Alaska Department of Fish and Game
Division of Wildlife Conservation
2007

Evaluating methods to control an infestation by the dog louse in gray wolves

Craig L. Gardner
Kimberlee B. Beckmen

Research Annual Performance Report
1 July 2006–30 June 2007
Federal Aid in Wildlife Restoration
Grant W-33-5
Project 14.25

This is a progress report on continuing research. Information may be refined at a later date.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
Juneau, AK 99811-5526

PROJECT TITLE: Evaluating methods to control an infestation by the dog louse in gray wolves

PRINCIPAL INVESTIGATORS: Craig L. Gardner and Kimberlee B. Beckmen

COOPERATORS: None

FEDERAL AID GRANT PROGRAM: Wildlife Restoration

GRANT AND SEGMENT NR.: W-33-5

PROJECT NR.: 14.25

WORK LOCATION: Game Management Unit 20A

STATE: Alaska

PERIOD: 1July 2006 – 30 June 2007

I. PROGRESS ON PROJECT OBJECTIVES

OBJECTIVE 1: Determine extent of louse infestation in wolf packs in Unit 20A using visual observations of live wolves, hide inspections of trapper-caught wolves, and wolf capture and collection.

We inspected 37 wolf hides from Unit 20A that were purchased from trappers (28), found dead (3), or collected by department personnel (6). We captured 34 additional wolves using helicopter capture techniques and tested for lice through visual inspection and conducted skin biopsies using a small tissue sample collected from the top of the wolves back between the shoulder blades. We radiocollared 29 wolves in 10–12 packs to help estimate the extent of louse infestation in Unit 20A. We found lice infestation on 7 packs (5 were radiocollared) in 2006 out of 12 inspected and 3–4 packs (3 were radiocollared) in 2007 out of 12 inspected. In November 2007 we will verify if the questionable pack is infected.

OBJECTIVE 2: Determine efficacy of den/rendezvous site treatment to manage lice infection.

We treated louse infected packs by dropping baits (fist size chunks of moose meat) injected with ivermectin (10 mg/ml) at the den/rendezvous sites during May–August. We treated 5 packs in 2006 and 4 packs in 2007. We varied the dose depending on pup presence and size. During 11 May and 19 June, pups were 0–6 weeks old and not very mobile. We used this period to treat the adult wolves by dropping 5–20 baits injected with 12 mg ivermectin at the den site. We completed 3 adult treatments/pack during this period during each year. The number of baits dropped at each den or rendezvous site was based on pack size. After 19 June, we commonly observed pups at the dens or rendezvous sites and reduced the dosage to safely treat both the pups and adults. During

19 June to 5 July we treated the wolves with 0.15 mg/bait. We increased the dosage as the pups grew to 0.18 ml and 0.20 ml during 15–31 July and 1–26 August. Our dose was based on estimated pup weights. We completed 4 pup treatments/pack/year. To evaluate treatment affect, we collected 1 6–10 month-old pup from 4 of the 5 treated packs and from 2 of the 5 untreated packs during 2006. In November 2007 we plan to collect 1 6- to 10-month-old pup from each of the 4 treated packs and from the 5–6 packs not treated for further analysis of treatment effects.

OBJECTIVE 3: Establish rate of transmission between packs.

We maintained 1–3 radiocollared wolves in 10 packs in 2006 and in 11 packs during 2007 in Unit 20A. Through visual inspection, skin biopsies, and collection we have monitored louse infection rate in treated and untreated packs. Starting in FY08, this objective will be further studied by radiocollaring louse infected packs in Unit 20C that will not be treated until the end of the study and compare infestation rates between treated and untreated packs.

OBJECTIVE 4: Determine if lice-infected packs have lower productivity and survival rates.

During July–November, we located treated and untreated radiocollared packs in Unit 20A once/7–10 days to monitor pup and pack numbers. We continued to observe the packs throughout the winter to compare pack size and rate of change. For this report, sample sizes were too small to make meaningful comparisons between treated and untreated packs. Starting in FY08, this objective will be further studied by radiocollaring louse infected packs in Unit 20C that will not be treated until the end of the study and compare pup production and pack sizes between treated and untreated packs.

