Alaska Department of Fish and Game
State Wildlife Grant
ANNUAL INTERIM PERFORMANCE REPORT

Grant Number: T-1 **Segment Number:** 6
Project Number: 2
Project Title: Banding Station, Creamer's Field
Project Duration: July 1, 2003 – June 30, 2007
Report Period: July 1, 2004 – June 30, 2005
Report Due Date: September 30, 2005

Objectives

1. To conduct a standardized migration-monitoring station in spring and fall at Creamer's Field Migration Station (CFMS), Fairbanks.
2. To analyze data and examine the population dynamics and timing of life-history events (e.g., migration, reproduction, molt, juvenile dispersal, and seasonal differences in body condition) of migratory passerines.

Summary of Accomplishments *(Describe accomplishments related to the work that was proposed to be done during this same period in the Project Description and work schedule)**:***

The following accomplishments are related to Objective 1.

Fall Migration 2004

1. 36 standard 12 meter mist nets were operated for 6 hours daily between 16 July – 30 September, weather permitting, for the purpose of capturing, identifying, banding and collecting data on size, health, age, sex, stage of molting, and breeding condition of migratory songbirds. Nets were operated 11,759.5 hours total.
2. 2,601 birds of 31 species were banded. The most abundant species were Yellow-rumped warbler (415), Orange-crowned Warbler (408), Dark-eyed Junco (388), and Lincoln's Sparrow (282). These 4 species comprised 57.4% of all birds banded. Passage of migrants was steady; birds were caught in high numbers from late July through August. Captures in September were very low.
3. Capture rates for all warbler species were higher than the past several years. The population index for Wilson's Warbler was at its highest level since 1995. The population index for American Robin was at an all time high. Hammond's Flycatcher and Swainson's thrush were at near-record highs. Population indices were low for Black-capped Chickadee and at an all-time low for American Tree Sparrow and Fox Sparrow.
4. Notable captures included a hatch-year Townsend's Solitaire, a hatch-year Western Palm Warbler, and 3 Golden-crowned Sparrows.
5. The mortality rate at CFMS was 0.2%, which is lower than average for mist-netting studies, and well below the accepted average of 1 – 2%.
6. 75 volunteers provided 1,508 hours of assistance. Two university students contributed an additional 656 hours.

7. Bird-banding presentations were given to 28 groups (794 individuals) in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were given to an additional 256 independent visitors.

Spring Migration 2005

8. 22 standard 12 meter mist nets were operated for 6 hours daily 25 April – 7 June, weather permitting, for a total effort of 5,889 net hours.
9. The spring 2005 capture rate of 79.0 birds/1000 net hours was above the 13 year average of 67.6 birds/1000 net hours.
10. 280 individuals of 30 species were banded (new captures). A total of 465 new and previously banded birds were handled (total captures). The most abundant species were Dark-eyed Junco (40), Yellow-rumped Warbler (32), and Swainson's Thrush (27). These three species accounted for 21% of all captures. 47 birds banded in prior years were recaptured (10% of all captures), including a Hammond's Flycatcher banded in 1999.
11. 11 Solitary Sandpipers were captured, the highest number in the 13 year history of the Station. 24 Hammond's Flycatchers were captured, the most since 1995. 20 Northern Waterthrushes were captured compared to 6 in 2004; this year's numbers are closer to "normal". Numbers of Orange-crowned Warbler, Yellow Warbler, Wilson's Warbler, Fox Sparrow, and Common Redpoll continued to be lower than most prior years.
12. 22 volunteers contributed 570 hours of assistance.
13. Bird-banding presentations were given to 26 groups (526 students, 90 adults) in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were given to an additional 127 independent visitors.

No analysis the data collected as proposed in Objective 2 has been done or was planned to be done at this time.

Significant Deviations *(if any, and explain the reasons for these):*
None

Actual Costs during this Report Period *(personnel plus all operating expense totals)*:

Federal (from ADF&G):	Partner (nonfederal share):
$10,000	$3,333

Project Leader *(or Report Contact Person)*: Susan Sharbaugh

Additional Information:
Data for Objective 2 will be summarized and presented at the end of the project.

The following publications involve the Creamer's Field Migration Station and the banding data but the writing of them was not funded by this grant:

2004 Publications: DeWitt, N. 2004. Alaska Bird Observatory tackles high water and trail erosion. N. Am. Bird Bander 29:2.

2005 Publications: Benson, A. and K. Winker. 2005. Fat-deposition strategies among high-latitude passerine migrants. The Auk 122(2):544-557.

A poster describing the Migration Station and presenting a few population trends was produced for ABO's annual membership meeting in April and has been on display at ABO's Center for Education and Research.

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ANNUAL INTERIM PERFORMANCE REPORT

Grant Number: **T-1** **Segment Number:** **6**
Project Number: 2
Project Title: Banding Station, Creamer's Field
Project Duration: July 1, 2003 – June 30, 2007
Report Period: July 1, 2005 – June 30, 2006
Report Due Date: September 30, 2006

Objectives

1. To conduct a standardized migration-monitoring station in spring and fall at Creamer's Field Migration Station (CFMS), Fairbanks.

2. To analyze data and examine the population dynamics and timing of life-history events (e.g. migration, reproduction, molt, juvenile dispersal, and seasonal differences in body condition) of migratory passerines.

Summary of Accomplishments

The following accomplishments are related to Objective 1.

Fall Migration 2005:

1. Between 16 July—30 September 2005, 34 standard mist nets (2.6m high x 12m long, 30mm mesh) were operated for 6 hours daily, weather permitting, for the purpose of capturing, identifying, banding and collecting data on: age, sex, size and stage of molting (if any) of migrating songbirds. Nets were operated for a total of 11,460.5 hours. Other than a five-day lull during the third week of August, capture rates were consistently high from late July through mid-September.

2. A total of 4,243 birds of 34 species were banded. The most abundant species were Yellow-rumped Warbler (1,052), Dark-eyed Junco (814), Orange-crowned Warbler (497), American Tree Sparrow (512) and Lincoln's Sparrow (377). These five species comprised approximately 75% of all birds banded.

3. This was the fifth highest season for newly captured and banded birds in 14 years of operation at CFMS. Total captures for Hammond's Flycatchers (108) were the highest ever. Ruby-crowned Kinglet captures (125) were the third highest ever in CFMS history. Overall captures of thrush species were variable. For example, captures for Swainson's Thrush (128) and American Robin (34) were almost one-half what they were in 2004. However, captures for Hermit Thrush (42) increased while those for Gray-cheeked Thrush (22) were comparable to the previous year. Captures for warbler species was variable as well. For example, Orange-crowned (497), Yellow-rumped (1,052), and Townsend's Warbler (29) captures increased over the previous year, while captures for Yellow (73) and Blackpoll Warbler (40), Northern Waterthrush (28) and Wilson's Warbler (79) were lower than the previous year. Overall captures of sparrow species (Dark-eyed Junco (814), White-crowned (78),

Lincoln's (377), Savannah (126), and American Tree Sparrow (512)) increased over the previous year.

4. Notable captures include an American Three-toed Woodpecker and Black-backed Woodpecker, a Northern Harrier, three Solitary Sandpipers, Wilson's Snipe, Rusty Blackbird and two Pine Siskens.

5. The mortality rate at CFMS during the fall season was 0.3%, which is lower than the accepted average for mist-netting studies of 1-2%.

6. Fifty-one volunteers provided 1139 hours of assistance, while two interns contributed an additional 808 hours of service.

7. Bird-banding presentations were given to 41 groups (1,043 people) in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were given to an additional 221 independent visitors.

Spring Migration 2006:

8. Twenty-six standard 12m mist nets were operated for 6 hours, weather permitting, on alternate days from 25 to 30 April and daily from 1 May – 7 June 2006. Nets were operated for a total of 5485 hours.

9. The spring capture rate of 103.3 birds/1000 net hours continued to be above-average for CFMS 14-year history.

10. Total captures were 567 new and previously banded birds. We captured 410 individuals of 31 species. The most abundant species were Yellow-rumped Warbler (87), Dark-eyed Junco (71), and Swainson's thrush (38). These three species accounted for 35% of all captures. Forty-eight individuals banded in previous years (returns) were approximately 8.5% of our total captures. Of these returns, noteworthy individuals include a Black-capped Chickadee (resident species) first banded in 2002 and a Myrtle Warbler (long –distant migrant) first banded in 2003.

11. For several species, captures were the highest they have ever been in CFMS 15-year history. These species include: Gray Jay (5) and Rusty Blackbird (8). In addition, captures for Yellow-rumped Warbler (87) as well as several sparrow species including American Tree (9), Savannah (13) and White-crowned Sparrow (13) were substantially higher in 2006 than 2005. Captures of many of Alaska's long-distance migrant warbler species (including Orange-crowned Warbler (19), Yellow Warbler (7), Yellow-rumped Warbler, Blackpoll Warbler (4), Northern Waterthrush (32) and Wilson's Warbler (8)) were also greater than the previous year. Spring 2006 also marked declines in captures of several species including Common Redpoll (3) and Gray-cheeked Thrush (1)—the lowest captures ever for this species in the spring.

12. Interesting captures include: a second-year (SY) male Merlin and a SY male Bohemian Waxwing. Spring 2006 marks the first time these species were caught since the 2001 season.

13. The mortality rate at CFMS during the 2006 spring season was 0.5%, which is lower than the accepted average for mist-netting studies of 1-2%.

14. A training program for wildlife professionals occurred at CFMS from 22 May to 31 May. The training program included hands-on training in methods of capturing and banding passerines at CFMS as well as an alternate site operated along the boreal forest trail of Creamer's Field Migratory Waterfowl Refuge. We trained 12 biologists during this two-week program. These biologists were employees of the Institute for Bird Populations and ABO (Avian Influenza Screening crew).

15. Twenty-five volunteers provided 430 hours of assistance.

16. Bird banding demonstrations were given to 26 groups (541 individuals) in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were given to an additional 92 independent visitors.

The following accomplishments are related to Objective 2:

Benson, A.M., B.A. Andres, W. N. Johnson, S. Savage, and S. M. Sharbaugh. Differential timing of Wilson's Warbler migration in Alaska. Wilson Journal of Ornithology. December 2006 issue.

Benson, A.M. and W. N. Johnson. An evaluation of autumn mist-netting data for monitoring songbird populations in interior Alaska. Journal of Wildlife Management. In review.
Note: Funding for data analyses associated with this publication was provided by the Tetlin NWR ($6700) and Alaska Bird Observatory ($600).

Benson, A.M. and K. Winker. High-latitude migrants overlap energetically demanding events in Alaska. Submitted to the Auk for review.

Walker, T. Creamer's Field Migration Station: Fall 2005 Report. Submitted to the Alaska Department of Fish and Game and Bureau of Land Management. *Available at www.alaskabird.org*

Guers, S. Creamer's Field Migration Station: Spring 2006 Report. Submitted to the Alaska Department of Fish and Game. *Available at www.alaskabird.org*

Significant Deviations

None

Actual Costs during this Report Period *(personnel plus all operating expense totals)*:
(Reported costs included ADF&G indirect calculated at 13.5%)

Federal (from ADF&G):	Partner (nonfederal share):
$43,603	$14,534

Project Leader *(or Report Contact Person)*: Sue Guers, Migration Program Manager

Additional Information:

1. Is this project contributing samples to the Alaska Avian Influenza detection effort? Yes, through a collaboration with the Institute of Arctic Biology, University of Alaska, Fairbanks (UAF). ABO and UAF staff collected approximately 1000 samples from 27 species during the 2005 fall season, and approximately 500 samples from the 2006 spring season.

2. Do you anticipate having any unspent funds at the end of the project? No

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

Alaska Department of Fish and Game
State Wildlife Grant

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Project Number: **2**
Project Title: Banding Station, Creamer's Field
Project Duration: July 1, 2003 – June 30, 2007
Report Period: July 1, 2006 – June 30, 2007
Report Due Date: September 30, 2007
Partner: Alaska Bird Observatory

Project Objectives

1. To conduct a standardized migration-monitoring station in spring and fall at Creamer's Field Migration Station (CFMS), Fairbanks.
2. To analyze data and examine the population dynamics and timing of life-history events (e.g. migration, reproduction, molt, juvenile dispersal, and seasonal differences in body condition) of migratory passerines.

Summary of Project Accomplishments for entire project

Objective 1: We completed four spring and fall migration monitoring seasons at CFMS. During this time period, we captured and banded a total of 15,556 new birds—1,513 birds in 22,359 net hours during four spring seasons and 14,043 birds in 42,381 net hours during four fall seasons. In spring, the average number of species captured was 29 and in the fall it was 35 species. A total of 8,912 people were educated at CFMS, mostly through banding demonstrations, and 9 interns and 24 biologists were trained in mist-netting and banding techniques. In addition, 357 volunteers donated 7,756 hours of time in helping to operate CFMS. Several collaborations between CFMS and various researchers were initiated. Starting in Fall 2005, we began a collaboration with the Institute of Arctic Biology, University of Alaska, Fairbanks (UAF) to collect samples for detection of Avian Influenza. This collaboration has continued through Spring 2007. To date, ~ 4000 samples have been collected. In Fall 2006 in collaboration with USFWS, we collected samples from Gray-cheeked Thrushes to test for Avian Influenza. We also collected Rusty Blackbird feather and sperm samples during the Spring and Fall 2006 banding seasons for collaborations with scientists studying this species. We started two new collaborations in Spring 2007—we captured Solitary Sandpipers during normal mist-netting sessions and outfitted them with radio telemetry units. The second collaboration involved collecting feather samples from select boreal forest songbirds for a PhD student.

