

**FEDERAL AID
INTERIM PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
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Juneau, AK 99811-5526

**Alaska Department of Fish and Game
State Wildlife Grant**

Grant Number: T-1 **Segment Number:** 16
Project Number: 1
Project Title: Marbled Murrelet activity patterns and health at Port Snettisham, Alaska
Project Duration: 20 May 2005 – 30 June 2008
Report Period: 21 May 2006 – 20 May 2007
Report Due Date: August 20, 2007
Partners: Wildlife Trust and Oregon State University

Project Objectives

Activity Patterns and Habitat Use

1. Determine daily flight and foraging patterns of radio-marked Marbled Murrelets (*Brachyramphus marmoratus*, MAMU) during nesting, chick rearing, and post-fledging periods (2005-2007);
2. Determine initial post-breeding dispersal movements as best as possible based on battery signal strength, flight time costs, and distances birds move from Port Snettisham (PS; 2005);
3. Identify nesting habitat and potentially locate nests (2006);

Health Assessment

4. Conduct health evaluations for 30-35 MAMU/year using hematologic and biochemical testing (2005-2007);
5. Establish blood-based reference ranges for Southeastern Alaska MAMU;
6. Compare health indices inter-annually;
7. Conduct geographic health comparison between MAMU from Southeast Alaska and MAMU from central California (samples previously collected and analyzed); and
8. Archive blood samples for future DNA analyses, disease testing, and isotope research.

Summary of Accomplishments

Objectives 1-8:

We captured and radio-marked 79 MAMU (40 in May 2006 and 39 in May 2007) in or at the mouth of PS. Twenty-five research team members and volunteers spent 28 hours over 6 nights capturing, banding, and releasing 81 murrelets.

Objectives 1-3:

Radio-marked murrelets were tracked by aircraft, boat, and data logger (3 in 2006 and 6 in 2007). Aerial, boat, and data-logger surveys of radio-marked murrelets occurred on 35, 13, and 11-29 days in 2006. These surveys were just beginning as of 16 May 2007. More than 94 hours of flight time was logged in 2006 tracking birds throughout the inner passages of Southeast Alaska from Glacier Bay and Lynn Canal south to Kuiu and Wrangell islands.

Objectives 1 and 2:

Surveys of daily movements and activity patterns in 2006 indicated that most radio-marked murrelets were located near the mouth of PS during the late night-early morning period (20:00 – 06:00 h) and located inside PS in the mid morning-late afternoon period (08:00h – 18:00 h). This pattern is opposite of that observed in mid-summer 2005.

We observed a steady decline in the number of radio-marked murrelets attending PS on a daily basis in 2006. Ten birds disappeared from the PS area within 22 days of marking. Fifteen radio-marked murrelets were repeatedly tracked in the same area along or near a shoreline in PS and were determined to have died before the flight on 30 May. By 6 June, 5 weeks post-capture, 6 of the radio-marked murrelets were still located in the PS area and the fate of 19 was unknown. Only 4 (10%) radio-marked birds were still remaining inside PS by the final aerial survey in PS on 26 June 2006.

Objective 3:

In 2006, four radio-marked murrelets were detected flying inland in PS and two active nests were located. The first nest, found on 12 May, was located on a rock cliff in the extreme northeast corner of the Prospect Creek drainage in northern PS. This nest was active for 31 days and was determined to have failed soon after the egg hatched. The characteristic on/off incubation behavior was detected at the second nest on 12 June. This nest was located on the upper portion of a large rock cliff along the northeast side of the Tease Lake drainage at the northern end of Speel Arm. After 9 days of incubation monitoring the nest failed.

Objectives 4-8:

In 2006, we began to notice irregular patterns by some of the radio-marked murrelets in PS during the first week of post-capture aerial surveys (5 May – 12 May). By the end of May we had documented a total of 15 (37%) radio-marked murrelet mortalities in PS. This level of mortality of radio-marked murrelets is unprecedented; hundreds of murrelets have been captured and marked in numerous projects throughout the murrelets range using the same techniques with only a few mortalities. No correlation was found between handling time, use of anesthesia, weight, or overall health and murrelet mortality. We speculate that our radio-marked murrelets were compromised by the late, cold spring and the unusually high numbers of Bald Eagles (*Haliaeetus leucocephalus*) present in the capture area.

Analysis of blood samples is ongoing. Health assessments are forthcoming.

Significant Deviations

In 2006, 2 of our 3 data loggers were not deployed until early June. We had planned to conduct boat surveys in the evening at the mouth of PS, but when that proved dangerous, we ordered two new data loggers to collect similar data.

Project Leader: S. Kim Nelson or Scott Newman