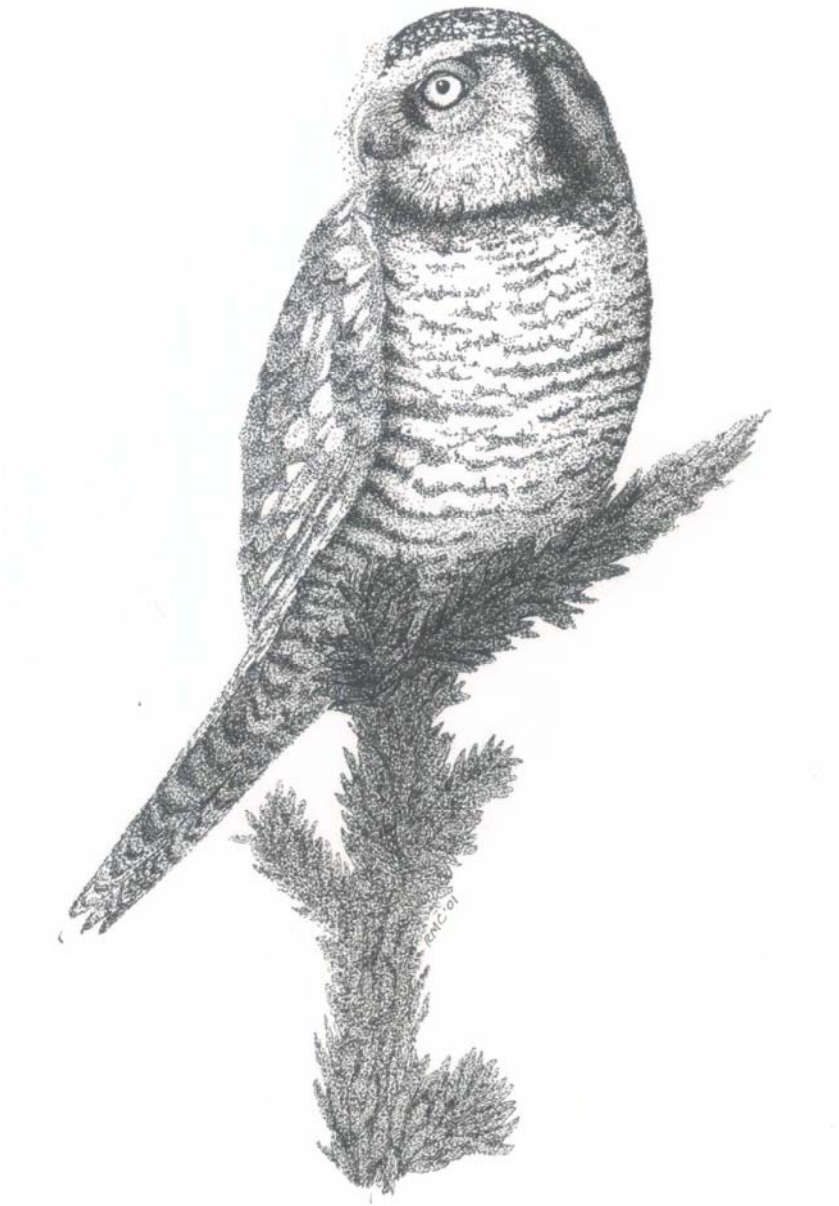
# *2004 annual summary of landbird projects for Boreal Partners in Flight*



***June 2005***

*Compiled and lightly edited by Chris Harwood for Boreal Partners in Flight.*
*Northern Hawk Owl cover illustration by Robin Corcoran, U.S. Fish and Wildlife Service*

***A note from the compiler*:** At the 2004 annual meeting, your humble compiler proposed that *Boreal Partners in Flight* (BPIF) produce an annual summary of landbird projects (e.g., field work, analyses) conducted by the members. While BPIF has compiled "annual reports" since 1993, they have been a combination of administrative (e.g., annual meeting agenda and minutes) and research (e.g., BBS results) topics. To make our summaries more user-friendly, splitting them into an administrative summary and a "projects summary" was proposed.

BPIF's 2004 annual summary of landbird projects updates our web site's project directory, which was last revised in 1998. This effort parallels that of the Alaska Shorebird Group (ASG), where Bob Gill has compiled and printed an annual summary of Alaskan shorebird studies since 2002 (see links to the three reports at **http://alaska.fws.gov/mbsp/mbm/shorebirds/working_group.htm**). These reports have been well received both within and outside ASG. So, in the spirit of "imitation is the sincerest form of flattery" and "Why reinvent the wheel?," here is the landbird version.

The project summary will illustrate not only the fine work being done by our diverse membership, but also highlight those important species and topics that we may have failed to address. It is an opportunity for members and non-members to identify both research projects in need of implementation and potential collaborators. In particular, we hope that it will serve as a forum for landbird work in Alaska (e.g., academic research) that often is underrepresented at the annual meeting. Ideally, the project summary should provide an administrative record of the annual progress in Alaska landbird conservation and research.

The 31 projects summaries included represent these six general topics: broad-scale monitoring (7), local scale monitoring (2), inventories (3), species-specific studies/research (11), multi-species studies/research (6), and conservation (2). No fewer than 53 cooperators (individuals and groups) served as investigators, representing the following entities:

**Governmental**: Alaska Department of Fish and Game, Bureau of Land Management, Canadian Wildlife Service, National Park Service, Smithsonian Migratory Bird Center, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Geological Survey;

**Non-governmental Organizations (NGOs)**: Alaska Bird Observatory, Alaska Natural Heritage Program, Albert Creek Banding Station (Yukon), American Bird Conservancy, Audubon Alaska, The Institute for Bird Populations;

**Academia:** Humboldt State University, Idaho State University, University of Alaska Fairbanks, University of California (Santa Clara), University of Washington.

The project summaries are followed by an appendix containing citations of published and gray literature on northern breeding landbirds attributed to BPIF members and colleagues over the last three years.

Many thanks to all who contributed in any fashion. Please distribute this to colleagues who may not be on the BPIF email list, especially those contributing project summaries. Also, please notify the editor (christopher_harwood@fws.gov) of ways to improve this document (including a more elegant, if not concise, title).