Objective 2: Starting in September 2006, we began proofing the 15-year CFMS banding dataset. These ~ 65,000 records were then transferred from Excel into Access, because we had reached our record limit in Excel in 2005. Access was used because it can store many more records and is a relational database program. Starting in February 2007, we analyzed mean passage dates of both adults and juveniles of 14 species that migrated through CFMS and a migration station in Tok, Alaska from 1993-2006. Annual abundance indices were calculated using daily capture rates (birds captured/1000 net hours) for 11 species from 1996-2004. Because weather is known to affect migration of birds, we incorporated daily weather variables into models to correct for

high or low captures that could have been caused by daily weather events. Annual abundance indices were then defined as mean annual capture rates adjusted for covariates. We conducted power calculations to determine the probability of detecting a 50 % linear decline during 25 years and a 50 % decline in 50 years for the same 11 species. This manuscript is nearing completion and will be submitted to the Journal of Wildlife Management. Future analyses of CFMS planned include examination of spring arrival dates, molt strategy of migrants, and effects of weather on range expansion of several species.

Project Accomplishments during last segment period only (July 1, 2006 – June 30, 2007):

Objective 1:

Fall Migration 2006:

1. Between 17 July and 29 September 2006, 36 standard mist nets (2.6m x 12m long, 30 mm mesh) were operated for 6 hours daily, weather permitting, for the purpose of capturing, identifying, banding and collecting data on: age, sex, stage of molting (if any), and breeding and body condition of migrating songbirds. Nets were operated for a total of 9,821 net hours. Capture rates were consistently high during the entire netting period—large fallouts of Common Redpolls started at the onset of the season and late arrivals of large flocks of American Tree Sparrows arrived at the latter half of September when migration has typically slowed.
2. We captured a total of 6004 birds of 38 species. The most abundant, newly-captured species were: American Tree Sparrow (1205), Dark-eyed Junco (1044), Yellow-rumped Warbler (925), Common Redpoll (665) and Orange-crowned Warbler (322). These five species comprised 79% of all new captures.
3. Captures for fall 2006 were the second highest in CFMS 15-year history. Yet, several species showed a decrease in population indices. These include Alder and Hammond's Flycatcher and all thrush species. The sample size for Gray-cheeked Thrush was too low to calculate a population index. In contrast, Ruby-crowned Kinglet, Yellow-rumped Warbler, American Tree Sparrow and Dark-eyed Junco showed increasing population indices from previous years. Population indices for many warbler and sparrow species remained stable.
4. We captured four HY Tennessee Warblers—a species not typically found breeding in interior Alaska. Past studies of this species have shown that it will follow Spruce Budworm outbreaks. Whether this species is responding to insect abundance or some other environmental cue is debatable; mist-netting at CFMS is helping to document the possible range expansion of this species.
5. We captured two new species at CFMS this fall—a HY Belted Kingfisher and a HY *Catharus* thrush that could not be identified to species that was called a bird of the Gray-cheeked/Bicknell's Thrush Complex. Other notable captures included: Green-winged Teal (3), Ruffed Grouse (1), a HY Solitary Sandpiper, a HY Wilson's Snipe, Downy (3) and Hairy Woodpecker (1), HY Northern Shrike (2), a HY Brown Creeper (the first since 2000), Rusty Blackbird (7) and Pine Siskin (1).
6. The mortality rate at CFMS was 0.3%, well below the accepted average of 1-2%. Much of the mortality could be attributed to predation by raptor(s) and red squirrel(s).

7. Seventy-three volunteers provided 1,833 hours of assistance, while two interns contributed 864 hours of service to the operation of CFMS during the fall season. Net trail repair, including the addition of two bridges and a set of stairs, was completed as part of an Eagle Scout Project. In addition, local volunteers made ~500 bird bags for CFMS.
8. Bird-banding presentations were given to 634 people in 24 groups in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were given to an additional 237 independent visitors.

Spring Migration 2007:

9. Twenty-six standard mist nets were operated for 6 hours, weather permitting, on alternate days from 23 to 30 April and daily from 1 May – 7 June 2006. Nets were operated for a total of 4,991 hours.
10. We captured 978 new and previously banded birds of 32 species—one of the most productive spring banding seasons in CFMS history. The five most abundant newly-captured species include: Common Redpoll (133), Yellow-rumped Warbler (78), Dark-eyed Junco (69), American Robin (54) and Northern Waterthrush (53). These five species represent 62% of all new captures.
11. We captured 49 individuals banded in previous years (returns) that represented ~12% of our total captures. Noteworthy migrant returns include a Yellow-rumped Warbler first banded as a juvenile in 2003 and a Dark-eyed Junco banded as an adult in 2003. Noteworthy migrant returns are a Black-capped Chickadee first banded as a juvenile in 2002 and a Gray Jay banded as an adult in 2003.
12. For eleven species, capture rates (per 1000 net hours) were the highest they have ever been in CFMS 16-year history. These species include: Lesser Yellowlegs, Solitary Sandpiper, Wilson's Snipe, Downy Woodpecker, Boreal Chickadee, Black-capped Chickadee, Hammond's Flycatcher, Swainson's Thrush, Bohemian Waxwing, Northern Waterthrush and Dark-eyed Junco. Capture rates for several species were higher in 2006 than for 2005, including Orange-crowned and Yellow Warbler, and American Tree, Lincoln's and White-crowned Sparrow. Several species, including Ruby-crowned Kinglet, Yellow-rumped Warbler and Fox Sparrow showed similar capture rates as last spring. Capture rates of Common Redpolls were the highest they've been in almost 10 years. Unfortunately, 2007 also marked declines in capture rates of several species including: Blackpoll and Wilson's Warbler, and Savannah Sparrow.
13. Interesting captures include: 14 Solitary Sandpipers, 7 Lesser Yellowlegs, 5 Bohemian Waxwings, a Wilson's Snipe, a Green-winged Teal, and a SY male Sharp-shinned Hawk.
14. The mortality rate at CFMS for the spring was 0.1%, much lower than the accepted rate of 1-2%.
15. Trained 2 new banders and 1 intern for CFMS this spring—these staff will continue through the fall season. Held a volunteer orientation session before the spring banding season that was attended by ~30 new and returning volunteers.
16. Forty-two volunteers provided 918 hours of assistance—more than double the effort of spring 2006.

17. Bird-banding presentations were given to 657 people in 15 groups in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were given to an additional 130 independent visitors.

Objective 2:

Benson, A-M., S.L. Guers and W.H. Johnson. An evaluation of autumn mist-netting data for monitoring songbird populations in interior Alaska. *In preparation.*

A summary of birds banded by ABO in spring 2006 was included in the *North American Bird Bander,* Vol. 31:No.2.

A summary of all birds banded by ABO in 2005 and 2006 was submitted to the Western Bird Banding Associated to be included in their annual summary was included in the *North American Bird Bander,* Vol.31:No. 3.

Guers, S. Creamer's Field Migration Station: Fall 2006 Report. Submitted to the Alaska Department of Fish and Game and Bureau of Land Management. *Available at www.alaskabird.org*

Guers, S. Creamer's Field Migration Station: Spring 2007 Report. Submitted to the Alaska Department of Fish and Game and Bureau of Land Management. *Available at www.alaskabird.org*

Significant Deviations*:* None

Project Leader: Sue Guers, Migration Program Manager

Additional Information: The following publications involve the CFMS and its banding data, but were not funded by this grant:

Benson, A.M. and K. Winker. 2005. Fat-deposition strategies among high-latitude passerine migrants. TheAuk 122:544-557.

Benson, A.M., B. Andres, W.H. Johnson, S. Savage, and S.Sharbaugh. 2006. Differential Timing of Wilson's Warbler Migration in Alaska. Wilson Journal of Ornithology. 118: 547-551.

DeWitt, N. 2004. Alaska Bird Observatory Tackles High Water and Trail Erosion. North American Bird Bander 29:101.

ABO annually includes a summary of birds banded at CFMS for the Alaska Boreal Partners in Flight (BPIF) statewide banding summary.

A poster describing mist-netting at CFMS was assembled and displayed at CFMS during the fall and spring migration seasons. This poster is also currently displayed in the ABO Center for Education and Research.

A CFMS banding summary was written for the ABO winter 2006 and summer 2007 newsletters, and reports were posted on the ABO website.

FEDERAL AID
INTERIM PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

GRANT AND SEGMENT NR: T-1-16

PROJECT NUMBER: 6

PROJECT TITLE: Passerine Data Analysis and Monitoring at the Creamer's Field Migration Station

PARTNER: Alaska Bird Observatory (ABO)

PRINCIPAL INVESTIGATOR: Sue Guers (ABO)

COOPERATORS: Jackson Whitman (ADF&G)

PROJECT DURATION: September 30, 2006 – June 30, 2008

REPORT PERIOD: October 1, 2006 – September 30, 2007

Project Objectives

OBJECTIVE 1: Move CFMS data from Excel to an Access database and re-proof all banding and recapture records by 30 November 2006.

OBJECTIVE 2: Using data from four migration stations in Alaska, publish a manuscript that examines migration of Wilson's Warblers in Alaska by 30 December 2006.

OBJECTIVE 3: Prepare a report on our collaborative Avian Influenza surveillance efforts with the University of Alaska Fairbanks by 30 December 2006.

OBJECTIVE 4: Continue operating the farthest north migration station in North America to continue monitoring effects of climate change on migration timing and relative abundance of songbirds migrating through Creamer's Refuge.

OBJECTIVE 5: Conduct a comprehensive analysis of 15 years of CFMS data.

a) Compare abundance estimates and migration timing between the CFMS and Tok migration station *by 30 December 2006*.

b) Evaluate our ability to detect songbird population trends in interior Alaska using pooled migration data from the CFMS and Tok banding station *by December 2006*.

c) Examine variation in the proportion of adults versus juveniles captured, by species, during fall migration at CFMS *by 30 December 2006*.

d) Calculate mean spring and fall passage dates for all species with sufficient sample sizes; evaluate differences in autumn migration timing between adults and juveniles *by 28 February 2007*.

e) Examine inter-annual and long-term trends in abundance and capture rates for species caught at Creamer's Field *by 20 April 2007*.

f) Compile weather data for the 15-year sampling period and prepare for analysis *by 15 June 2007*.

g) Submit annual progress report to ADF&G Partner Program *by 30 August 2007*.

h) Pool CFMS and Tok migration data with that from Camp Denali to determine if this strengthens our ability to detect population trends using migration data *by 30 December 2007*.

i) Determine the influence of weather on capture rates *by 15 January 2008*.

j) Compare CFMS trend data to Breeding Bird Survey results for Alaska *by 28 February 200*8.

k) Present results at the Alaska Bird Conference, *March 2008*.

l) Evaluate whether trends in spring arrival dates relate to changes in average temperature or other factors *by 15 April 2008*.

m) Based on results of analyses, set 2008-2010 research goals for CFMS *by 15 April 2008*. These will likely focus on continued monitoring to document effects of climate change on migration timing, stopover ecology, and range expansion.

n) Prepare manuscripts for publication and submit to journals as appropriate throughout duration of project.

o) Submit final report to ADF&G Partner Program *by 30 August 2008*.

Summary of Accomplishments:

JOB/ACTIVITY 1**:** Move CFMS data from Excel to an Access database and re-proof all banding and recapture records by 30 November 2006.

All CFMS banding data are now located within an Access database, including banding records from fall 2007. However, we are still in the process of re-proofing all banding records. There was just not enough time to proof ~80,000 banding records by 30 November 2006 in addition to other job duties at ABO. In addition, we changed our coding system in Fall 2006, so we are in the process of converting data prior to 2006 into the new system. We anticipate this activity will be finished by the end of 2007.

JOB/ACTIVITY 2: Using data from four migration stations in Alaska, publish a manuscript that examines migration of Wilson's Warblers in Alaska by 30 December 2006.

A manuscript entitled "Differential timing of Wilson's Warbler migration in Alaska" was published in the December 2006 issue of the Wilson Journal of Ornithology. 118:547-551. The authors were: Benson, A-M., B.A. Andres, W.N. Johnson, S. Savage, and S.M. Sharbaugh.

JOB/ACTIVITY 3: Prepare a report on our collaborative Avian Influenza surveillance efforts with the University of Alaska Fairbanks by 30 December 2006.

This collaboration began in the Fall of 2005 and continues to the present. To date, UAF has swabbed ~7,500 birds of 40 species. At this time, no birds were found to have the H5N1 strain of Avian Influenza.

JOB/ACTIVITY 4: Continue operating the farthest north migration station in North America to continue monitoring effects of climate change on migration timing and relative abundance of songbirds migrating through Creamer's Refuge.