II. SUMMARY OF WORK COMPLETED ON JOBS IDENTIFIED IN ANNUAL PLAN THIS PERIOD

JOB/ACTIVITY 1: Reviewed literature.

We reviewed literature concerning louse infestation on the Kenai Peninsula and in Game Management Unit 14 in Southcentral Alaska and on treatment and detection methods for other types of ectoparasites on canids.

Federal funds were used to pay salaries while working on this task.

JOB/ACTIVITY 2: Collected wolves to determine louse infestation.

We collected 1 wolf from 6 of the radiocollared packs in Unit 20A to determine the presence and transmission of lice and to evaluate treatment effectiveness. Four of the infected packs that received treatment during summer 2006 were devoid of lice in November 2006. The remaining treated pack was not evaluated. Of the 6 radiocollared packs that were louse free during spring 2006, at least 1 became infected by March 2007. We suspect louse infestation on 1 additional pack based on visual inspection during radiotracking flights. We will verify louse infestation in this pack by capturing 1–2 adult wolves and collecting 1 6-month-old pup during November 2007.

Federal funds were used to pay salaries for project personnel.

JOB/ACTIVITY 3: Maintained a radiocollar sample of wolves in Unit 20A.

We maintained 1–3 radio collars (<2 years operating time) in 10–12 packs during the report period. We caught and radiocollared 5 and 12 wolves during November 2006 and March/April 2007. We lost contact with 1 pack in late March 2007 as both radiocollared wolves dispersed. Snow conditions were inadequate to find the pack by snow tracking following dispersal. We plan to recapture the pack during fall 2007.

Federal funds were used to pay salaries for project personnel.

JOB/ACTIVITY 4: Radiotrack radiocollared wolves in Unit 20A.

During the report period, we completed 47 radiotracking flights finding 2–12 of the radiocollared packs/flight. Our intent was not to find every radiocollared pack during each survey flight but to ensure an adequate sample size to determine home range size, monitor pup production and pack size, and treat dens and rendezvous sites of louse infected packs in the most logistically efficient manner.

Federal funds were used to pay salaries for project personnel.

JOB/ACTIVITY 5: Treated with ivermectin injected baits, dens and rendezvous sites of louse infected packs.

During the report period, we treated 5 packs during May–August 2006 and 4 packs during May–June 2007. At 10–14 day intervals we dropped baits injected with 12 mg ivermectin to treat the adults between the onset of denning and 19 June. After 19 June, pups were commonly observed outside the den and became increasingly mobile. To ensure we did not overdose the pups, we reduced the ivermectin dosage to 1.5–2 mg during 19 June–26 August. Dosage was dependent on estimated pup weights. We maintained the 10–14 day intervals between treatments during this period.

Federal funds were used to pay salaries for project personnel.

III. ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD

None.

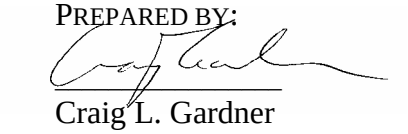
IV. PUBLICATIONS

None.

V. RECOMMENDATIONS FOR THIS PROJECT

Prioritize expenditures to ensure that louse infected packs in Unit 20C are sufficiently monitored to be used as controls for this project.

PREPARED BY:

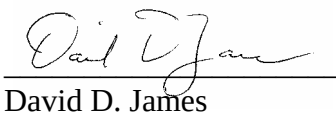


Craig L. Gardner
Wildlife Biologist III

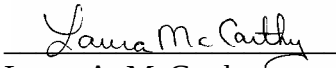
&

Kimberlee B. Beckmen
Wildlife Veterinarian

SUBMITTED BY:

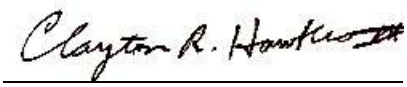


David D. James
Regional Supervisor



Laura A. McCarthy
Publications Technician II

APPROVED BY:



Clayton R. Hawkes
Federal Assistance Coordinator
Division of Wildlife Conservation

Douglas N. Larsen, Director
Division of Wildlife Conservation

APPROVAL DATE: _____