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## BROAD SCALE MONITORING

### *Project: Revision of habitat protocols for the Alaska Landbird Monitoring Survey (ALMS)*

Investigators: Melissa Cady and Colleen Handel, USGS–Alaska Science Center

In the "Linking birds to management through habitat" discussion held at the 2003 BPIF meeting, members considered how the current ALMS protocol for quantifying vegetation communities at point count stations could be modified and improved. Participants identified protocol topics to evaluate and formed an interagency habitat committee representing the National Forests, National Wildlife Refuges, National Parks, BLM, USGS, USFWS, and State of Alaska to address these issues. This committee reviewed ALMS goals and methods with regard to collection of habitat data, and made recommendations for modification and implementation of revised habitat data collection protocols. The committee agreed on three objectives to frame their discussions of habitat data needs: to gather habitat data to relate population trends to changes in habitat if they occur; to develop habitat models to predict/describe bird distributions based on what vegetation occurs in different areas of the state; and to collect habitat data useful for land managers in the field. With these objectives in mind, the committee addressed and made revisions with regard to vegetative cover, wetlands, disturbance, exotic plants, forest structure, topography, and designation of habitat mosaics. These revisions were incorporated into the ALMS protocols that were distributed in May 2004 and were used in the field for data collection that year.

Contact: Melissa Cady, USGS Alaska Science Center, 1011 E. Tudor Rd., Anchorage, AK 99503. Phone: 907-786-3981; e-mail: mcady@usgs.gov.

### *Project: 2004 update of the Alaska Landbird Monitoring Survey (ALMS) and Alaska Off-road Breeding Bird Survey*

Investigators: Colleen Handel and Melissa Cady, USGS–Alaska Science Center; BPIF collaborators

*Boreal Partners in Flight (BPIF)* established the Alaska Off-road Breeding Bird Survey (AORBBS) in 1992 to determine the status and trends of landbird populations and to document patterns of breeding distribution in relation to habitat. AORBBS incorporated improvements over the existing road-based North American Breeding Bird Survey (BBS) by expanding sampling to areas away from the road system, recording variables to enable determination of detection functions, and collecting habitat information spatially linked to survey sites. Further improvements were proposed at BPIF meetings in Whitehorse (Oct 2002), Anchorage (Dec 2002), and Fairbanks (Jan 2003) and were rolled into a new program called the Alaska Landbird Monitoring Survey (ALMS). Details can be found in the minutes of these meetings on the BPIF website. The revised program, ALMS, developed from these discussions was adopted by BPIF. Details of the initial study design of ALMS can be found in the 2002 BPIF annual report on the same website. ALMS protocols can be found on the USGS ftp site. Links to these sites are as follows:

http://www.absc.usgs.gov/research/bpif/meetings.html
ftp://ascftp.wr.usgs.gov/users/colleen_handel/

*Summary of ALMS activities in 2004*.—Four land management agencies participated in 2004: Alaska Department of Fish and Game Nongame Program, Alaska Peninsula/Becharof National Wildlife Refuge, Chugach National Forest, and Tongass National Forest. In total, cooperators surveyed 17 blocks; they conducted bird surveys at 270 points within these blocks and collected vegetation data collection at most of these points. One hundred three species were detected, totaling 4252 individual birds.

This was the second year of data collection for the ALMS program; the following table summarizes survey effort to date by land management unit.

Table. Number of ALMS blocks surveyed to date.

| | Number of blocks surveyed | |
|---|---|---|
| Land Unit | 2003 | 2004 |
| Alaska Department of Fish & Game | 0 | 1 |
| Alaska Peninsula/Becharof NWR | 0 | 7 |
| Chugach NF | 3 | 2 |
| Kanuti NWR | 3 | 0 |
| Kenai NWR | 1 | 0 |
| Tongass NF | 5 | 7 |
| Yukon Delta NWR | 3 | 0 |
| TOTAL | 15 | 17 |

Including both years of effort, participants completed 10-minute point count surveys at >550 individual points, detected 133 species, and amassed 7259 detections of birds. Preliminary analyses indicate that 27 species already have enough detections for initial density estimates using program DISTANCE. The 10 species most commonly detected so far are listed below.

Table. The most commonly detected species in the ALMS program for 2003–2004.

| Rank | Species | Detections |
|---|---|---|
| 1 | Savannah Sparrow | 525 |
| 2 | Hermit Thrush | 498 |
| 3 | Varied Thrush | 417 |
| 4 | Orange-crowned Warbler | 369 |
| 5 | Wilson Warbler | 367 |
| 6 | Dark-eyed Junco | 292 |
| 7 | Fox Sparrow | 263 |
| 8 | Common Redpoll | 256 |
| 9 | American Tree Sparrow | 253 |
| 10 | Ruby-crowned Kinglet | 244 |

*Summary of AORBBS activities in 2004; routes run using the old protocols*.—Five cooperators completed AORBBS routes in 2004 using the previous field sampling protocols (see table below). They detected 90 species on 21 routes, with a total of 3552 birds detected. Preliminary analyses of count data and habitat variables are currently underway.

Table. Summary of AORBBS routes surveyed in 2004.

| Land Unit | Route Number | Route Name | Date | Number of Points |
|---|---|---|---|---|
| Alaska Maritime NWR | 355 | Shemya | 6/5/2004 | 12 |
| Alaska Science Center | 601 | Service High | 6/11/2004 | 12 |
| Alaska Science Center | 602 | Sunrise Knoll | 6/16/2004 | 12 |
| Alaska Science Center | 603 | Chester Creek | 6/10/2004 | 12 |
| Alaska Science Center | 604 | Hillside Park | 6/15/2004 | 12 |
| Alaska Science Center | 606 | Basher Lakes | 6/14/2004 | 12 |
| Alaska Science Center | 607 | Beach Lake | 6/18/2004 | 12 |
| Alaska Science Center | 610 | Eagle Lake | 6/30/2004 | 12 |
| Alaska Science Center | 611 | Eagle River | 6/21/2004 | 12 |
| Innoko NWR | 405 | Cabin Lake Bog | 6/15/2004 | 12 |
| Innoko NWR | 406 | Halfway Hill | 6/13/2004 | 12 |
| Innoko NWR | 451 | River Lowland | 6/14/2004 | 12 |
| Izembek NWR | 358 | Outer Marker | 6/17/2004 | 12 |
| Izembek NWR | 359 | Grant Point | 6/16/2004 | 12 |
| Tetlin NWR | 429 | Deeper Lake | 6/16/2004 | 12 |
| Tetlin NWR | 430 | Ten Mile Hill | 6/11/2004 | 14 |
| Tetlin NWR | 431 | Northway Road | 6/23/2004 | 28 |
| Tetlin NWR | 433 | Fish Camp Lake | 6/17/2004 | 14 |
| Tetlin NWR | 434 | Hidden Lake | 6/18/2004 | 12 |
| Tetlin NWR | 435 | Chisana River | 6/10/2004 | 12 |
| Tetlin NWR | 518 | Mt. Fairplay | 6/22/2004 | 12 |