We completed spring and fall migration monitoring seasons at CFMS in 2007. The following summarizes each season:

Spring Migration 2007:

- Twenty-six standard mist nets were operated for 6 hours, weather permitting, on alternate days from 23 to 30 April and daily from 1 May – 7 June 2007. Nets were operated for a total of 4,991 hours.
- We captured 978 new and previously banded birds of 32 species—one of the most productive spring banding seasons in CFMS history. The five most abundant newly-captured species include: Common Redpoll (133), Yellow-rumped Warbler (78), Dark-eyed Junco (69), American Robin (54) and Northern Waterthrush (53). These five species represent 62% of all new captures.
- We captured 49 individuals banded in previous years (returns) that represented ~12% of our total captures. Noteworthy migrant returns include a Yellow-rumped Warbler first banded as a juvenile in 2003 and a Dark-eyed Junco banded as an adult in 2003. Noteworthy migrant returns are a Black-capped Chickadee first banded as a juvenile in 2002 and a Gray Jay banded as an adult in 2003.
- For eleven species, capture rates (per 1000 net hours) were the highest ever recorded in CFMS' 16-year history. These species include: Lesser Yellowlegs, Solitary Sandpiper, Wilson's Snipe, Downy Woodpecker, Boreal Chickadee, Black-capped Chickadee, Hammond's Flycatcher, Swainson's Thrush, Bohemian Waxwing, Northern Waterthrush and Dark-eyed Junco. Capture rates for several species were higher in 2006 than for 2005, including Orange-crowned and Yellow Warbler, and American Tree, Lincoln's and White-crowned Sparrow. Several species, including Ruby-crowned Kinglet, Yellow-rumped Warbler and Fox Sparrow showed similar capture rates as last spring. Capture rates of Common Redpolls were the highest they've been in almost 10 years. Unfortunately, 2007 also marked declines in capture rates of several species including: Blackpoll and Wilson's Warbler, and Savannah Sparrow.
- Interesting captures include: 14 Solitary Sandpipers, 7 Lesser Yellowlegs, 5 Bohemian Waxwings, a Wilson's Snipe, a Green-winged Teal, and a SY male Sharp-shinned Hawk.
- The mortality rate at CFMS for the spring was 0.1%, much lower than the accepted rate of 1-2%.

- Trained 2 new banders and 1 intern for CFMS this spring—these staff will continue through the fall season. Held a volunteer orientation session before the spring banding season that was attended by ~30 new and returning volunteers.
- Forty-two volunteers provided 918 hours of assistance—more than double the effort of spring 2006.
- Bird-banding presentations were given to 657 people in 15 groups in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were given to an additional 130 independent visitors.

Fall Migration 2007:

- Thirty-six standard mist nets were operated daily, weather permitting, from 23 July—30 September 2007 for 10,949 hours (one 12m net open for one hour) on 56 days of banding.
- We captured a total of 3,861 birds. Of these, 3,178 birds were banded as first-time captures; the remaining birds were recaptures (518), returning birds from previous years (89) or birds that remained unbanded (76). The most abundant species banded (first-time captures) were Yellow-rumped Warbler (780), Dark-eyed Junco (492), Orange-crowned Warbler (390), Lincoln's Sparrow (278) and American Tree Sparrow (253). Together, these five species comprised 69% of all birds banded.
- We captured a total of 38 species and banded a total of 35 species (we do not band ducks and grouse).
- CFMS captured its first Chipping Sparrow this fall, a Hatch Year (young) bird—providing evidence that this species is likely breeding locally. Mist-netting at CFMS, in addition to incidental observations from local birders, is helping to document the possible range expansion of this songbird species to interior Alaska. Other notable captures were: Green-winged Teal (3), AHY Merlin (1), HY Wilson's Snipe (3), SY American Three-toed Woodpecker (1) AHY Northern Shrike (1), HY Arctic Warbler (2—the first since 1999), and Golden-crowned Sparrow (3).
- Both Alder and Hammond's Flycatchers continue to show a population index decline. In fact, 2007 marks the lowest population index for Alder Flycatcher. I'm not sure if this species is declining or if we're just missing the migration window—these birds may be leaving before daily fall mist-netting occurs. In contrast, Black-capped Chickadees have an increased index—possibly more young of the year are surviving the winter. In contrast, all thrush species (with the exception of Varied Thrush) are showing increased population indices over fall 2006. American Robins experienced the highest population index ever. This species may not be migrating as far south, allowing for a longer breeding season and the potential to raise two clutches. Several warbler species, such as Blackpoll and Wilson's Warbler and Northern Waterthrush, are also showing an increase. Many of the sparrow species, with the exception of Fox Sparrow and Dark-eyed Junco, also experienced an increased population index.
- The mortality rate at CFMS was 0.4%, well below the accepted average of 1-2%.

- This fall, the CFMS staff consisted of three skilled passerine banders and one intern. I hired a third bander for the months of August and September in anticipation of large fallouts similar to what was experienced in fall 2006. Having this many experienced people on staff made up for the lack of volunteers, especially during the months of July and August. I felt the station could be safely run with four trained people.
- Forty volunteers, including 4 youth, contributed 1040 hours of assistance.
- Bird-banding demonstrations were given to 1,028 people in 40 groups in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. At least 380 independent visitors to CFMS were presented with informal banding demonstrations.
- A weather station (Davis Vantage Pro 2) was purchased for CFMS to collect standardized weather at the banding station beginning spring 2008.

JOB/ACTIVITY 5: Conduct a comprehensive analysis of 15 years of CFMS data to:

The following activities are affiliated with a) to e).

Starting in February 2007, we analyzed mean passage dates of both adults and juveniles of 14 species that migrated through CFMS and a migration station in Tok, Alaska from 1993-2006. Annual abundance indices were calculated using daily capture rates (birds captured/1000 net hours) for 11 species from 1996-2004. Because weather is known to affect migration of birds, we incorporated daily weather variables into models to correct for high or low captures that could have been caused by daily weather events. Annual abundance indices were then defined as mean annual capture rates adjusted for covariates. We conducted power calculations to determine the probability of detecting a 50 % linear decline during 25 years and a 50 % decline in 50 years for the same 11 species. This manuscript is nearing completion and will be submitted to the Journal of Wildlife Management.

f) Compile weather data: Weather data has been compiled for fall banding seasons at CFMS. We will compile weather data for the spring seasons as well, using standardized weather data from the Fairbanks International Airport and collected by the University of Alaska, Fairbanks Geophysical Institute (provided by Eric Stevens).

g) Submit annual progress report: An annual progress report was submitted 7 August 2007.

h) CFMS, Tok and Camp Denali data: Since the Camp Denali station is no longer in operation, we are still undecided if these analyses are useful.

i) Weather/capture rates: This job/activity will be fulfilled as time allows.

j) This job/activity will be fulfilled as time allows.

k) Alaska Bird Conference: This job/activity will be fulfilled as time allows.

l) Weather trends: This job/activity will be fulfilled as time allows.

m) Climate change effects: This job/activity will be fulfilled as time allows.

n) Prepare manuscripts: This job/activity will be fulfilled as time allows.

o) Submit final report: This job/activity will be fulfilled.

Significant Deviations: None

Additional Information: None

FEDERAL AID
FINAL PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

GRANT AND SEGMENT NR: T-1-16

PROJECT NUMBER: 6

PROJECT TITLE: Passerine Data Analysis and Monitoring at the Creamer's Field Migration Station

PARTNER: Alaska Bird Observatory (ABO)

PRINCIPAL INVESTIGATORS: Sue Guers (ABO)

COOPERATORS: Jackson Whitman (ADF&G)

PROJECT DURATION: September 30, 2006 – June 30, 2008

REPORT PERIOD: October 1, 2007 – June 30, 2008

I. PROBLEM OR NEED THAT PROMPTED THIS RESEARCH

Landbirds fill important ecological, economic, and aesthetic roles in our environment. Populations of some once-common species have declined at alarming rates in recent decades. Population trend data are used by federal and state agencies to help identify species of conservation interest and to take proactive action aimed at "keeping common species common." Little information is available to adequately gauge the health of Alaska's landbirds. A recent evaluation of the 448 species of landbirds breeding in Canada and the United States revealed that the majority of species breeding in North America's arctic and boreal ecosystems are not adequately monitored by any of North America's monitoring program. This is due to the paucity of surveys north of southern Canada (Bart et al. 2004, Rich et al. 2004). Over a decade ago, Boreal Partners in Flight (BPIF) recognized the lack of data available to assess the health of Alaska's 135 species of breeding landbirds (BPIF 1999). Subsequently, they have spent considerable effort evaluating and refining techniques for monitoring populations of landbirds in the state: Breeding Bird Survey (BBS), Alaska Landbird Monitoring Survey (ALMS), and Landbird Migration Monitoring (Doyle and Andres 1998, Handel 2000, Handel and Cady 2004).

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

The Alaska Bird Observatory (ABO) has operated the Creamer's Field Migration Station (CFMS), a constant-effort mist-netting station located on Creamer's Field Migratory Waterfowl Refuge since 1992. The CFMS is the northernmost migration-monitoring station in North America, and the longest-running station in Alaska and the Yukon Territory. To date, we have captured and banded over 83,000 birds of 76 species, documented the range expansion of several species, published eight manuscripts documenting landbird migration and associated topics

(Benson 2000, Benson et al. 2000, Benson and Winker 2001 and 2005, Benson et al. 2006, Erwin and Shaw 2002, Erwin et al. 2004, Guers 2006), and have developed population indices and trends for a number of species. In addition, hundreds of interns and biologists have been trained to mist-net and band birds. Further, tens of thousands of people—mostly children participating in school field trips—have visited our banding station to learn about Alaska's birds, interact with wildlife biologists, and observe research and wild birds up close.

As well as providing much-needed baseline inventory and life history information of migrating landbird species at Creamer's Refuge, this study also has long-term monitoring implications. Interior Alaska provides a unique opportunity to study species-level responses to the extreme climatic conditions found at high latitudes. In addition, global climate change will be more pronounced at high latitudes (IPCC 2002) and the Western Boreal Forest is subject to one of the fastest changing climates in North America (Saporta et al. 1998, Anderson et al. 1998, NAST 2000). Data collected with this study allows us to examine how long-term climate change affects fattening and molt strategies, juvenile dispersal, phenology of breeding and migration, and survival of adults.

The Fairbanks community has demonstrated overwhelming support for the CFMS since its inception in 1992 by contributing thousands of dollars and a tremendous number of volunteer hours. The CFMS has also financial attracted support from small businesses and corporations throughout Alaska as well as collaborative research with the University of Alaska Fairbanks. This diverse support illustrates the local significance of this project—it is accessible to the public and allows public observation and participation in wildlife research. It also demonstrates ABO's ability to manage a multi-faceted project and prepare timely reports for multiple contracts, grants, and cooperative agreements.

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

OBJECTIVE 1: Move CFMS data from Excel to an Access database and re-proof all banding and recapture records by 30 November 2006.

All CFMS data have been moved from Excel into an Access database and all 83,000+ records have been proofed. The initial completion date of 30 November 2006 was not met due to an under-estimation of the time it would take to complete such a huge task while also completing other duties at ABO. This objective was completed at the end of February 2008. In addition, ABO has initiated a collaboration with Microsoft focusing on developing new software that would make entry and proofing of our banding records an easier and more efficient process. They are excited about our dataset and will begin work on the project 1 September 2008.

OBJECTIVE 2: Using data from four migration stations in Alaska, publish a manuscript that examines migration of Wilson's Warblers in Alaska by 30 December 2006.

A manuscript entitled "Differential timing of Wilson's Warbler migration in Alaska" was published in the December 2006 issue of the Wilson Journal of Ornithology (118:547-551). The authors were: Anna-Marie Benson (ABO), Brad Andres (USFWS), Bud Johnson (USFWS), Susan Savage (USFWS), and Susan Sharbaugh (ABO). A PDF of this manuscript is attached.

OBJECTIVE 3: Prepare a report on our collaborative Avian Influenza surveillance efforts with the University of Alaska Fairbanks by 30 December 2006.

This collaboration with Dr. Jonathon Runstatler of the Institute of Arctic Biology began in the fall of 2005 and continues to the present. As of the end of fall banding season 2007, UAF has swabbed ~5600 birds of 45 species. At this time, no birds were found to have the highly pathogenic strain of the H5N1Avian Influenza virus. The attached table shows the bird species and the total number of swabs taken for each species at CFMS from fall 2005-fall 2007.

OBJECTIVE 4: Continue operating the farthest north migration station in North America to continue monitoring effects of climate change on migration timing and relative abundance of songbirds migrating through Creamer's Refuge.

We completed our 17th spring migration monitoring season at CFMS in June 2008. The CFMS is a constant-effort mist-netting station that has been in continuous operation since 1992. It is located on Creamer's Field Migratory Waterfowl Refuge,-a state game refuge managed by the Alaska Department of Fish & Game. The CFMS encompasses approximately 20 ha which includes a good representation of the common habitat types within the boreal forest of interior Alaska. The station is operated under Permit# 22759 from the USGS Bird Banding Laboratory and following the protocols established in the ABO Creamer's Field Migration Station Operation's Manual (Guers 2007). Incidental observations and weather data are recorded during each day of banding. Our standardized netting protocol uses an array of 34 standard 12-m and two standard 6-m mist nets. Nets are operated daily during spring and fall, weather permitting, and are checked at 30- to 45-minute intervals. Birds are banded with USFWS bands, and data are collected to determine age, body mass, wing length, breeding condition, stage of molt, and body condition. ABO relies on the assistance of local volunteers to aid in station operation. Two to three biologists serve as primary banders-in-charge. Their responsibilities are to mist net and band songbirds, train and supervise interns and volunteers, and provide oversight for good data collection. Two intern/trainees undergo intensive training in bird identification, banding skills, ageing techniques, maintenance of nets, and data collection.

