

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

GRANT NUMBER: W-33-8

PROJECT NUMBER: 10.01

PROJECT TITLE: Summer habitat selection by female sharp-tailed grouse in Interior Alaska

PROJECT DURATION: 1 July 2009–30 June 2011

REPORT PERIOD: 1 July 2009–30 June 2010

REPORT DUE TO HQ: 1 September 2010

PRINCIPAL INVESTIGATORS: Thomas F. Paragi and Scott M. Brainerd

WORK LOCATION: Interior Alaska, GMU 20D

COOPERATORS: John Haddix (U.S. Army) and Jeff Mason (Colorado State University)

I. PROBLEM OR NEED THAT PROMPTED THIS RESEARCH

In the last 5 years on private agricultural land near Delta Junction, landowners have begun reclaiming fallow fields formerly in the Conservation Reserve Program for crop production (cutting shrubs and young trees and plowing) and expanding the area of fields in production by removing long established wind breaks composed of forest debris (burn piles from earlier land clearing) and natural forest within fields. This practice may be reducing the quality of habitat for Alaska sharp-tailed grouse (*Tympanuchus phasianellus caurus*) by removing cover for escape, foraging, resting, and nesting within the agricultural area. Females use nest sites that conceal them from predators and brood rearing areas with abundant insects that offer summer forage for young chicks and production of kinnikinnick (*Arctostaphylos uva-ursi*) fruit and lowbush cranberry (*Vaccinium vitis-idaea*) in the fall. If the decrease in old fields and forest patches continues on agricultural lands, the natural maintenance of early seral habitats by wildland fire on the adjacent Donnelly Training Area of Fort Wainwright may become increasingly important to local sharp-tailed grouse from spring through early fall. The U.S. Army seeks to understand habitat use by sharp-tailed grouse on military lands near Delta, particularly during the nesting and brood rearing period.

II. REVIEW OF PRIOR RESEARCH AND STUDIES IN PROGRESS ON THE PROBLEM OR NEED

Few studies have been conducted on sharp-tailed grouse in Alaska, and there are substantial knowledge gaps regarding its ecology. Throughout the state, sharp-tailed grouse are often associated with open burns in early-mid forest succession. Raymond (2001) conducted the only telemetry study of sharp-tailed grouse in Alaska on

agricultural lands near Delta Junction during 1998–2000, where 41 males and 21 females were marked primarily during fall captures and monitored to document habitat use and movements, including migration to winter range dominated by dwarf birch (*Betula glandulosa*; buds are a common winter forage) outside the agricultural area. A recent study of habitat selection during nesting and brood rearing and brood survival in agricultural lands with interspersed shrub and forest in eastcentral British Columbia confirmed the importance of concealment cover (Goddard et al. 2009).

III. APPROACHES USED AND FINDINGS RELATED TO THE OBJECTIVES AND TO PROBLEM OR NEED

Fieldwork was initiated in April 2010 (see Section V).

IV. MANAGEMENT IMPLICATIONS

Fieldwork was initiated in April 2010 (see Section V).

V. SUMMARY OF WORK COMPLETED ON JOBS FOR LAST SEGMENT PERIOD ONLY

JOB/ACTIVITY 1A; 3: Capture and radio-instrument up to 30 female sharp-tailed grouse during spring 2010

Accomplishments: A field crew composed of ADF&G, U.S. Army, and Colorado State University (military lands contractor) personnel and volunteers began livetrapping efforts on 12 April. Birds were captured in nonbaited pens on breeding leks. Males were initially banded on one leg with colored hoops for visual detection to verify movement among leks or recapture but were not radiomarked. However, with low capture success on females (due to low population abundance), we began putting radios on both sexes in late April. We fitted 13 males and 6 females with radio collars by 24 May.

JOB/ACTIVITY 1B; 2A; B: Radiotrack instrumented female sharp-tailed grouse for habitat selection and brood survival studies

Accomplishments: General location of radiomarked birds near leks was monitored during livetrapping by use of ground-based telemetry. Nest locations of females were confirmed by walking in to observe marked birds, and nest locations were flagged after hatch for subsequent habitat measurements. Triangulation with 2 observers working simultaneously began on 25 May and continued through June, with attempts to relocate birds 3 times per week. Females were flushed once per week to verify brood presence and obtain a minimum count of chicks. Where natural mortality was confirmed, we attempted to characterize cause of predation by species or group (e.g., raptor) as the proximate source of mortality.

VI. PUBLICATIONS

None.

Literature Cited:

GODDARD, A. D., R. D. DAWSON, AND M. P. GILLINGHAM. 2009. Habitat selection by nesting and brood-rearing sharp-tailed grouse. *Canadian Journal of Zoology* 87:326–336.

RAYMOND, R. L. 2001. Use of summer and winter habitat by Alaska sharp-tailed grouse (*Tympanuchus phasianellus caurus*) in eastern Interior Alaska. Thesis, Alaska Pacific University, Anchorage, Alaska.

VII. RECOMMENDATIONS FOR THIS PROJECT

Crews will continue radiotracking birds at the same frequency until 25 August (start of hunting season; falconry starts 10 August) or until the last brood is no longer associated with a female, indicating mortality or dispersal of all chicks. Relocations after the last brood dispersal will occur as feasible during habitat measurements.

Characterization of cover type and measurement of cover density (e.g., percentage concealment) will be done during summer and fall at GPS relocations (visual confirmation or ground telemetry with error polygons). For nest sites, visits for habitat measurements during summer will be followed by another measurement after leaves have fallen, with the latter simulating cover during the nesting period (prior to leaf emergence). At least one random (azimuth and distance ≤ 100 m) site associated with each relocation will be measured for characterization of available habitat.

Analysis of telemetry and habitat data will be used to infer habitat use, and a final technical report will be written on this one-season pilot study in FY11.

Prepared by: Thomas F. Paragi

Date: 11 August 2010