*Recommendations for 2005*.—We encourage all collaborators to participate in the ALMS program if possible, but recommend collaborators continue to run established AORBBS routes if logistical costs prevent participation in ALMS at this time. Due to the continued challenges of funding and access to sites, we are developing a revised sampling universe in conjunction with interested land units to limit ALMS site selection to those areas deemed accessible at reasonable expense by local biologists. It is hoped that this measure will increase participation in the ALMS program in the future.

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***Project: Migration monitoring activities in Alaska and the Yukon, 2004***

Investigators: Bud Johnson, U.S. Fish and Wildlife Service; Tim Walker, Alaska Bird Observatory; Bruce Seppi, Bureau of Land Management; Ted Murphy-Kelly, Albert Creek Banding Station, Gwen Baluss, U.S. Forest Service

Five migration banding stations were operational in Alaska and the Yukon Territory during 2004 (see Tables 1-3 at end of document). The Creamers Field station in Fairbanks (Alaska Bird Observatory - ABO) banded birds during spring and fall accumulating over 15,000 net hours. This station has been in operation since 1992 and represents the longest running banding operation in Alaska. The Pump station near Tok (Tetlin National Wildlife Refuge), established in 1993, logged over 6,800 net hours monitoring fall migration. The Denali station in Denali National Park and Preserve (Denali Institute), and Campbell Tract station in Anchorage (Bureau of Land Management) also banded birds during fall migration. This year, results from the Albert Creek station in Southeast Yukon (Southeast Yukon Proper Land Use Society) are also included. This station has been in operation for four years during spring and fall migration and encompasses diverse riparian habitats resulting in excellent species diversity (55 species banded in 2004). All five stations plan to be in operation in 2005 and the Yukon will run an addition station near Tetlin. Additional miscellaneous banding results from Southeastern Alaska are also provided.

Personnel from banding stations in Alaska and the Yukon along with other interested individuals gathered prior to the BPIF annual meeting to exchange information and discuss ways to increase coordination and cooperation among stations. Topics discussed included: standardized data collection, data management, data analysis, habitat management on banding sites, training needs, station operating manuals, and future coordination among stations.

Tetlin NWR and ABO entered into a cost-share agreement in 2004 to continue their analysis of banding data from the two stations and hope to eventually include data from other stations. Preliminary results from this effort should be available in 2005.

Contact: Bud Johnson, U.S. Fish and Wildlife Service, Tetlin National Wildlife Refuge, Mile Post 1314, Alaska Highway, PO Box 779, Tok, AK 99780; email: buddy_johnson@fws.gov.

***Project: 2004 update on the North American Breeding Bird Survey, Alaska***

Compiler and contact: Steve Matsuoka, U.S. Fish and Wildlife Service, Migratory Bird Management, 1011 E. Tudor Rd., ms 201, Anchorage, AK 99503, 907-786-3672, steve_matsuoka@fws.gov

Investigators: BPIF membership

In 2004, BBS surveys were conducted on 71 routes by 42 participants in Alaska. This was a modest increase from the 59 routes run in 2003, and brought us back up to the average state-wide effort since 1993 ($\bar{x}$ = 71.8 routes, Fig. 1 at end of document). Twenty one people ran more than one route with particularly heavy lifting done by Buddy Johnson and Rob MacDonald (4 routes each) and Jeanie Cole, Ruth Gronquist, and Sandra Siekaniec (3 routes each). A total of 35,210 individuals of 174 species were

detected with Swainson's Thrush and Dark-eyed Junco topping the list with 2,531 and 2,130 individuals detected respectively.

The consistent and widespread investment into the BBS in Alaska by *Boreal Partners in Flight* is beginning to pay big dividends as trends in abundance in Alaska are now available for 103 species on the web (Table 4 [end of document], Sauer et al. 2004). Although the BBS is often thought of as a survey of songbirds, many other species of loons and grebes, waterfowl, raptors, and shorebirds are regularly detected on the survey. Power to detect trends is also increasing with time as the Alaska program matures. In 2004 significant trends were detected among 27 species observed on $\geq$ 14 routes (Table 5 [end of document]) compared to 24 and 21 species with significant trends in 2002 and 2001, respectively. Some species such as Rusty Blackbird (-5.8% per year), Blackpoll Warbler (-3.8% per year), and Lesser Yellowlegs (-2.0% per year) continue to decline both in Alaska and throughout more southern portions of their breeding ranges that are covered by the BBS (Tables 4 and 5). Declines of these species in Alaska, however, appear to be less severe than in other parts of their breeding range (Table 4), highlighting the importance of Alaska to global populations of these birds. Bald Eagles continue to increase in numbers since 1980 both in Alaska and in more southern parts of their range (Tables 4 and 5), fueling arguments to remove this species from the federal list of threatened species in the contiguous United States.

The trend among Rusty Blackbirds is particularly alarming as this species has declined more steeply survey-wide on the BBS since 1966 than any other bird monitoring by the program (- 9.9% per year; Sauer et al. 2004). To put the magnitude of this decline into perspective, Rich et al. (2004) estimated from BBS data that there were 2 million birds in the global breeding population in 1995. As of our 2005 survey, we will have lost approximately 65% of the breeding population since 1995 with the population already down to 705,000 birds. By 2015 the population will have declined by 88% and there will be fewer than 250,000 birds left. By 2025 there will be less that 90,000 birds remaining.