OBJECTIVE 5: Conduct a comprehensive analysis of 15 years of CFMS data.

ABO is in the process of conducting comprehensive analyses of the 16-year dataset from CFMS, now that the data is in one place and proofed. It's now much easier to ask these sorts of questions and analyze the data to do so:

a. Abundance estimates and the comparison of migration timing between CFMS and Tok were completed in May 2007; (see b)
b. Ability to detect songbird population trends in interior Alaska was evaluated using pooled migration data from CFMS and Tok in May 2007; these results are included in a manuscript being prepared for the Journal of Wildlife Management (see attached)
c. Variation in the proportion of adults vs. juveniles of all species captured at CFMS during fall migration was calculated. These data will be incorporated in a manuscript that examines molt and migration strategies of songbirds migrating through CFMS in the fall;
d. Calculation of mean spring and fall passage dates for all species at CFMS is in progress; we are updating the analyses to include spring 2008 data. This data (through 2007) was presented by Sue Guers at the Alaska Bird Conference in March 2008 and the updated analyses will be presented by Sue Guers at the upcoming American Ornithologists' Union meeting in August;
e. Inter-annual and long-term trends in abundance and capture rates for all species caught at CFMS during both spring and fall seasons are analyzed for both the spring and fall

progress reports. These reports were submitted to ADF&G and are also available on the ABO website;

f. CFMS operated for the spring and fall banding seasons in 2007 and during the spring banding season in 2008;
g. Weather data for the spring and fall banding periods has been compiled and used in analyses of both arrival and departure dates. Eric Stevens from the Geophysical Institute at UAF was kind enough to provide those data from the airport weather station;
h. An annual progress report was submitted to ADF&G in August 2007;
i. The CFMS and Tok banding data were not pooled with the Camp Denali banding data due to differences in protocols. Camp Denali operated on a compressed fall banding schedule and did not operate in 2007 and 2008. These data will be used in the future to build an argument supporting a network of migration stations rather than stand-alone stations;
j. As stated in "g", different weather variables are being used to look at differences in capture rates; including Julian date, daily maximum and minimum temperatures, barometric pressure, Mean May temperature, greenup dates, wind speed and precipitation.
k. We have not looked at Breeding Bird Survey data from Alaska as some routes are known to be suspect (as per the USGS website—most of the routes haven't been surveyed long enough to be statistically rigorous; however, future analyses may look at certain routes in comparison with banding data at CFMS;
l. Results and accomplishments of the 16-years of banding at CFMS were presented as a paper by Sue Guers at the Alaska Bird Conference in Fairbanks in March 2008, and a poster will be presented at the American Ornithologists' Union meeting in Portland this August by Sue Guers;
m. Mean arrival dates of spring migrants to CFMS have been updated to incorporate the spring 2008 data, these analyses include Mean May temperature and greenup dates for the area in addition to the designation of migration strategy (i.e. Long-distance vs. short-distance migrants);
n. Spring banding continued and was completed 7 June 2008;
o. ABO's Scientific Advisory Council and the Migration Program Manager will meet in the fall to set 2008-2010 CFMS research goals;
p. Four manuscripts are in preparation and will be submitted for publication in 2009.
    - The first manuscript will address the quality of stopover habitat at CFMS. Data on recaptures (birds caught multiple times in the same year) will be summarized to examine changes in body mass during fall stopovers at CFMS.
    - The second paper will focus on spring and fall departure dates and their correlation with weather events (mean May temperature and greenup dates in Fairbanks 1992-2008 may give insight into the avian response to a changing climate).
    - Molt and migration strategies of our migrants will be addressed in the third manuscript. The patterns seen here at CFMS can be compared to those in the lower 48.
    - The fourth paper will report the range expansion of several species into the interior of Alaska and then explain how landbird migration monitoring helps document these expansions that might have gone unnoticed for many years.
    - Literature searches and analyses for these manuscripts are almost complete; writing will begin after the fall banding season.

q. The final SWG report will submitted to ADF&G by 1 August 2008.

IV. MANAGEMENT IMPLICATIONS

ABO has a 16-year data set from CFMS—the longest-running constant-effort mist-netting station in Alaska and northern Canada. We have accumulated over 83,000 records of banded songbirds. Current funding has enabled us to analyze these data to detect trends in songbird populations and relate them to various environmental cues such as climate change, stochastic weather events, and habitat change. The results of these analyses will be submitted for publication, making them available to land managers, policy makers, and other interested parties. This funding has also allowed us to add several more years of songbird migration data to the existing dataset of migration monitoring and has facilitated the training of eight passerine banders and intern/trainees at the CFMS. The station also attracts volunteers from a wide range of ages, backgrounds, and political viewpoints, which in turn helps build broader community support for the program and for bird conservation.

Conservation of landbird populations requires an understanding of the habitat needs and the demographic mechanisms necessary to sustain viable populations (Martin 1992, Nur and Geupel 1993). These demographic data can often provide early warning signals of problems before actual declines can manifest (Ralph et al. 1993, Hussell and Ralph 2005). Thus, ABO proposes that the landbird monitoring program at the Creamer's Field Migratory Refuge be expanded beginning in May 2009. In addition to the constant-effort mist-netting station, which primarily collects migration data, we will include a regime of nest searching and monitoring, point counts, spot mapping and vegetation assessment. Used alone, these techniques answer only some of the questions regarding population size and trend. Together, these methods will provide much-needed demography and population data for Alaska's boreal forest landbirds.

There is little to no information on the population status and trends of most of Alaska's breeding landbird species. Alaska's Comprehensive Wildlife Conservation Strategy (CWCS) prioritized the need for more effective community and species-specific inventory and monitoring programs for landbirds. These programs establish baseline population estimates for future comparison, identify key areas and habitats for conservation, and detect population declines before species become threatened.

The CFMS project helps to meet Alaska's CWCS recommendations as well as planning goals established by the BPIF (1999); raises the profile of Alaska's CWCS through general interest and professional publications; develops and distributes quantitative information about select landbird species; and continues and enhances citizen-science and education opportunities for residents of Fairbanks.

The CFMS project directly addresses two of Alaska's CWCS primary recommendations. First, a landbird monitoring program at Creamer's Field helps to fill information gaps by collecting baseline inventory and life history information on select species. It also is helping to synthesize and distribute scientific information about species distribution, abundance, and habitat use for non-game species. Second, a landbird monitoring program at Creamer's Field meets the recommendation to conduct long-term monitoring of select species and their habitats and to use this information to monitor the effects of climate change on wildlife and habitats.

V. SUMMARY OF WORK COMPLETED ON JOBS FOR LAST SEGMENT PERIOD ONLY (October 1, 2007 – June 30, 2008)

JOB/ACTIVITY 1A: Move CFMS data from Excel to an Access database and re-proof all banding and recapture records by 30 November 2006.

The initial timeframe given for this objective seriously underestimated the amount of time needed to complete this activity. All banding records were moved into Access and were re-proofed by the end of February 2008. The spring 2008 banding data was entered directly into Access. The dataset contains 83,857 records.

ABO had initiated a collaboration with Microsoft to develop new software that will facilitate easier and more efficient data entry, data proofing, and data queries.

JOB/ACTIVITY 3A: Prepare a report on our collaborative Avian Influenza surveillance efforts with the University of Alaska Fairbanks by 30 December 2006.

This collaboration with Dr. Jonathon Runstatler began in the fall of 2005 and continues to the present. To date, the University of Alaska Fairbanks personnel have swabbed ~5600 birds of 46 species. At this time, no birds were found to have Avian Influenza and all were negative for the Highly Pathenogenic H5N1 strain of Avian Influenza (Table 1).

Table 1. Bird species and number of swabs taken by UAF in monitoring Avian Influenza and H5N1 at Creamer's Field Migration Station, Fairbanks, AK from fall 2005-fall 2007.

Species	Number swabbed (2005-2007)
Alder Flycatcher	26
American Robin	134
American Three-toed Woodpecker	1
Arctic Warbler	1
American Tree Sparrow	625
Black-backed Woodpecker	1
Black-capped Chickadee	227
Blackpoll Warbler	31
Boreal Chickadee	14
Bohemian Waxwing	4
Brown Creeper	1
Chipping Sparrow	1
Common Redpoll	246
Common (Wilson's) Snipe	1
Downy Woodpecker	8
Fox Sparrow	40
Golden-crowned Sparrow	2
Gray-cheeked Thrush	35
Gray Jay	3
Gambel's White-crowned Sparrow	111
Hammond's Flycatcher	124
Hairy Woodpecker	1
Hermit Thrush	72
Hoary Redpoll	1
Lesser Yellowlegs	3
Lincoln's Sparrow	524

Myrtle Warbler	1044
Northern Harrier	2
Northern Waterthrush	143
Northern Shrike	2
Orange-crowned Warbler	437
Pine Siskin	1

JOB/ACTIVITY 4A: Continue operating the farthest north migration station in North America to continue monitoring effects of climate change on migration timing and relative abundance of songbirds migrating through Creamer's Refuge.

<u>October 1, 2007 – June 30, 2008</u>: the following summarizes the spring 2008 banding season (21 April—7 June):

1. Twenty-six standard mist nets were operated for 6 hours, weather permitting, on alternate days from 21 to 30 April and daily from 1 May – 7 June 2008. Nets were operated for a total of 5,445 hours.
2. Total captures were 897 new and previously banded birds. We captured 676 individuals representing 27 species—625 were new captures and 51 were returning birds banded in previous years. Recaptured birds (birds banded this season and re-captured again) comprised the remaining 173 captures. The five most abundant newly-captured species were Common Redpoll (216), Yellow-rumped Warbler (74), Dark-eyed Junco (56), Northern Waterthrush (46) and American Robin (43). These species comprised 70% (435/625) of new captures.
3. Spring 2008 proved to be an excellent season for capturing migrant songbirds. The increase in number of birds captured was due to an abundance of Common Redpolls that had remained in the area longer than normal. Capture rates (per 1000 net hours) of Common Redpolls were the highest in over 5 years. A decrease in the total number of species caught in spring 2008 compared to spring 2007 is due to the decrease in the number of shorebird species caught. There was a decrease in the number of Solitary Sandpipers and we didn't catch any Lesser Yellowlegs or Wilson's Snipe compared to previous years and noted in previous reports submitted to ADF&G documenting these findings. Many warbler species, including Blackpoll, Orange-crowned, Wilson's and Yellow Warbler, showed higher capture rates in 2008 than for 2007 (Table 3). Capture rates for Northern Waterthrush and Yellow-rumped Warbler are to 2007. Capture rates for Gray-cheeked and Swainson's Thrush were the highest in CFMS history; Hermit and Varied Thrush and American Robin capture rates remained comparable to previous years. Declines in capture rates were recorded for several species including Lincoln's and Gambel's White-crowned Sparrow. Capture rates remained stable for Dark-eyed Junco and increased for Savannah Sparrow. Woodpecker, Flycatcher and Chickadee capture rates were unchanged from previous seasons.
4. Interesting captures include: 3 Solitary Sandpipers, a Hairy Woodpecker, a Varied Thrush, 6 Rusty Blackbirds, 4 Hoary Redpolls, and a male Sharp-shinned Hawk.
5. The mortality rate at CFMS for the spring was 0.3%, much lower than the accepted rate of 1-2%.

6. Trained 2 new banders and 1 intern for CFMS this spring—the banders will continue through the fall season. Held a volunteer orientation session before the spring banding season that was attended by ~17 new and returning volunteers and a second training session in July to prepare for the fall season.
7. Thirty-five volunteers provided 571 hours of assistance.
8. Bird-banding presentations were delivered to 478 people (18 groups) in cooperation with the Alaska Department of Fish and Game Creamer's Nature Program. Informal banding demonstrations were presented to an additional 153 independent visitors.

