey to mark-recapture from a previous year, we calculated an adjusted index to overall abundance of 2,862 NIDGS in 2017.

The 2017 field season was the 4th year of implementing the long-term monitoring design, and also the first replicate of the 3-year rotating panel that determines which collection of grid cells is surveyed in any given year. Thus, 2017 was a repeat of 2014 in terms of the grid cells on which the annual population estimate was based. As occurred in 2014, we saw a dip in detections in 2017 compared to 2016 and 2015. On average, 19% fewer NIDGS groups were detected on surveys in 2017 compared with 2016. This decline was significant when comparing just the core cells surveyed every year. At the broader scale (i.e., the population estimate from all surveys), NIDGS abundance did not differ significantly in 2017 compared with 2016.

We used environmental and spatial covariates to develop a model of occupancy and used the predicted values from program PRESENCE to generate a probability of occupancy map for all 1,797 grid cells in our sampling frame, including cells not surveyed in 2017. Results from these analyses were compiled into an annual report (Wagner and Evans Mack 2017), attached.

The Coordinator prepared for the upcoming 2018 field season by procuring supplies, assisting with hiring field technicians, and guiding the expansion of the survey sampling frame to encompass locations more recently occupied by NIDGS, areas proposed for habitat treatments by the PNF as part of CFLR projects, or areas of modeled suitable habitat that had not been surveyed. The sampling design developed in 2013 recognized the potential need to add new sites over time, and defined such an expansion as Stratum 3.

Technical Assistance (Objective 3)

As part of providing oversight to NIDGS-related activities, the Coordinator provided technical assistance on a variety of projects during this reporting period.

U.S. Fish and Wildlife Service: provided review and graphics for a manuscript for The Wildlife Professional

Army Corps of Engineers: assessed proposed culvert placement

University partners: provided technical review of a poster presentation on sylvatic plague and a draft manuscript on NIDGS diet.

Payette National Forest: continued to monitor progress of proposal to raise the level of Lost Valley Reservoir

Private lands access: worked within IDFG to maintain access to survey and research sites on private lands.

NIDGS Committees (Objective 4)

As described above, the Coordinator serves on and facilitates meetings of the NIDGS Technical Team, the body that implements the NIDGS Recovery Plan. The Coordinator is a member of the full Payette Forest Coalition and also sits on the Coalition's vegetation subcommittee, which develops recommendations for each landscape-scale project. The Coordinator is a member of the advisory group that guides the University of Idaho's NIDGS research.

7. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds.

The objectives were fully implemented as anticipated. Survey results provided population estimates with confidence intervals and established a baseline for comparison in future years. Results from long-term monitoring continued to provide important information to partners to identify suitable sites to include in their research. Loss of access to survey and research sites on private lands is a looming issue that could affect field work in the future.

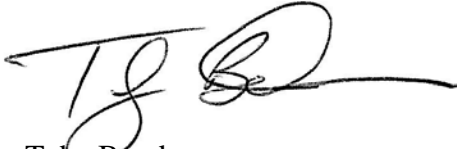
8. List any publications or in-house reports resulting from this work.

Wagner, B., and D. Evans Mack. 2017. Long-term population monitoring of northern Idaho ground squirrel: 2017 implementation and population estimates. Unpublished report to the U.S. Fish and Wildlife Service, Endangered Species Section 6 Grant F15AF00965 and Cooperative Agreement No. F16AC00381. December 29, 2017. Idaho Department of Fish and Game, Boise, Idaho, USA. *Report attached*

Name, title, phone number, and e-mail address of people compiling this report:

Diane Evans Mack
Regional Wildlife Biologist
208-634-8137
diane.evansmack@idfg.idaho.gov

Submitted by:

A handwritten signature in black ink, appearing to read 'TJ B', with a long horizontal flourish extending to the right.

Toby Boudreau
Federal Aid Coordinator

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

A handwritten signature in black ink, appearing to read 'Scott Reinecker', written in a cursive style.

Scott Reinecker, Chief
Bureau of Wildlife