Although the decline of this once abundant bird is well documented (Greenberg and Droege 1999, Niven et al. 2004), both its general ecology and the causes of its decline remain unstudied (Greenberg 2003, R. Greenberg personal communication). Clearly we cannot continue to allow time to pass without conducting the critical research to better understand this bird's ecological requirements and how they can be better met through concerted conservation. As Alaska is home both to approximately 30% of the global breeding population (P. Blancher, unpublished data) and the highest known breeding densities, important clues into how to recover this species likely lie in our backyard.

*Literature Cited*

GREENBERG, R. 2003. Troubled blackbird of the bog. Smithsonian Migratory Bird Center, Washington DC. Available at [http://nationalzoo.si.edu/ConservationAndScience/MigratoryBirds/Featured_Birds/default.cfm?bird=Rusty%20Blackbird. March 2005].

GREENBERG, R. AND S. DROEGE. 1999. On the decline of the Rusty Blackbird and the use of ornithological literature to document long-term population trends. Conservation Biology 13:553–559.

NIVEN, DANIEL K., JOHN R. SAUER, G. S. BUTCHER, AND W. A, LINK. Christmas bird count provides insights into population change in land birds that breed in boreal forest. American birds 58:10-20.

RICH, T.D., C.J. BEARDMORE, H. BERLANGA, P.J. BLANCHER, M.S.W. BRADSTREET, G.S. BUTCHER, D.W. DEMAREST, E.H. DUNN, W.C. HUNTER, E.E. IÑIGO-ELIAS, J.A. KENNEDY, A.M. MARTELL, A.O. PANJABI, D.N. PASHELY, K.V. ROSENBERG, C.M. RUSTAY, J.S. WENDT, AND T.C. WILL. 2004. Partners in Flight North American landbird conservation plan. Cornell Lab of Ornithology, Ithaca, NY.

SAUER, J. R., J. E. HINES, AND J. FALLON. 2004. The North American Breeding Bird Survey, Results and Analysis 1966–2003. Version 2004.1. USGS Patuxent Wildlife Research Center, Laurel, Maryland. Available at [http://www.mbr-pwrc.usgs.gov/bbs/bbs.html, September 2004].

### *Project: Alaska Landbird Monitoring Survey on the Alaska Peninsula / Becharof NWR, 9 - 28 June 2004*

Investigators: Susan Savage, Kristin Sesser, and Gretchen Jehle, U.S. Fish and Wildlife Service

The Alaska Landbird Monitoring Survey (ALMS) is a statewide effort designed to monitor long-term trends in Alaska landbird breeding populations. The Alaska Peninsula/Becharof National Wildlife Refuge, located along the eastern portion of the Alaska Peninsula, participated in ALMS for the first time in 2004. The refuge surveyed six blocks assigned by USGS personnel, as well as an additional block to broaden the monitoring effort. The blocks surveyed extend nearly 290 km along the Alaska Peninsula, from just south of King Salmon to Chignik Lake, although the surveyed blocks are concentrated in the northern portion of the refuge.

From 9 – 28 June 2004, refuge personnel recorded 1,954 birds of 49 species during the surveys and recorded an additional 25 species while present at the blocks. A total of 131 point counts were conducted. From 17 to 27 species were recorded at individual blocks. Three measures of abundance were applied to the raw data for this report with more detailed density estimates to be developed in conjunction with the statewide effort by the Alaska Science Center. Species recorded during point counts at all seven blocks included: Wilson's Snipe, Orange-crowned Warbler, Wilson's Warbler, Savannah Sparrow, and Common Redpoll. Species recorded at six blocks included: Least Sandpiper and Yellow Warbler. Savannah Sparrows had the highest average detection frequency (0.89; number of points where a species was detected divided by total number of points surveyed), followed by Common Redpoll (0.71), Wilson's Warbler (0.60), Golden-crowned Sparrow (0.54) and Orange-crowned Warbler (0.53).

In addition to the avian data, extensive data on the habitat were collected, including data on disturbance, soil moisture and habitat classifications. Although this project provided valuable information about species distribution and abundance in Alaska and on the Alaska Peninsula, this project is very costly. The average cost for each point surveyed is $435, due primarily to the remoteness of the refuge and the need for helicopters to access these areas. Future participation in the ALMS program is expected in 2006, but dependent on adequate funding. A written report is available for this work.

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***Pilot project or cautionary tale: An inventory of landbirds in Alaska State Special Lands through partnership in the Alaska Landbird Monitoring System (ALMS).***

David F. Tessler, Alaska Department of Fish and Game, Nongame Program, 333 Raspberry Road, Anchorage, Alaska 99518

The objectives of this 3-year pilot project were: 1) To initiate an inventory of Alaska State Critical Habitat Areas and Wildlife Refuges, subscribing to the cooperative Alaska Landbird Monitoring System (ALMS) protocols; 2) To assess the efforts and annual costs for these efforts, and develop a strategic long-term plan for landbird inventory and monitoring on all State lands. The goal for each year was to survey three to six sites and establish one as a long term monitoring site between June 10 and 30. For year one, USGS Alaska Science Center partners selected 10 random sites (five primary and five secondary) in accordance with the ALMS statistical design in various Cook Inlet region refuges and critical habitat areas. Logistics, budgets, and schedules were all planned with the intention of visiting that fraction of sites accessible by fixed wing aircraft. I defined "fixed-wing accessible" as being able to land within 8 kilometers of a selected survey site: I felt a physically fit, motivated team could cover the remaining distance on foot. After reviewing topographic maps and aerial photos, I estimated that roughly 30% of random sites would be accessible in this way. We planned to fly over all 10 randomly selected sites, determine which were accessible and could plausibly be surveyed: The plane would then drop off the survey team near one of those sites, and pick them up at a later date and move them into position at the next accessible site.

Poor weather delayed the first flight for nine days until 19 June. During this flight we found that none of the ten randomly selected sites were accessible via fixed-wing. Six sites were dismissed as un-surveyable for a variety of reasons: One was deemed "impenetrable" and "a dangerous bear zone" after input from local land managers and biologists; one was in the middle of the Susitna River; one was bisected by the Susitna; two were considered dangerous to survey as they consisted of floating mats of aquatic vegetation; and one site was completely buried beneath late season snow cover. The remaining four sites were accessible only by helicopter, and two of those would have required boats or rafts as well. Because the planning, project design, and budget were predicated on the use of fixed wing, the extra costs associated with accessing the site with helicopters threw the entire project as planned into disarray. Consulting with superiors, we concluded the extra costs and diminished expectations for the first year were warranted.