JOB/ACTIVITY 5A: Conduct a comprehensive analysis of 15 years of CFMS data.

a. Variations in the proportion of adults vs. juveniles of all species captured at CFMS during fall migration were examined. These data are being used in a manuscript entitled "An evaluation of autumn mist-netting data for monitoring songbird populations in interior Alaska", in prep, that examines molt and migration strategies of songbirds migrating through CFMS in the fall;
b. Mean spring and fall passage dates for all species at CFMS are being calculated; analyses are being updated to include spring 2008 data. These findings were presented at the Alaska Bird Conference in March and updated analyses will be presented at the upcoming AOU meeting in August;
c. Inter-annual and long-term trends in abundance and capture rates for all species caught at CFMS during both spring and fall seasons are analyzed for both the spring and fall reports. These reports have been submitted to ADF&G and are also available on the ABO website;
d. CFMS was operated for the spring and fall banding seasons in 2007 and during the spring banding season in 2008;
e. Weather data for the spring and fall banding periods has been compiled and used in analyses of both arrival and departure dates. Eric Stevens from the Geophysical Institute at UAF was kind enough to provide those data from the airport weather station;
f. An annual progress report was submitted to ADF&G in August 2007;
g. The CFMS and Tok banding data were not pooled with the Camp Denali banding data due to differences in protocols. Camp Denali operated on a compressed fall banding schedule and did not operate in 2007 and 2008. The data will be used in the future to build an argument supporting a network of migration stations rather than stand-alone stations.
h. Weather variables used to examine differences in capture rates include daily maximum and minimum temperature, average wind speed, daily precipitation, and barometric pressure.
i. I have not yet looked at Breeding Bird Survey data from Alaska. Some routes are known to be suspect (as per the USGS website—most of the routes haven't been done long enough to be statistically rigorous). Once time allows, analysis of BBS routes in Alaska that are statistically rigorous will be compared with CFMS banding data.
j. Results of the 16-years of banding at CFMS were presented as a paper at the Alaska Bird Conference in Fairbanks in March 2008, and a poster will be presented at the AOU meeting in Portland this August;

k. Mean arrival dates of spring migrants are being updated to incorporate spring 2008 data. Mean May temperature and greenup dates for the area will be incorporated into these analyses, along with migration strategy (i.e. Long-distance vs. short-distance migrants);
l. Spring banding continued and was completed 7 June 2008;
m. The Migration Program Manager will meet with ABO's Scientific Advisory Council to set 2008-2010 research goals in the fall of 2008—after the completion of fall banding;
n. Four manuscripts are in preparation and will be submitted for publication by the end of 2008. The first manuscript will address the quality of stopover habitat at CFMS. Data on recaptures (birds caught multiple times in the same year) will be summarized to examine changes in body mass during fall stopovers at CFMS. The second paper will focus on spring and fall departure rates and their correlation with weather events. Mean May temperature and greenup dates in Fairbanks form 1992-2008 may give some insight into the avian response to a changing climate. Molt and migration strategies of Alaska migrants will be addressed in the third manuscript. The patterns seen here at CFMS can be compared to those in the lower 48. The fourth paper will report the range expansion of several species into the interior of Alaska and then explain how landbird migration monitoring helps document these expansions that might have gone unnoticed for many years. Literature searches and analyses for these manuscripts are almost complete; writing will begin after the fall banding season.
o. The final SWG report will be submitted to ADF&G by 1 August 2008.

VI. PUBLICATIONS

Benson, A-M., B.A. Andres, W.N. Johnson, S. Savage, and S.M. Sharbaugh. 2006. Differential timing of Wilson's Warbler migration in Alaska. Wilson Journal of Ornithology. 118:547-551.

A PDF of this manuscript is attached.

Benson, A-M., S.L. Guers, and W.N. Johnson. In prep. An evaluation of autumn mist-netting data for monitoring songbird populations in interior Alaska. For submission to the Journal of Wildlife Management in fall of 2008.

A PDF of the draft manuscript is attached

Abstract for poster being presented at upcoming AOU conference in August 2008:

A SUMMARY OF 16 YEARS OF CONSTANT-EFFORT MIST-NETTING AT CREAMER'S FIELD MIGRATORY WATERFOWL REFUGE, FAIRBANKS, AK.

Susan Guers; Alaska Bird Observatory, PO Box 80505, Fairbanks, AK 99708

Constant-effort mist netting, often in conjunction with other monitoring methods, can be used as a technique during migration to provide estimates of population trend, relative abundance, species composition, and productivity indices for various species. The Alaska Bird Observatory (ABO) has operated a constant-effort mist-netting station at Creamer's Field Migratory Waterfowl Refuge (64º50' N, 147º50' W) since 1992. ABO's Creamer's Field Migration Station (CFMS) is the northernmost migration-monitoring station in North America. To date, we have banded over 65,000 birds (new captures) representing

73 species. The top five species captured include: Yellow-rumped Warbler, Dark-eyed Junco, Orange-crowned Warbler, American Tree Sparrow and Lincoln's Sparrow. In conjunction with our migration study, ABO conducts several environmental education and outreach programs at CFMS. ABO has acquired an incredibly valuable data set through 16 years of consistent operation of CFMS—the longest running constant-effort mist-netting station in Alaska and northern Canada. We are analyzing these data to detect possible trends in songbird populations and timing of migration and relating these parameters to various environmental cues associated with climate change.

VII. LITERATURE CITED

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FEDERAL AID
INTERIM PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-3** **Segment Number: 1**
Project Number: **3.11**
Project Title: Verifying status of the Eskimo curlew (*Numenius borealis*) in Alaska

Project Duration: 1 July 2006 – 30 June 2010
Report Period: 1 July 2006 – 30 June 2007
Report Due Date: September 30, 2007
Partner: Alaska Department of Fish and Game

Project Objectives

OBJECTIVE 1: Attempt to confirm or refute the existence of the Eskimo curlew at a reported nesting site in western interior Alaska.

JOB/ACTIVITY A: For a 4-6 day period in each of the 4 years of the project, access a different alpine tundra "sky-island" in the Kuskokwim Mountains system. Access will be by helicopter. Each of the selected areas will be surveyed on foot in an attempt to find Eskimo curlews.

Summary of Project Accomplishments

OBJECTIVE 1:

JOB/ACTIVITY A: During the period 22-27 June 2007, I surveyed Bitzshtini Mountain for presence of Eskimo curlews (*Numenius borealis*). Access to the area was facilitated by helicopter (Robinson R-44, Chena River Aviation, pilot T. Cambier). Base camp was situated at 64.4313N, 151.9641W at 750m elevation, and provided reasonable foot travel access in all directions to alpine areas. Weather was uncooperative, with frequent rain squalls, periodic high winds, and mountain obscurations due to low clouds. However, periodic breaks in the weather allowed foot travel, and approximately 68 km were traversed. I was retrieved from the field on 27 June 2007.

No curlews were seen. No attempt was made to broadcast recorded curlew calls, as winds were generally thought to interfere with sound transmission.

Prepared By: Jackson S. Whitman

FEDERAL AID
INTERIM PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-3** **Segment Number: 1**

Project Number: **3.11**

Project Title: Verifying status of the Eskimo curlew (*Numenius borealis*) in Alaska

Project Duration: July 1, 2006 – June 30, 2010

Report Period: July 1, 2007 – June 30, 2008

Report Due Date: September 30, 2008

Principal Investigator: Jackson Whitman, Alaska Department of Fish and Game

Project Objectives

OBJECTIVE 1: Attempt to confirm or refute the existence of the Eskimo curlew at a reported nesting site in western interior Alaska.

JOB/ACTIVITY 1A: For a 4-6 day period in each of the 4 years of the project, access a different alpine tundra "sky-island" in the Kuskokwim Mountains system. Access will be by helicopter. Each of the selected areas will be surveyed on foot in an attempt to find Eskimo curlews.

Summary of Project Accomplishments

OBJECTIVE 1:

Job/Activity a: During the period 1 July 2007 – 30 June 2008, no field work was completed on this project. Personnel were not available during the spring (June) field season.

Prepared By: Jackson S. Whitman

FEDERAL AID
FINAL PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-3** **Segment No. 1**

Project Number: **3.11**

Project Title: Verifying status of the Eskimo curlew (*Numenius borealis*) in Alaska

Project Duration: July 1, 2006 – June 30, 2010

Report Period: July 1, 2007 – June 30, 2009

Report Due Date: September 30, 2009

Partner: Alaska Department of Fish and Game

I. PROBLEM OR NEED THAT PROMPTED THIS RESEARCH

Currently, both the State of Alaska, Department of Fish and Game Endangered Species List and the federal (USFWS) Endangered Species List suggest that the Eskimo curlew (*Numenius borealis*) is close to extinction, existing, if at all, only at extremely low numbers. In March 1967, they were officially designated as Endangered throughout their entire range. Numbers declined precipitously in the latter part of the 19th century in response to changing habitat and uncontrolled market hunting. From 1905-1945, Eskimo curlews were believed to be extinct. However, between 1945 and 1995, 68 sightings, including one specimen and two photographs, were recorded. A collection of photos was taken in March 1962 near Galveston, Texas. There are reports of individuals and pairs of Eskimo curlews seen on breeding grounds in the Northwest Territory of Canada during the past 10 years, but these sightings have remained unconfirmed. Because of extremely low populations, efforts should be made to verify reports of its existence.

In summer 1989, a report of Eskimo curlews nesting in a remote and largely inaccessible area north of McGrath was received. Because of access difficulties and conflicting time constraints, no effort was expended to confirm or deny this report until 2003, at which time, no confirmation was made.

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

We are aware of only one recent research project in Alaska investigating the presence of Eskimo Curlews. During the period 7-10 July, 2003, an 18.5 mi^2 segment of the northwest quadrant of the Sunshine Mountains in Central Alaska was surveyed on foot for presence of Eskimo curlews by J. Whitman, ADF&G Nongame Biologist. During the 4-day period, a total of 48.4 miles was traversed, through a variety of upland habitats, ranging from wet sedge meadows to dry alpine tundra and rocky, mountainous terrain. No Eskimo curlews were found.

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

OBJECTIVE 1: Attempt to confirm or refute the existence of the Eskimo curlew at a reported nesting site in western interior Alaska.

During the period 22-27 June 2007, J. Whitman, ADF&G Nongame Biologist, surveyed Bitzshtini Mountain near Lake Minchhumina in central Alaska for the presence of Eskimo curlews. J. Whitman accessed the area with a Robinson R-44 helicopter and hiked on foot daily from a base camp situated at 64.4313N, 151.9641W. Weather was uncooperative, with frequent rain squalls, periodic high winds, and mountain obscurations by low clouds. However, periodic breaks in the weather allowed foot travel, and approximately 68km were traversed over the course of 5 days looking and listening for Eskimo Curlews. No Eskimo Curlews were found.

In 2008, J. Whitman retired from his position and T. Booms replaced him in January 2009 as the Nongame Biologist for Regions III and V in Alaska and inherited this project. After detailed review of this project. the results from the 2007 field work, and discussions with leading experts on Eskimo Curlews, it was determined that it was highly unlikely that Eskimo Curlews persist in Alaska and that further field work is not warranted given other conservation priorities. If Eskimo Curlews do persist, search efforts should focus on areas where they had been documented breeding, which is outside of Alaska. Therefore, T. Booms made the decision to end this project sooner than planned.

IV. MANAGEMENT IMPLICATIONS

Our findings are consistent with the current belief that the species is likely extinct. Though it is impossible to confirm a negative finding, our results support this conclusion. If further surveys for this species are desired, they should be conducted within the species historical breeding range (Canada) or on its historical wintering range (Southern USA) where the odds of finding the species, if extant, are greater.

V. SUMMARY OF WORK COMPLETED ON JOBS FOR LAST SEGMENT PERIOD ONLY (July 1, 2008 – June 30, 2009)

JOB/ACTIVITY 1A: For a 4-6 day period in each of the 4 years of the project, access a different alpine tundra “sky-island” in the Kuskokwim Mountains system. Access will be by helicopter. Each of the selected areas will be surveyed on foot in an attempt to find Eskimo curlews.

No field work occurred within this reporting period because J. Whitman retired from his position in April 2008 and T. Booms was not hired until Jan. 2009.

VI. PUBLICATIONS

None.

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-3** **Segment Number: 1**

Project Number: **4.12**

Project Title: Assessing the value of Alaska state lands for an imperiled species, the Rusty Blackbird

Project Duration: April 1, 2008 – June 30, 2011

Report Period: April 1, 2008 –March 31, 2009

Report Due Date: June 30, 2009

Partner: Alaska Department of Fish and Game

Project Objectives:

OBJECTIVE 1: Identify habitat types important for supporting high Rusty Blackbird densities and reproductive success.

JOB/ACTIVITY 1A: Identify sites that have high potential for supporting breeding Rusty Blackbirds (i.e., wetlands with open water and tall shrubs or trees), and that are accessible by road or boat, or easily on foot.

JOB/ACTIVITY 1B: Conduct surveys at selected sites for presence of Rusty Blackbirds.

OBJECTIVE 2**:** Identify structural and floristic features selected for nest sites within territories and how these are linked to reproductive success.

JOB/ACTIVITY 2A: Record data on characteristics of nest microsites.

JOB/ACTIVITY 2B: Record data on characteristics of nest areas and habitat.

OBJECTIVE 3**:** Identify factors limiting reproductive success such as low rates of mate pairing, high densities of predators, low egg viability, or high rates of nest predation.

JOB/ACTIVITY 3A: Intensively monitor nests for data on reproductive success.

JOB/ACTIVITY 3B: Estimate distances to birds and potential nest predators to correct our counts of each species for incomplete detectability.

OBJECTIVE 4**:** Determine if concentrations of contaminants in eggs and nestlings are at levels of concern.

JOB/ACTIVITY 4A: Analyze nestling blood samples from a random subset of 10 nestlings (5 Anchorage area, 5 Fairbanks area) for mercury. Other samples of blood will be archived for future analyses.

JOB/ACTIVITY 4B: Collect and sample unhatched eggs for contaminants.

OBJECTIVE 5**:** Determine the incidence of avian influenza among Rusty Blackbirds.

JOB/ACTIVITY 5A: Collect feces from nestlings and test for avian influenza.

OBJECTIVE 6**:** Determine linkages between breeding and wintering populations using stable isotopes.

JOB/ACTIVITY 6A: Collect feathers, measure stable isotope ratios, and compare with similar samples collected across the species' range to establish linkages between breeding and wintering populations.

