

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Range-wide population model and viability analysis for the Kittlitz's Murrelet

Type of Project: Technical Assistance/Research
Discipline: Natural Resources
Funding Agency: US Fish and Wildlife Service
Other Partners/Cooperators: University of Montana
Effective Dates: 7/1/2012 - 6/30/2013
Funding Amount: \$24,999

Investigators and Agency Representative:

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Project Abstract: In May 2004, the U.S. Fish and Wildlife Service (USFWS) listed the Kittlitz's Murrelet (*Brachyramphus brevirostris*), a small seabird endemic to the Alaskan coast and eastern Russia, as a Candidate for protection under the U.S. Endangered Species Act. This initial finding was based on reported population declines of up to 80% in several areas throughout its range and a corresponding loss of glacial ice which the species was apparently associated with during the breeding season. Since then, additional research has been completed that raised uncertainty about the reliability of the population trend data and questioned the species' dependence on ice. Yet, new information also suggests that both annual survival and reproduction are unsustainably low. In October 2012, the USFWS will begin evaluating the status of the Kittlitz's Murrelet and by September 2013 will publish a decision regarding the legal status of the bird in the Federal Register.

We have developed an integrated population model using empirical estimates of survival, fecundity, and abundance of the Kittlitz's Murrelet in Icy Bay, Alaska, but results of this model are currently limited to the Icy Bay region. The purpose of this project is to expand the geographic extent of the model to include the entire range of the Kittlitz's Murrelet and to structure the model to allow for analysis of population viability. Specifically, our objectives are to (1) estimate overall population growth (λ) and associated process variance and (2) quantify the sensitivity and elasticity of specific life history parameters (vital rates) in the model as an approach to evaluating threats and their influence on population projections.

Outcomes with Completion Dates:

- 1) Refine Icy Bay-specific population model by July 1, 2012.
- 2) Prepare the conceptual range-wide population model separating the process (biology) and observation (available data) components by August 1, 2012.
- 3) Gather and format data for the range-wide model by September 1, 2012.
- 4) Develop and fit range-wide model and test parameters for sensitivity and elasticity by October 15, 2012.
- 5) Present preliminary results to listing team by November 1, 2012.
- 6) Review and refine model as needed during November 2012 - January 2013.
- 7) Submit results to at least one peer-reviewed scientific journal by July 1, 2013.

Keywords: Kittlitz's Murrelet, population model, Endangered Species Act, US Fish and Wildlife Service, University of Montana