Another week of unsuitable weather delayed our start until 24 June. With only seven days of the ALMS season remaining, a chartered helicopter placed the two-person survey crew at one of the two sites. Unfortunately, this random site was in an alpine locale consisting mostly of non-vegetated boulder fields, and consequently had extremely low avian diversity and abundance. After one day, extreme winds, rain, and fog settled on the area for the next week. The crew spent a total of ten days on site, and only managed to complete habitat assessments at 10 points and point counts at four. The adverse weather precluded any attempt to move the survey to an adjacent area or to the second random site, and also delayed the pick up of the survey crew until 3 July 2005. The pilot project was suspended for the 2006 season to allow for a re-planning and budgeting effort.

***Project: Summary of survey work for diurnal raptors in Alaska, 2004.***

Compiled by: John Wright, Alaska Department of Fish and Game (retired) and Carol McIntyre, Denali National Park and Preserve

Thanks to the many investigators who provided summaries of their raptor surveys in Alaska in 2004. This report summarizes the survey work conducted for diurnal raptors in each Bird Conservation Region (BCR) in Alaska. A summary of landbird projects for BCR 1 (Aleutian/Bering Sea Islands) included no raptor work

BCR 2 - Western Alaska (includes portions of Western and Southwestern Alaska):

Thanks to Denny Zwiefelhofer (USFWS), Rob MacDonald (USFWS), Brian McCaffery (USFWS) and Peter Bente (ADF&G) for providing information on raptor surveys in BCR 2 in 2004.

*Kodiak Island*. On Kodiak Island, USFWS staff monitored 339 Bald Eagle nest sites; occupancy of nest sites (38%) and productivity (0.70 young per occupied nest) were lower than normal. Nest success was 19%.

*Togiak National Wildlife Refuge*. USFWS staff monitored 53 Bald Eagle nest sites; 31 nest sites (58%) were occupied, 19 pairs (61%) produce young, productivity was 1.0 young per occupied nest and 1.70 young per successful nest. Overall, it was an average year for Bald Eagle productivity. A Steller's Sea Eagle was observed for the third consecutive year on the Togiak National Wildlife Refuge.

*Yukon-Delta National Wildlife Refuge*. For the 14th consecutive year, USFWS staff conducted helicopter surveys for cliff-nesting raptors in the Kisaralik watershed. Along approximately 100 km of river, USFWS staff located 17 occupied nests including 10 Golden Eagle nests, 6 Gyrfalcon nests, and 1 Rough-legged Hawk nest. Although the distribution of occupied nests within the study area differed between 2003 and 2004, the species-specific totals were identical. In the Kisaralik watershed, Golden Eagle productivity (1.00 young per occupied nest) was higher in 2004 than in any of the previous 3 years. At least five young fledged from at least 3 of the 6 Gyrfalcon nests falcon nests and one occupied Rough-legged Hawk nest in the study area was successful, producing 2 young. In a study area adjacent to the Kisaralik, 7 laying pairs of Golden Eagles produced 6 young, 6 laying pairs of Gyrfalcons produced at least 4 young, and a single laying pair of Rough-legged Hawks produced 3 young. For the $5^{th}$ consecutive year, USFWS staff completed raptor surveys in the Ingakslugwat Hills, a volcanic region that serves as an oasis of cliff-nesting habitat in the center of the delta. Seventeen occupied raptor territories including 4 Rough-legged Hawk territories, 3 Golden Eagle territories, and 10 Gyrfalcon territories were located in the Ingakslugwat Hills, but production was down considerably in 2004. The occupied hawk, eagle and falcon territories produced 3, $\geq$ 2, and $\geq$ 8 young, respectively, in 2004. In contrast, in 2003, 33 Rough-legged Hawk, 6 Golden Eagle, and 16 Gyrfalcon fledglings were produced in the Ingakslugwat Hills. A survey of cliff-nesting raptors was completed in the Askinuk Mountains adjacent to the Bering Sea. Eighteen 18 occupied raptor territories, including 8 Rough-legged Hawk, 2 Golden Eagles, and 8 Gyrfalcon territories were located during the survey. Although the number of occupied eagle and falcon territories were comparable to 2003 (2 and 9, respectively), far more hawk territories were occupied in 2003 (23) than in 2004. One, 2, and 5 successful pairs of hawks, eagles and falcons, respectively, fledged a total of 2, 3, and 12 young. In contrast, 10, 2, and 5 successful pairs of hawks, eagles and falcons, respectively, fledged a total of 20, 2 and 14 young in 2003.

*Seward Peninsula.* The Alaska Department of Fish and Game (ADF&G) completed aerial surveys for cliff-nesting raptors on the Seward Peninsula using a Robinson R-44 helicopter. Spring was late and the summer was hot and dry. Of the 24 Rough-legged Hawk nests monitored in 2004; 13 pairs (54%) produced eggs and productivity was 0.67 young per pair. Eighteen Golden Eagle nests were monitored; 13 pairs (72%) produced young and productivity was 1.22 young per pair. Forty-one Gyrfalcon nests were monitored; 25 pairs (61%) produced young and productivity was 1.54 young per pair. Three Peregrine Falcon nests were monitored; one nest produced one young. A single Merlin nest was found during the summer, but it is unknown if the nest was productive.

BCR 3 - Arctic Plains and Mountains:

Thanks to David Payer (USFWS) for providing information on raptor surveys in BCR 3.

*Arctic National Wildlife Refuge*. USFWS staff conducted a boat-based survey of the Hulahula River from the Brooks Range to the Beaufort Sea in late June. Raptor nesting was confined to the northern foothills, and included 2 Rough-legged Hawk territories (2 and 3 young) and one Peregrine Falcon site (defensive adults but unknown no. young). Unoccupied stick nests (previously used by Golden Eagles and Rough-legged Hawks) were common in the mountains and foothills. USFWS staff recorded anecdotal observations of 2 pairs of Peregrine Falcons in the Brooks Range foothills along the lower Kongakut River.