Summary of Project Accomplishments:

OBJECTIVE 1:

JOB/ACTIVITY 1A:

We used satellite images and aerial photographs, combined with GIS layers of wetlands and infrastructure to identify and select survey units based on habitats where rusty blackbirds were likely to occur. In study areas which had been surveyed in previous years, we determined to focus efforts on survey units in which Rusty Blackbirds were detected previously.

- We identified the likely habitats through a review of the scant habitat information available on the species' nesting preferences in Alaska (Steve Matsuoka, unpublished report).
- We identified locations where rusty blackbirds have been known to occur in the past by reviewing all previous records of rusty blackbird observations as compiled by the Alaska Natural Heritage Program, (University of Alaska Anchorage) and the Alaska eBird Portal (Alaska Department of Fish and Game, Audubon, and Cornell Lab). We put out a general call for past and present rusty blackbird observations to local birding groups such as the "Mat-Su Birders," and collected the dates and locations of all available observations.
- We reviewed satellite and aerial photographs (including free images available through sources such as Google Earth ®) of potential study sites around south-central Alaska and other parts of the state (Kenai Peninsula, Anchorage Bowl, Matanuska-Susitna Valley, Tetlin National Wildlife Refuge, Copper River Delta, Yukon Flats National Wildlife Refuge, Minto Flats).
- A review of the above information demonstrated that the types of wetlands occupied by rusty blackbirds differed according to local geography. We determined that survey units would be defined and selected differently in various study areas. In study areas consisting of uplands with discreet and isolated wetlands, survey units would be all freshwater bodies and wetlands with emergent vegetation (especially those > .5 ha) plus a 75-m buffer around each. In study areas consisting mostly of floodplains and nondiscreet waterbodies and wetlands, survey units will be defined by 500-m x 500-m grids that are covered by >20% freshwater bodies or wetlands with emergent vegetation.

We selected specific study units based on the above processes in the following six study areas:

- Yukon Flats National Wildlife Refuge, near Fort Yukon, Alaska (YUK)
- Tanana Flats at Fort Wainwright, Fairbanks Alaska (TAN)
- Tetlin National Wildlife Refuge, near Tok, Alaska (TET)
- Nancy Lakes State Recreation Area, near Willow, Alaska (NAN)
- Ft. Richardson and Elmendorf Air Force Base, Anchorage, Alaska (ANC)
- Chugach National Forest, Copper River Delta, near Cordova, Alaska (CRD)

We convened or attended several meetings to isolate specific hypotheses and determine the research objectives necessary to understand and reverse the decline of this species of concern.

- We attended two meetings of the International Rusty Blackbird Technical Working Group (IRBTWG) to refine and coordinate research needs and objectives. The first IRBTWG meeting was held at the 4th International Partners in Flight Conference in McAllen, Texas, February 13-16, 2008; the second at the Powdermill Avian Research Center, October 8-12, 2008.
- December 11, 2008 we convened a meeting in Anchorage among Alaska cooperators and stakeholders to agree on research priorities and probable study sites.

January 2009: I wrote the coordinated study plan for Rusty Blackbird research in Alaska.

February- March 2009: I developed the specific project protocols for the Alaska research.

January-March 2009: I coordinated research activities and personnel needs with collaborators and I began purchasing equipment.

JOB/ACTIVITY 1B:

All other Objectives and Job Activities are addressed in the course of field work, which did not commence until April 2009, which is after the end of this current reporting period. Accomplishments towards meeting these objectives will be reported during the next reporting cycle.

OBJECTIVE 2**:**

JOB/ACTIVITY 2A:

No progress.

JOB/ACTIVITY 2B:

No progress.

OBJECTIVE 3**:**

JOB/ACTIVITY 3A:

No progress.

JOB/ACTIVITY 3B:

No progress.

OBJECTIVE 4**:**

JOB/ACTIVITY 4A:

No progress.

JOB/ACTIVITY 4B:

No progress.

OBJECTIVE 5**:**

JOB/ACTIVITY 5A:

No progress.

OBJECTIVE 6**:**

JOB/ACTIVITY 6A:

No progress.

Prepared By: David F. Tessler

Alaska Department of Fish and Game
State Wildlife Grant
ANNUAL INTERIM PERFORMANCE REPORT

Grant Number: T-1 **Segment Number:** 6
Project Number: 5
Project Title: Distribution and seasonal habitat use of American dippers
Project Duration: July 1, 2004 – June 30, 2006
Report Period: July 1, 2004 – June 30, 2005
Report Due Date: September 30, 2005

Objectives (*as submitted in grant project statement*):

1. Determine distribution of American dippers in the Juneau area with respect to watershed and stream characteristics in nesting and wintering seasons;
2. Evaluate the limits to local dipper population size.

Summary of Accomplishments *(Describe accomplishments related to the work that was proposed to be done during this same period in the Project Description and work schedule)**:***

The following accomplishments are related to Objective 1.

1. In the 2004 breeding season, 30 birds were colorbanded for the purpose of determining distribution and seasonal habitat use. Nine of these were resighted during the winter surveys; 10 were not seen during winter but appeared on nesting territories in spring 2005. 19 previously banded birds (including some banded in 2003) initiated nests in 2005; none moved to a different watershed, but some changed territories within a watershed. The estimated "apparent" annual mortality rate was about 50%.

2. Surveys for wintering dippers were conducted on the intertidal deltas and upper reaches of 7 local stream systems. Unbanded dippers were found on most of these steams; banded dippers were found only on Switzer Creek. Switzer is a tiny, spring-fed creek that does not freeze in winter; it appears to provide important winter habitat for 8 – 10 dippers, and will be critical for the conservation of local dipper populations. Dipper use of intertidal areas for winter habitat and marine prey has not been reported by previous studies.

3. By the end of June 2005 20 local streams were searched, and 39 nests located. Monitoring efforts for nesting success are ongoing.

4. An additional 28 adults were banded in 2005.

5. Digital images were made of all nest sites and will be used to quantify site characteristics; these are entered into a nest catalog along with nest location, nest fate, and band information for the associated adult dippers. In addition, data on stream gradient, vegetative cover, streamflow, stream substrate, water temperature and pH were collected for a 400m core of each nesting territory.

6. Preliminary results from this study were presented to students in a seminar at University of Alaska, Southeast. Two UAS classes have participated in the project: one focused on streamflow and dipper occupation, the other on the in-stream transition between stream insects and marine amphipods.

Objective 2 accomplishments:

Based on a preliminary assessment, dipper limiting factors are clearly complex, and include more than the availability of nest sites as reported in the scientific literature. USGS equations were used to relate watershed size, elevation, and precipitation to estimated streamflow. While not precise, they clearly show that the smaller streams are not occupied by nesting dippers (though they still may be used in winter). Sampling of benthic insects in occupied and unoccupied streams in 2004 showed that the average density of prey was significantly less in unoccupied streams. In addition, because the unoccupied streams are smaller, there is also less substrate area for prey. Both factors combine to produce lower prey availability in the unoccupied, smaller streams. However, lack of suitable nest sites on some larger streams may indeed preclude occupation by nesting dippers, and anthropogenic provision of nest sites (on I-beams under bridges, in old wooden dams) may allow nesting on stream reaches that would otherwise be unoccupied. In 2005, several territories that are known to have been used successfully in previous years were vacant, as were several others that had occasional use in the past. This suggests that there were insufficient birds to fill all the available nest sites.

Significant Deviations *(if any, and explain the reasons for these):*

None

Actual Costs during this Report Period *(personnel plus all operating expense totals)*:

Federal (from ADF&G):	Partner (nonfederal share):
$49,284.96	$16,428.32

Project Leader *(or Report Contact Person)*: Mary Willson

Additional Information: *(Not required. Add any additional detail, if desired, related to the progress of the project)*:

This project cooperatively provided information on body mass, wing length, and tail length of Alaska dippers to the USGS office for the Black Hills to be used in their process for listing the Black Hills dipper populations as threatened or endangered.

Alaska Department of Fish and Game
State Wildlife Grant
ANNUAL INTERIM PERFORMANCE REPORT

Grant Number: **T-1** **Segment Number:** **6**
Project Number: **5**
Project Title: Distribution and seasonal habitat use of American dippers
Project Duration: June 7, 2004 – December 31, 2006
Report Period: July 1, 2005 – June 30, 2006
Report Due Date: September 30, 2006
Partner: Willson Ecological Consulting

Objectives:

1. Determine distribution of American dippers in the Juneau area with respect to watershed and stream characteristics in nesting and wintering seasons;
2. Evaluate the limits to local dipper population size.

Summary of Accomplishments:

Objective 1:

1. During the last portion of the 2005 breeding season, we continued monitoring dipper nests that had been found earlier. Four additional adult birds were banded.
2. The density of benthic insects was sampled in numerous streams in summer of 2005, in order to compare potential food availability in streams occupied and unoccupied by dippers. Average density is lower in unoccupied streams, but overlap in density is substantial.
3. Average minimum seasonal streamflow for most Juneau streams was estimated using a USGS formula based on watershed area, estimated precipitation, and elevation, in order to relate dipper occupancy to stream size. Combining prey density with estimated stream size indicates a greater overall abundance of prey in larger streams.
4. During the 2005-2006 winter, we searched for marked birds in estuaries and open reaches of several streams. Of 56 possible marked birds alive during the previous breeding season, 21 (38%) were resighted. Several birds were recorded to visit more than one location during the winter, indicating extensive local (and possibly regional) movements.
5. Dippers foraging in estuaries in winter consume large numbers of amphipods, which contain markedly less lipid than benthic insects, on average. Foraging on amphipods is not previously recorded for American Dippers, as far as I can determine.
6. Nests found in 2006 (N = 41) will be added to the nest catalog, as described in the previous interim report. Thirty-five additional birds have been banded by the end of June, 2006. I intend to resight as many as possible this coming winter and spring, even though this contract will be ended.
7. Of 56 possible marked birds alive during the previous breeding season, 19 (34%) were found on nesting territories in 2006, suggesting an apparent overwintering mortality of 66%. Six pairs consisted of the same individuals on the same territories as last year.
8. As of the end of June, 2006, at least 7 (of 40) nests apparently failed to fledge young. Three renesting attempts (following failure) have so far been recorded (not documented in previous years).

Objective 2: The literature emphasizes nest sites as the most important limiting factor for American dippers, with food supply receiving a secondary mention. Dippers certainly use anthropogenic structures (bridges, old dams) for nest sites, sometimes on stream reaches that would otherwise be unoccupied. It is also clear, however, that nesting dippers do not usually occur on streams smaller than a certain size (by the USGS equation), indicating that the abundance of benthic insects may help regulate their distribution. In addition, several nesting territories that were occupied in 2005 are vacant in 2006, suggesting that there are more potential nest sites than there are birds to occupy them. Nevertheless, judging from from midseason mate-changes (not seen in previous years), it appears that there are some 'floaters' in the population, either unmated birds or birds whose initial nesting attempt failed.

The factors that limit dipper distribution in winter remain unclear. Streams that remained ice-free for long periods nevertheless harbored no dippers, showing that ice-free water is not the only factor limiting their distribution (contrary to some statements in the literature).

General objective:
Preliminary results from this study have been presented (in spring of 2006) to 1) the Alaska Bird Conference, held in Juneau; 2) a class in behavioral ecology at University of Alaska-Southeast; 3) a training session for interpreters at the Mendenhall Glacier Visitor Center.

Significant Deviations

1. None.

Actual Costs during this Report Period *(personnel plus all operating expense totals)*:
(Reported costs included ADF&G indirect calculated at 13.5%)

Federal (from ADF&G):	Partner (nonfederal share):
$22,699	$7,566

Project Leader *(or Report Contact Person)*: Mary F. Willson

Additional Information:

1. Is this project contributing samples to the Alaska Avian Influenza detection effort? _no____
2. Do you anticipate having any unspent funds at the end of the project? __no___

FEDERAL AID
FINAL PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-1** **Segment Number:** **6**
Project Number: **5**
Project Title: Distribution and seasonal habitat use of American dippers
Project Duration: June 7, 2004 – December 31, 2006
Report Period: July 1, 2006 – December 31, 2006
Report Due Date: March 31, 2007
Partner: Willson Ecological Consulting

Project Objectives

1. Determine distribution of American dippers in the Juneau area with respect to watershed and stream characteristics in nesting and wintering seasons;
2. Evaluate the limits to local dipper population size.

Summary of Project Accomplishments for entire project

Objective 1: Over 3 field seasons (2004-2006), we surveyed about 40 streams for breeding dippers (25 were occupied), found 110 nests, and banded 101 adult dippers. Occupied streams were larger (estimated 90% streamflow exceedance >0.3 cfs) and had a higher average density of benthic invertebrates (21 stream reaches, densities up to 250+ per sample) than unoccupied streams (10 stream reaches, densities up to 150 per sample); small streams were not occupied even if apparently suitable nest sites were available. Some pairs nested on glacial streams. In winter, dippers moved around and could be found on virtually any stream; they also commonly foraged in deltas, chiefly on amphipods (densities up to 700/sample). There were no mortalities from capture activities.

Objective 2: A top limit to abundance of breeding dippers appears to be set by the availability of nest sites on streams above a minimum size (an inferred food limitation). Within this limit, winter mortality can reduce numbers such that not all territories are occupied in a given year. In addition, territorial aggression is capable of limiting density.