BCR 4 - Northwestern Interior Forest:

Thanks to Jack Whitman (ADF&G), Carol McIntyre (NPS), Steve Arthur (ADF&G), Tim Craig (BLM), John Shook (ABR, Inc.), Hank Timm (USFWS), David Payer (USFWS), and Yukon-Charley Rivers National Preserve for providing information on raptors surveys in BCR 4.

*Brooks Range, Coldfoot Area*. In the Coldfoot area, BLM staff found two occupied American Kestrel nests each with five nestlings.

*Central Alaska Range*. In Denali National Park and Preserve, NPS biologists completed the 17th consecutive year of monitoring the reproductive activities and success of Golden Eagles and Gyrfalcons. The two aerial surveys were conducted from a Robinson R-44 helicopter; one in late April to determine occupancy and breeding activities and one in late July to determine nest success and productivity. Occupancy of Golden Eagle nesting territories was 87% (71 occupied territories). Nesting attempts (42%), nest success (57%), and productivity (0.30 young per occupied nesting territory) were lower than average. Occupancy of Gyrfalcon nesting territories (64%), nest success (44%) and productivity (0.90 young per occupied territory) were lower than average. The NPS and ADF&G completed the 3rd year of aerial Golden Eagle surveys in the Dry Creek study area in the Central Alaska. Ten of 17 Golden Eagle nesting territories were occupied (59%). Estimated laying rate (70%) and nest success (86%) were higher for Golden Eagles in the Dry Creek area than for Golden Eagles in the Denali study about 70 km to the west. One occupied Gyrfalcon nest site was located in early May, but the nest was not successful.

*Yukon River watershed.* Several raptor monitoring projects occurred in the Yukon River watershed in 2004, but the USFWS staff cancelled a planned survey of the Porcupine River from the international border to John Herberts Village because of intense forest fire activity in the area. This was the first time since 1978 that the Porcupine River survey could not be conducted. During a boat survey on 190 miles

of the lower Yukon River, ADF&G staff observed 7 Osprey, 9 Bald Eagles, and found 28 Peregrine Falcon nest sites; 19 pairs of Peregrines produced young (68%). On the upper Yukon River, smoke from the many wildfires in the area prevented NPS staff from checking all of the occupied Peregrine Falcon nest sites (n=52) in the area; 39 territorial pairs (75%) were monitored, 16 pairs (41%) raised young, and productivity was 0.82 young per pair and 2.00 nestlings per successful pair. According to NPS staff, the unusual fire conditions may have contributed to lower reproduction by depressing the availability of prey and limiting the Peregrines' ability to hunt. ABR Inc. staff completed a Peregrine Falcon survey on the Fortymile River in eastern Alaska. Thirty-three Peregrine Falcon nest sites were checked and 26 (79%) were occupied. Nest success (50%) and number of young per pair (0.96) were slightly higher on the Fortymile River than on the upper Yukon River. The staff from Tetlin NWR monitored nest sites of three species of raptors including Osprey, Bald Eagle and Peregrine Falcon on and near the Tetlin National Wildlife Refuge in the upper Tanana River Valley. Osprey production was higher than average; 31 Osprey nests were monitored, 77% were occupied, 62% were successful, and young per successful nest was 1.30. Bald Eagle production was lower than average; 60 Bald Eagle nests were surveyed, 58% were occupied, 22% were successful, and young per successful nest was 0.20. Sixteen Peregrine Falcon nest sites were surveyed; 100% were occupied, 79% were successful, and young per successful nest was 1.90.

BCR 5 - Northwest Pacific Rainforest (formerly Southcentral and Southeastern Alaska):

Thanks to Mike Jacobsen (USFWS) and Steve Lewis (ADF&G) for providing information on raptor surveys in BCR 5.

*Southeast Alaska*: USFWS monitored 89 Bald Eagle nest sites; 38% were occupied and 18% were successful. ADF&G is conducting analyses on productivity, fidelity, movements, and use areas for Northern Goshawks. ADF&G has several manuscripts are in preparation, including an analysis of Northern Goshawk breeding season diet and nesting habitat; several manuscripts were recently published (see Appendix).

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## LOCAL-SCALE MONITORING

***Project: Developing a long-term monitoring program for passerine birds in Denali National Park and Preserve, Alaska.***

Investigator: Carol McIntyre, National Park Service

We are developing a long-term monitoring program for passerine birds as part of the National Park Service's "Vital Signs Monitoring Program" in the Central Alaska Monitoring Network (CAKN). Our preliminary work is being conducted in Denali National Park and Preserve (Denali). Cooperators on this project include the National Park Service (NPS), U.S. Geological Survey (USGS), the Alaska Bird Observatory (ABO), the Institute of Arctic Biology-University of Alaska (IAB), and Western Ecosystems Technology, Inc. (WEST).

A primary objective of the passerine monitoring is to assess how bird communities (composition, distribution, and abundance) respond to changes in landscape structure and vegetation. Therefore, the passerine monitoring program uses the same spatial sampling design as the vegetation monitoring program in Denali. Carl Roland (NPS), Karen Oakley (USGS) and Trent MacDonald (WEST) developed this probabilistic sampling design, commonly referred to as the minigrid design, in 2000. Each 2.5 km x 2.5 km minigrid includes 25 sampling points located 500-m apart. By co-locating our sampling points with those sampled by the vegetation crew, we eliminated the need for the bird crew to collect data on vegetation and/or habitat and generated an integrated data set containing measurements of vegetation and passerine birds across the landscape in Denali.

We sample for birds at each minigrid point using a 10-minute point-transect with data grouped by distance interval. All birds seen or heard at each plot are recorded during a 10-minute sampling period. Detections of birds are separated into four time segments: 0-3 minutes, 3-5 minutes, 5-8 minutes, and 8-10 minutes. All birds detected within 150-m of the observer are recorded at 10-m intervals up to 100 m, then at 25 m intervals to 150-m.

In 2004, we conducted surveys for passerine birds on four minigrids in Denali. We sampled all points on the Teklanika and Savage minigrids one time in June and all sample points on two minigrids, Rock Creek and Primrose Ridge, three times (early, mid-, and late) during June to assess within-season variation of count results across an elevation gradient. Experienced bird surveyors, who completed a two-week distance sampling training course before the field season, conducted the surveys. We conducted all surveys between 0300 and 0930 daily from 1 June to 28 June 2004.

Similar to our results in the past four years, we detected 19 to 25 species per grid and passerine birds were the most common group of birds detected on the counts. We detected most birds ($\geq$ 70%) in the first five minutes of the count and detected most birds ($\geq$ 80%) by their calls or songs. Our preliminary results from the multiple sampling events on the Rock Creek and Primrose Ridge minigrids in June 2004 suggest that we should conduct future surveys in alpine areas before 15 June; the number of species and number of individual birds detected on points at higher elevation on both grids decreased after 15 June.

Highlights of the 2004 season included many observations of White-winged Crossbills on the middle Teklanika minigrid that is dominated by large white spruce, the first documentation of a Baird's

Sandpiper nest in over 40 years in Denali on the Primrose Ridge minigrid, and many observations of Surfbirds on the Primrose Ridge minigrid.

We are awaiting the results of a formal peer-review of our monitoring plan and standard operating procedures. In 2005, we plan to sample eight to 12 minigrids, with most sampling focused on minigrids within 5 km of the Denali park road and in the wetlands in the northwest region of Denali. In autumn 2005, we plan to generate a report summarizing our findings from 2002-2005.

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***Project: Modeling breeding landbird distributions on the Kenai National Wildlife Refuge as a component of the Long Term Ecological Monitoring Program.***

Investigators: John Morton, Dawn Magness, Todd Eskelin, Mark Laker, U.S. Fish and Wildlife Service

We are developing a Long Term Ecological Monitoring Program (LTEMP) that inventories and monitors biota on ~350 permanent points systematically distributed at 5-km intervals across the 2 million-acre Kenai National Wildlife Refuge (KENWR). Forested points on this grid are part of the USDA's Forest Inventory & Analysis (FIA), a national program to inventory and monitor forest resources regardless of land ownership. Through a formal agreement that recognizes LTEMP as an FIA adjunct inventory, we sample fauna on FIA sites, share data and protocols, and together will resample 20% of the sites every other year over a 10-year monitoring window. We initiated LTEMP in 2004 by sampling breeding landbirds (Alaska Landbird Monitoring Survey protocols), vascular and nonvascular plants (line intercept), insects (sweep net), and noise (sound meter) on every other point (n~150). Despite this limited sampling effort, we encountered 80% of 96 landbird species and 50% of 471 vascular plant species known to occur on KENWR. We used logistic regression and FRAGSTATS to successfully model distributions of several bird species across KENWR. We also conducted 2 pilot studies to assess the appropriate temporal interval for sampling insect and mammal (hair DNA) species richness. In the future, we expect to use aerial digital videography to sample the winter distribution of mammals. All sampling methods are passive, nondestructive (to habitat), relatively inexpensive, and require ≤ 2 visits to a plot (1 to deploy traps, 1 to retrieve) in a given sampling year. Our approach provides a statistically-rigorous framework for landscape sampling, yet maintains a great deal of design flexibility. Integration with the FIA ensures that LTEMP is cost effective, and the collocation of floral and faunal sampling permits additional species-habitat modeling. Future analyses will involve kriging approaches to modeling the densities of breeding landbirds (PROGRAM DISTANCE) across the landscape.

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## INVENTORIES

### *Project: Gates of the Arctic National Park and Preserve riparian bird inventory*

Investigator: Nikki Guldager, National Park Service

The Park Flight Program (a partnership between the NPS, National Park Foundation, National Fish & Wildlife Foundation/USAID, American Airlines, and the University of Arizona) provided support for a riparian bird inventory within Gates of the Arctic National Park and Preserve (GAAR). The bird inventory was designed to document species distribution, diversity, density and habitat within GAAR's major riparian corridors. In 2003 and 2004, 653 randomly located points were surveyed for landbirds within a 110,000 hectare study area, which included more than 270 km of river miles within the Killik, Noatak, North Fork of the Koyukuk, John and Kobuk River corridors. Variable circular plot methodology with unlimited distance estimation was used; 6,514 individual birds from 109 species were detected by sight and sound. 2005 is the last year of field work, during which time the Itkillik and Alatna River corridors will be surveyed. Analyses to estimate species density, examine species habitat associations, and predict species distributions within the study area will be completed in winter 2005/2006.

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### *Project: Inventory of montane-nesting birds in the Southwest Alaska Network of National Parks*

Investigators: Dan Ruthrauff, Lee Tibbitts, Robert Gill, and Colleen Handel, U.S. Geological Survey

As part of a three-year study to inventory montane-nesting birds within the National Park Service's Southwest Alaska Network, we conducted surveys within Lake Clark National Park and Preserve during 14–29 May and 9–12 June in 2004. We deployed 3, two-person crews to survey a total of 22, 10- x 10-km random plots allocated throughout Lake Clark in proportion to ecoregion type. Crews conducted a total of 379 point counts in May and replicated 36 of the point counts in June. Preliminary examination of the data indicates detection of 2,816 individuals of 93 species. The most commonly detected species were Golden-crowned Sparrows (239 individuals), American Tree Sparrows (182 individuals), and Dark-eyed Juncos (169 individuals). In addition, several species that are montane-nesting specialists (e.g., Surfbird, Gray-crowned Rosy-Finch, Northern Wheatear) were detected at low rates. Data from the surveys will be used to predict presence/absence of species by ecoregion and habitat, and calculate park-, ecoregion-, and habitat-specific bird densities. In 2005 we will complete the assessment of Lake Clark and initiate similar surveys in Katmai National Park and Preserve. These data will serve not only as a basic avifaunal inventory of these parks but, given the repeatable nature of the methodology, will also allow for population monitoring over time.

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***Project: An integrated biological inventory of Kanuti National Wildlife Refuge***

Investigators: Lisa Saperstein and Chris Harwood, U.S. Fish and Wildlife Service

Based largely on recommendations made at the 2002 Kanuti NWR Biological Program Review, and particularly in recognition of the first refuge purpose which guides refuge management to "conserve fish and wildlife populations and habitats in their natural diversity," refuge staff initiated an integrated biological inventory program in 2004. The inventory program is designed to catalogue the diversity of birds, plants/habitats, mammals (and in particular, arvicoline rodents), and terrestrial invertebrates found on the refuge.