Project Accomplishments during last segment period only (July 1, 2006 – December 31, 2006)

Objective 1: Continued to monitor 2006 nests for fledging success, banded two more adults, searched for banded birds in winter (so far have resighted 14). There were no mortalities from capture activities.

Objective 2: See above. By continuing the project through next spring (without the benefit of ADF&G funding), we will obtain more information on winter mortality and annual survival, territory occupancy, and nesting ecology.

Significant Deviations: none

Project Leader: Mary F. Willson

Additional Information:

Outreach: Seminar at University of Alaska-Southeast, participation by 2 UAS classes and several volunteers, shared data with USGS office in Black Hills (by request), presentation to Alaska Bird Conference 2006, training session for USFS interpreters at Visitor Center; invited to present talk to bird group in Sitka (scheduled for Feb 2007), recently contacted by 2 writers in Fairbanks and Anchorage for source material.

Although all SWG funds have been expended on this project, the partner has extended its contract with ADF&G to further analyze data from existing marked birds and write a comprehensive report on the study. Work is expected to be completed by December 2007.

FEDERAL AID
FINAL PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

GRANT AND SEGMENT NR: **T-4-1**

PROJECT NUMBER: **2**

PROJECT TITLE: American Dipper nesting ecology. Part 1: Phenology patterns and distribution in an exceptional year; Part 2: Bird blowfly infestations in nests

PARTNER: Willson Ecological Consulting

PRINCIPAL INVESTIGATORS: Mary F. Willson

PROJECT DURATION: July 1, 2007 – June 30, 2008

REPORT PERIOD: July 1, 2007 – June 30, 2008

I. PROBLEM OR NEED THAT PROMPTED THIS RESEARCH

Part 1. Phenology patterns and distribution. The winter of 2006-07 had record levels of snowfall, and snow (with associated cool temperatures) is still present (as of 10 June) in many places above 200m. The unusual winter and early spring is having noticeable effects on the dipper population. The developing breeding season of 2007 is clearly exceptional in a number of ways that influence the interpretation of distribution, abundance, and factors that control breeding population size. Although some annual variation in nesting phenology is normal and expected, the 2007 season is exceptionally late overall (by several weeks). Nest initiation is far more protracted than usual, with a few broods already hatched while other nests are just being built, and many traditional territories (used successfully in previous years) remain unoccupied as of 10 June, especially at higher elevations. An unusually high proportion of nests that were initiated early this year have already failed. And several banded birds that nested successfully at higher elevations in previous years are nesting near sea level this year.

The unusual phenology in spring 2007 provides an opportunity for several instructive comparisons. First, the nesting season is likely to extend farther into late summer than usual, giving us the chance to determine nest success at that season. More importantly, if traditional territories continue to be unoccupied, this informs our understanding of dipper distribution and the factors that limit the breeding population by documenting the impact of weather. It therefore also would mean that accurate use of nesting dipper presence or absence as an indicator of stream quality should take into account the effects of weather on population distribution.

As Stephen Jay Gould (1980) once noted, "It is the exception that probe the rule, by testing and exploring its consequences in altered situations." The 2007 nesting season is exceptional and offers significant new insights into dipper ecology.

Part 2: Bird blowfly infestations. In the summer of 2006, we examined nest contents after broods had fledged and learned that many nests were infested with bird blowflies (Protocalliphoridae). Almost nothing is known about bird blowflies in Alaska (Terry Whitworth, Adjunct Professor of Entomology, Washington State University, pers. comm.), but high infestations of these parasites can sometimes cause nesting failure, especially when avian foraging conditions are poor (e.g., Rogers et al. 1991, Sabrosky et al. 1989).

In 2007, I intended to examine nests after the chicks have fledged to assess the frequency and levels of blowfly infestations.

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

Research supported by the previous contract strongly suggested that apparent annual mortality of adult dippers was markedly greater in colder winters, leading to increased levels of territory vacancy and decreased abundance. Nest success was low in a cold spring. (see abstract below) Territory occupancy in 2008 was greater than in 2007, presumably reflecting the good nest success in 2007, but adult survival was relatively low again, and overall occupancy level remained below that of the first 3 years of the study. Nesting phenology in 2007 was delayed by > two weeks compared to most previous yrs.

In the breeding season of 2006 we learned that several dipper nests were infested with parasitic bird blowflies, which apparently contributed to nest failure in some cases. Our intent was to further investigate the impact of blowflies on chick survival. In 2007, however, we found no blowflies in nests. In June 2008, we found a nest in which all chicks died, apparently from a very high level of blowfly infestation.

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

OBJECTIVE 1: Continue documenting nest phenology and nest success on Juneau streams in 2007 to determine the impact of weather on dipper distribution and nest success.

In 2007, we located and monitored the nests of 24 pairs of dippers. Nest success was high (see below), although a cold spring resulted in delayed nesting.

OBJECTIVE 2: Document frequency and levels of bird blowfly infestations in nests.

In 2007 we found no blowflies in any of 15 nests that were inspected. Because dippers customarily remove nest linings after nesting, however, it is possible that low levels of blowfly infestation would be missed. In June 2008, however, one nest contained three dead chicks and over 300 bird blowfly larvae.

IV. MANAGEMENT IMPLICATIONS

See Abstracts. Research possibilities for the future:

a. Document extent and frequency of bird blowfly infestations in dippers, and in other cavity nesting birds. Include effects of weather. Assess effects on chick growth and survival.

b. Assess effects of fish on chick growth and survival, and on adult body condition.

c. Continue to document effects of winter weather on overwinter survival of dippers, and consequent effects on territory occupancy.

V. SUMMARY OF WORK COMPLETED ON JOBS FOR LAST SEGMENT PERIOD ONLY (July 1, 2007 – June 30, 2008)

JOB/ACTIVITY 1A AND 1B: Continue to search for nests and monitor nesting activity through the 2007 season.

We monitored 24 pairs of dippers in 2007 and monitored nest phenology and success. Four pairs lost their first brood and renested. Overall (including renests) 92% (N=22) pairs raised nestlings successfully, despite the delayed starts. A male whose mate disappeared during the early nestling period raised chicks successfully in June 2008. All nest locations were mapped in GIS. To fully understand the distribution and abundance of dippers on local streams, including their ability to rebound after a population crash, it would be useful to know more about chick growth and survival, which would require regular access to nests and weighing and banding of the nestlings.

JOB/ACTIVITY 1C: Analyze data, making comparisons to previous three years.

This level of nest success is comparable to most previous years (except 2006, which had low nest success), but renesting was fairly common. Knowledge of chick growth and survival would be useful.

JOB/ACTIVITY 2A: Collect nest linings after fledging and count blowfly puparia. Send specimens to Dr. Whitworth for identification.

We collected nest linings for 15 nests, none of which had birdblowfly larvae or puparia in 2007. One nest in June 2008 had numerous blowfly larvae; specimens sent to Dr. Whitworth, who said they were probably *Protocalliphora aenea*, as in a previous year. Little is known about bird blowflies in Alaska, although they infest several cavity-nesting species. It would be useful to know how commonly they parasitize our species, under what conditions, and to assess their impact on nest success.

JOB/ACTIVITY 2B: Summarize and report findings. The 2007 results were included in the following mss.

VI. PUBLICATIONS

Mary F. Willson and Katherine M. Hocker. in press. NATURAL HISTORY OF NESTING AMERICAN DIPPERS (*CINCLUS MEXICANUS*) IN SOUTHEASTERN ALASKA. Northwestern Naturalist.

ABSTRACT--We studied American Dippers nesting near Juneau, AK, for 4 years. Few dippers in our area live long enough to breed in 3 or more seasons. The nest exterior is composed of a variety of moss species. Nest success ranged from 62% to 87% of first nesting attempts and was lowest in a cool, wet spring. Nesting phenology was delayed in

years with cool, wet springs, at higher elevations, and on lowland stream reaches that supported few fish. Second broods were uncommon, but were most often reared when 1st broods were early and on stream reaches with ready access to small fish. Hourly chick-feeding rates varied widely, from 0-35 trips/hr. Fish were delivered to some nests, up to 17 fish/hr per nest, especially by female parents. In a few cases, a female nested with the same male, successfully, in 3 successive years. Most changes of mate and territory were associated with the disappearance of one member of a pair, and all changes of territory occurred within the same watershed. Females that lost their mates after egg-laying were capable of rearing a brood alone. Some nests were infested with bird-blowflies (Protocalliphoridae). Dippers commonly removed nest lining after fledging of the first brood; this behavior can be a good predictor of nest success in the absence of direct observation.

Mary F. Willson and Katherine M. Hocker. in review. Distribution and Abundance of Nesting American Dippers (*Cinclus mexicanus*) near Juneau, AK, and Their Use as Indicators of Stream Quality.

ABSTRACT--We studied American Dippers (*Cinclus mexicanus* Swainson) near Juneau AK from 2004 through 2007. Several factors combine to limit local distribution and abundance of dippers in our area, including stream size and food abundance, nest sites, and territorial aggression; mortality can reduce abundance below the levels set by the other factors and result in unoccupied streams. Dippers nested only on streams with an estimated stream-flow in summer exceeding 0.3 cfs, and regularly nested only where this flow exceeded 0.9 cfs, even when apparently suitable nesting sites were present. Larger streams provided a greater abundance of benthic insects. Although most territories were centered on typical fast, fairly high-gradient, rocky stream reaches, a few were centered on low-gradient reaches with sandy substrate, which was made possible by the presence of anthropogenic nest sites. Overwinter mortality was high in two years, reducing the number of occupied territories to about half of its previous level. Dippers often decrease in abundance on polluted streams, but the use of their abundance as an indicator of stream quality must also account for other sources of mortality.

Mary F. Willson and Katherine M. Hocker. in press. AMERICAN DIPPERS WINTERING NEAR JUNEAU, ALASKA. Northwestern Naturalist.

ABSTRACT—American Dippers (*Cinclus mexicanus*) in winter often foraged in habitats not used for nesting, including deltas of coastal creeks, and occasionally ponds, tiny streams, and ditches. The birds migrated altitudinally, at least 12 crossed a saltwater channel, and some apparently made wider, regional movements (5-50% of banded birds, with annual variation). In 2 relatively severe winters, we resighted fewer banded birds (<40% vs >65%) and annual survival was lower (<40% vs >50%), compared to 2 relatively mild winters. Birds foraging in the intertidal zone on deltas preyed on amphipods (low fat content) and fish, but this habitat was unavailable at high tide.

Alaska Department of Fish and Game
State Wildlife Grant
ANNUAL INTERIM PERFORMANCE REPORT

Grant Number: T-1 **Segment Number:** 6
Project Number: 7
Project Title: Breeding ecology and habitat quality for arctic warbler in Interior Alaska
Project Duration: July 1, 2004 – June 30, 2007
Report Period: July 1, 2004 – June 30, 2005
Report Due Date: September 30, 2005

Objectives (*as submitted in grant project statement*):

1. Document Arctic Warbler breeding chronology, productivity, territory size, and site fidelity; and
2. Develop a hierarchical model of habitat quality for the Arctic Warbler in Interior Alaska.

Summary of Accomplishments *(Describe accomplishments related to the work that was proposed to be done during this same period in the Project Description and work schedule)**:***

The following accomplishments relate to Objective 1:

2004 Field Season

1. Found and monitored 24 nests; recorded number of eggs, nestlings, and fledglings to document breeding chronology and productivity. Average clutch size = 5.2 eggs (sd=1.00, range 3-7), mean brood size = 4.5 (sd= 1.2, range 2-6), productivity = 4.1 nestlings/nest (sd = 1.7, range 0-6) and nest success was 92%.
2. Banded 22 adults with USFWS bands and color bands to help determine territory size and site fidelity.
3. Banded 48 nestlings with USFWS bands to determine natal site fidelity in upcoming field seasons.

2005 Field Season

1. Recorded the first male singing on 7 June.
2. Found and monitored 27 nests (an additional 12 were found in July 2005); recorded the number of eggs and nestlings to document breeding chronology and productivity. Analysis will be completed at the end of the field season.
3. Banded 46 adults (through 22 July 2005) with USFWS bands and color bands to help determine territory size and site fidelity.

The following accomplishments relate to Objective 2:

2004 Field Season

1. Collected vegetation data within a circle (10 meter radius) with the nest at the center at 24 nest sites and within a 1 meter radius circle 7 meters southwest of the nest.
2. These data will be combined with the following field season's data to develop an Arctic Warbler habitat model.

2005 Field Season (through June 30 only)

1. Completed off-study-plot transects to survey for Arctic Warblers in various habitats.

Significant Deviations *(if any, and explain the reasons for these):*

None

Actual Costs during this Report Period *(personnel plus all operating expense totals)*:

Federal (from ADF&G):	Partner (nonfederal share):
$17,938	$5,979.33

Project Leader *(or Report Contact Person)*: Susan Sharbaugh

Additional Information: *(Not required. Add any additional detail, if desired, related to the progress of the project)*:

Data for Objective 2 will be summarized and presented at the end of the project.

Data from this project has been presented in number of different venues. I gave a public presentation in November 2004 to Anchorage Audubon (a funding partner) at the Campbell Creek Science Center in Anchorage. I also presented the data at the Boreal Partners in Flight meeting in Anchorage (December 2004). A poster summarizing the 2004 season has been on display at ABO's Center for Education and Research in Fairbanks since April 2004. And the executive summary from the 2004 Progress Report is available on ABO's website: http://www.alaskabird.org/ABOResearch/ABO-ARWAExecSummary04.pdf

Alaska Department of Fish and Game
State Wildlife Grant
ANNUAL INTERIM PERFORMANCE REPORT

Grant Number: **T-1** **Segment Number:** **6**
Project Number: **7**
Project Title: Breeding ecology and habitat quality for arctic warbler in Interior Alaska
Project Duration: July 1, 2004 – June 30, 2007
Report Period: July 1, 2006 – June 30, 2007
Report Due Date: September 30, 2007
Partner: Alaska Bird Observatory

Objectives:

1. Document Arctic Warbler breeding chronology, productivity, territory size, and site fidelity; and
2. Develop a hierarchical model of habitat quality for the Arctic Warbler in Interior Alaska.

Summary of Accomplishments:

The following accomplishments relate to Objective 1:

2005 Field Season

1. 41 nests found and monitored; recorded number of eggs, nestlings, and fledglings to document breeding chronology and productivity. Average clutch size = 5.9 eggs (SD = 0.61, range 5-7, n = 18), mean brood size = 5.3 (SD = 1.10, range 2-7, n = 40), productivity = 5.2 nestlings/nest (SD = 1.10, range 2-7, n = 38).
2. Banded 46 adults with USFWS bands and individual color bands for use in determining territory size and site fidelity.
3. Banded 149 nestlings from 27 nests with USFWS bands to determine natal site fidelity future field seasons.

2006 Field Season

1. Recorded first singing male on 8 June.
2. Ten nests were discovered prior to a series of storms that dropped several inches of rain and more than a foot of snow on the plots between 17 June and 24 June. These weather events caused abandonment of all nests under observation.
3. Continued nest searching effort after weather events to determine re-nesting attempts and to observe changes is adult distribution.
4. Banded 43 adults with USFWS bands and color bands for use in determining territory size.

The following accomplishments relate to Objective 2:

2005 Field Season

1. Collected vegetation data within a circle (10m radius) with the nest at the center and within a 1m radius circle 7m southwest of the nest site.
2. Completed off-study plot transects to survey for Arctic Warblers in various habitats.
3. These data combined with data from 2004 were used in the spring of 2006 to create a preferred habitat model for Arctic Warblers.

4. The preferred habitat model indicates that Arctic Warblers correspond with more open vegetation structure and a higher diversity of herb and grass species.

2006 Field Season

1. Scouted sites and conducted additional off-study-plot transects to confirm findings of habitat model.

Significant Deviations:

None

Actual Costs during this Report Period *(personnel plus all operating expense totals)*:
(Reported costs included ADF&G indirect calculated at 13.5%)

Federal (from ADF&G):	Partner (nonfederal share):
$11,443	$3,814

Project Leader *(or Report Contact Person)*: David Shaw

Additional Information:

1. Is this project contributing samples to the Alaska Avian Influenza detection effort?

   In cooperation with the Andrew Lang, a post-doctoral associate at the University of Alaska Fairbanks, we are collecting fecal samples from Arctic Warblers captured during the project. These samples will be screened for H5N1 avian influenza.

2. Do you anticipate having any unspent funds at the end of the project?

   We do not anticipate having any unspent funds at the completion of this study. In fact, we hope to secure additional funds to prepare manuscripts for submission to journals, as much of what we are learning is new information.

FEDERAL AID
FINAL PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-1** **Segment Number:** **6**

Project Number: **7**

Project Title: Breeding ecology and habitat quality for arctic warbler in Interior Alaska

Project Duration: July 1, 2004 – June 30, 2007

Report Period: July 1, 2006 – June 30, 2007

Report Due Date: September 30, 2007

Partner: Alaska Bird Observatory

Project Objectives

1. Document Arctic Warbler breeding chronology, productivity, territory size, and site fidelity; and
2. Develop a hierarchical model of habitat quality for the Arctic Warbler in Interior Alaska.

Summary of Project Accomplishments for entire project

Objective 1: We completed three field seasons of research on Arctic Warblers along the Denali Highway. We found and monitored 100 Arctic Warbler nests, documenting breeding phenology and productivity. We found extraordinary nest success (92%). We colorbanded most breeding adults. This allowed us to plot territories, observe individual behavior, and document the rate of return of adults. Return rates varied with year ranging from 25-75%.

Objective 2: We created a model of habitat preferences using nest and non-nest based habitat sampling. There is a positive correlation between nest areas and shrub density. Areas of moderate shrub cover were preferred over areas with denser cover. This corresponds to higher densities of nesting Arctic Warblers found on the more open study plots at higher elevation. We also conducted point counts transects in several areas to test the results of our habitat model.

Project Accomplishments during last segment period only (July 1, 2006 – June 30, 2007)

Objective 1: We continued to gather data on breeding chronology (arrival dates, first egg date, fledging dates), monitor nests to document nest success, colorband adults, band nestlings, observe males to assess the size of their territories, and describe nest habitat.

Objective 2: After the field season, we conducted extensive analyses of nest success, productivity, site fidelity, and other aspects of the project. We presented the results at the Alaska Boreal Partner's in Flight Meeting in Anchorage in December. We integrated the 2006 results with the results from the previous years and completed a draft of the final report. It is currently being reviewed by ABO staff and will be sent for peer review before submission to ADF&G.

Significant Deviations: None

Project Leader: Dr. Susan Sharbaugh and David Shaw

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: T-9 **Segment Number:** 1

Project Number: 2.0

Project Title: Population structure and conservation status of spruce grouse in southeast Alaska

Project Duration: 1 July 2008 – 30 June 2010

Report Period: 1 July 2008 – 30 June 2009

Report Due Date: September 30, 2009

Partner: University of Alaska Southeast

Project Objectives:

OBJECTIVE 1: Quantify the degree of genetic distinctiveness of spruce grouse in southeast Alaska using microsatellite genetic markers and to assess the conservation value of southeast Alaska populations for state managers.

Summary of Project Accomplishments:

OBJECTIVE 1: We generated nuclear microsatellite and mtDNA sequence data from spruce grouse samples collected in central Alaska, southeast Alaska, and Canada. More than 70 individuals were genotyped at 6 microsatellite loci and more than 40 individuals were sequenced at the COI mtDNA locus. These data were analyzed using phylogenetic and population genetic methods. All analyses suggest southeast Alaska spruce grouse are genetically distinct from other spruce grouse.

Significant Deviations:

None.

Prepared By: David Tallmon (PI), University of Alaska Southeast

Date: 21 August 2009

FEDERAL AID
INTERIM PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-1** **Segment Number: 3**
Project Number: **4.10**
Project Title: Inventory and monitoring of landbirds on state lands
Project Duration: July 1, 2006 – June 30, 2009
Report Period: 1 July 2006 – 30 June 2007
Report Due Date: September 30, 2007
Partner: Alaska Department of Fish and Game

Project Objectives

OBJECTIVE 1: Inventory landbirds subscribing to established distance based sight and sound survey techniques (Handel 2004) at between four and six different sites on state lands in ADF&G Region II for each of two years, with the intention that the inventoried sites will be monitored on a rotating schedule in future years; half one year, and half the next.

Summary of Project Accomplishments

OBJECTIVE 1: In June of 2007 we conducted landbird surveys at two sites in Chugach State Park. Sites were selected at random by the USGS Alaska Science Center. One site was in the vicinity of Crow Pass, and the other was approximately 17 km east of Eagle River Nature Center. We also conducted Breeding Bird Surveys on state lands adjacent to the Lake Louise Road and the Glenn Highway near Glenallen, AK. The location of the Breeding Bird Surveys was determined by USGS Patuxent Wildlife Research Center.

Prepared By: David F. Tessler

Additional Information:

Handel, C.M. 2004. Alaska Landbird Monitoring Survey: Protocol for Setting Up and Conducting Point Count Surveys. USGS, Alaska Science Center, 1011 East Tudor Road, Anchorage, Alaska, 99503.

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: **T-3** **Segment Number: 1**

Project Number: **4.10**

Project Title: Inventory and monitoring of landbirds on state lands

Project Duration: July 1, 2006 – June 30, 2009

Report Period: July 1, 2007 – June 30, 2008

Report Due Date: September 30, 2008

Principal Investigator: Dave Tessler, Alaska Department of Fish and Game

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Project Objectives:

OBJECTIVE 1: Inventory landbirds subscribing to established distance based sight and sound survey techniques (Handel 2004) at between four and six different sites on state lands in ADF&G Region II for each of two years, with the intention that the inventoried sites will be monitored on a rotating schedule in future years; half one year, and half the next.

Summary of Project Accomplishments:

OBJECTIVE 1: In June of 2008 we conducted Breeding Bird Surveys (BBS) on state lands adjacent to the Lake Louise Road and the Glenn Highway near Glennallen, AK, as well as the Petersville Road near Trapper Creek, AK. The location of the Breeding Bird Surveys was determined by USGS Patuxent Wildlife Research Center.

We established a series of Alaska Landbird Monitoring Survey (ALMS) offroad survey sites in Denali State Park and Chugach State Park. All sites in each park unit will be surveyed for inventory purposes, but a subset consisting of at least two sites in each park unit will be re-surveyed and monitored on a bi-annual basis in future years according to a rotating schedule; the monitoring sites established in Denali State Park will be monitored in even years, and those in Chugach State Park will be surveyed in odd numbered years. The geographic locations of the ALMS sites were randomly determined by the USGS Alaska Science Center according to the sampling scheme described in Handel 2004: Inventory and monitoring sites were determined at random within a limited sampling universe corresponding to all area within one (1) kilometer of locations deemed to be accessible by fixed wing aircraft, boat, wheeled vehicle, or foot. Accessible locations include: roads, ATV and foot trails, lakes and landing strips suitable for fixed wing aircraft, and "raftable" rivers and streams with easily accessible "put-ins" and take-outs."

We conducted one repeat landbird survey for a study site on Kesugi Ridge in Denali State Park. We had anticipated surveying several more sites this year in Denali, but an unexpected emergency medical evacuation cut short our efforts.

Date: 5 September 2008

Literature Cited:

Handel, C.M. 2004. Alaska Landbird Monitoring Survey: Protocol for Setting Up and Conducting Point Count Surveys. USGS, Alaska Science Center, 1011 East Tudor Road, Anchorage, Alaska, 99503.

FEDERAL AID
INTERIM PERFORMANCE REPORT

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: T-3 **Segment Number:** 1

Project Number: 4.10

Project Title: Inventory and monitoring of landbirds on state lands

Project Duration: July 1, 2006 – June 30, 2011

Report Period: July 1, 2008 –June 30, 2009

Report Due Date: September 30, 2009

Partner: Alaska Department of Fish and Game

Project Objectives:

OBJECTIVE 1: Inventory landbirds subscribing to established distance based sight and sound survey techniques (Handel 2004) at between four and six different sites on state lands in ADF&G Region II for each of two years, with the intention that the inventoried sites will be monitored on a rotating schedule in future years; half one year, and half the next.

Summary of Project Accomplishments:

OBJECTIVE 1:

In June of 2009 we repeated a landbird survey, following Alaska Landbird Monitoring Survey (ALMS) protocols (Handel 2004) at one site in Chugach State Park in the vicinity of Crow Pass. Inventory and monitoring sites were selected at random by the USGS Alaska Science Center. We also repeated Breeding Bird Surveys on state lands adjacent to the Lake Louise Road and the Glenn Highway near Glenallen, AK, and along the Petersville Road, near Trapper Creek, AK. The location of the Breeding Bird Surveys was determined by USGS Patuxent Wildlife Research Center.

In addition, we hired and trained a new permanent wildlife biologist to conduct both types of surveys. The new biologist participated in both ALMS and BBS surveys in an adjunct capacity, and will supervise an additional survey team starting next year. From next year forward we will have two survey teams operating independently and simultaneously. Having two survey teams will greatly increase the number of sites we are able to survey per year.

Prepared By: David F. Tessler

Handel, C.M. 2004. Alaska Landbird Monitoring Survey: Protocol for Setting Up and Conducting Point Count Surveys. USGS, Alaska Science Center, 1011 East Tudor Road, Anchorage, Alaska, 99503.

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

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: T-9 **Segment Number:** 1

Project Number: 2.0

Project Title: Population structure and conservation status of spruce grouse in southeast Alaska

Project Duration: 1 July 2008 – 30 June 2010

Report Period: 1 July 2008 – 30 June 2009

Report Due Date: September 30, 2009

Partner: University of Alaska Southeast

Project Objectives:

OBJECTIVE 1: Quantify the degree of genetic distinctiveness of spruce grouse in southeast Alaska using microsatellite genetic markers and to assess the conservation value of southeast Alaska populations for state managers.

Summary of Project Accomplishments:

OBJECTIVE 1: We generated nuclear microsatellite and mtDNA sequence data from spruce grouse samples collected in central Alaska, southeast Alaska, and Canada. More than 70 individuals were genotyped at 6 microsatellite loci and more than 40 individuals were sequenced at the COI mtDNA locus. These data were analyzed using phylogenetic and population genetic methods. All analyses suggest southeast Alaska spruce grouse are genetically distinct from other spruce grouse.

Significant Deviations:

None.

Prepared By: David Tallmon (PI), University of Alaska Southeast

Date: 21 August 2009