Much of the historical inventory work done on the refuge has been largely restricted to some of the more accessible (e.g., via floatplane or boat), waterfowl-rich, and/or unique areas. As a result, flora and fauna of much of the refuge remain undocumented. The nonrandom nature of past work has also restricted our ability to make inferences (e.g., bird-habitat relationships) to unvisited areas, habitats, etc. In December 2003, we met in Anchorage with U.S. Fish and Wildlife Service and U.S. Geological Survey personnel to devise a sampling scheme appropriate for our inventory goals. A systematically random sampling scheme, adapted from the Alaska Landbird Monitoring Survey (ALMS), was adopted to ensure widespread, unbiased coverage of the refuge. Bird survey protocols were also adopted from ALMS. Refuge personnel intend to visit some 60+ plots over the next 10-15 years. This program serves not only as an inventory of refuge resources, but the repeatable nature of the methodologies allows for conversion to a monitoring program over time.

In June 2004 we completed bird surveys, trapped small mammals, collected terrestrial invertebrates, and gathered tree cookies and/or increment core samples (to document fire history) for three of the 60+ randomly located plots; plant/habitat surveys were not completed for any of the plots (to be done in 2005). Fifty, 37, and 42 species of birds were recorded on or near the three plots, respectively. The number of species recorded only during surveys proper averaged about 30% lower. We detected a new species for the refuge, Palm Warbler; this represents one of Alaska's two breeding season records for the species. Additionally, we collected Alaska's first documented Prairie Bluet damselfly (*Coenagrion angulatum*); this represents a major range extension for this species.

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## SPECIES-SPECIFIC STUDIES/RESEARCH

### *Project: Productivity and nest location of Common Ravens with the oilfields on the arctic coastal plain: 2004 progress report*

Investigator: Stacia Backensto, University of Alaska Fairbanks

Populations of Common Ravens (*Corvus corax*) on the North Slope of Alaska appear to be increasing where anthropogenic resources are available. Oil fields provide abundant anthropogenic resources in terms of infrastructure and food sources. Winter counts of ravens at the North Slope Borough Prudhoe Bay Landfill appear to be increasing. Ravens use infrastructure for nesting and foraging on human food. To assess the potential impact ravens may have as predators of tundra-nesting birds, we captured ten breeding adult ravens, attached VHF and satellite transmitters, and tracked their foraging movements during the 2004 breeding season. We collected pellet samples and prey remains from nest areas as well as conducted nest observations to evaluate food items brought to the nest. We marked 28 fledglings to determine timing of dispersal as well as juvenile survival. To further investigate seasonal movements, dispersal, and anthropogenic resource use we engaged the community of oil field personnel in an observation program targeting marked birds. Our preliminary findings suggest that breeding adults maintain 1-2 km territories around facilities until late in the chick stage and gradually increase until fledging. Adults shift use of food sources based on availability throughout the breeding season. Juveniles remain with adults and siblings for a period of > 4 weeks after fledge. We emphasize the preliminary nature of the results and further analyses will be necessary as well as additional data collection for breeding adults and juveniles in the coming years to fully understand the relationship between ravens and human activity on the North Slope.

The 2005 field season will continue with tracking VHF adults from 2004 and trapping new breeding adults in the oil fields for attachment of satellite transmitters. Tracking methods for VHF birds will be slightly modified from 2004 based on preliminary data analysis to minimize potential tracking biases inherent in telemetry work. Additionally and most importantly we intend to cover a longer period of tracking to further investigate resource use changes based on availability and season. Data analysis for 2004 telemetry data will include: home range estimation, activity pattern definition (foraging, caching, perching, etc.), prey characterization and quantification during foraging activities, and distance to multiple spatial and temporal levels of anthropogenic food resources. Additionally we hope to collaborate with Wildlife Conservation Society where possible on predation patterns of tundra-nesting birds. In 2005 we plan to work with BLM in NPR-A to capture adult breeding ravens in areas further away from concentrated human development and fit them with satellite transmitters. The comparison with satellite data for breeding adults in the oil fields will enhance our understanding of how the use of anthropogenic resources varies between ravens that are different distances from subsidies. To supplement our biological based investigations, we will initiate a preliminary interview process with oil field personnel to document historical and current patterns of raven use of infrastructure within in the oil fields.

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***Project: Black Swift distribution in Alaska***

Investigators: Gwen Baluss, Tongass National Forest; Bob Altman, American Bird Conservancy

The Black Swift (*Cypseloides niger*) is a priority species for bird conservation throughout its range in North America, and in Alaska it is included on the Audubon Alaska "Watchlist," the *Boreal Partners in Flight* Landbird Conservation Plan, and it is a species of interest for the Pacific Northwest Bird Conservation Region (BCR 5). Little is known about the species, and it is not adequately monitored by current monitoring schemes such as the Breeding Bird Survey.

In 2003 and 2004 we sought to learn more about the range of Black Swifts in Alaska and to survey likely nesting areas. It was hoped that monitoring efforts could then be initiated based on the species tendency toward long-term fidelity to colonial nesting sites at waterfalls.

A database of all Black Swift sightings from both published and unpublished accounts by competent bird-watchers was compiled. Within the zone of highest occurrence of Black Swift observations, waterfalls that met the known criteria for Black Swift nesting were surveyed according to protocol established for the BCR 5 Black Swift effort.

Waterfalls were checked along the Stikine River, Hyder area, inland lakes in Misty Fiords National Monument, Tracy Arm - Ford's Terror Wilderness, and locations near Petersberg and Ketchikan. No nests were found in Alaska. Incidental to the study, one likely nesting area was identified near the border, outside of Stewart, British Columbia.

Plans for 2005 include a search up the Chickamen River, noting any additional observations, and encouraging volunteer efforts to check waterfalls for nests.

Although it would be helpful to document breeding in Alaska, we have concluded that due to the extreme difficulty of finding and accessing suitable waterfalls on the Tongass and the uncertainty that still surrounds their habits at the northern extent of their range, any practical monitoring effort for this species on the Tongass will need to be based on observations of "commuting" birds. Prime areas for summer annual counts would be the Stikine River, Hyder and possibly other interior river systems in extreme southeast AK. Ideally these could be coordinated with similar efforts in northern British Columbia.

For more information see: http://home.pacifier.com/~neawanna/BLSW/BLSW.html
Alaska records available from Gwen Baluss, email: gwenbaluss@yahoo.com

***Project: Factors influencing Tree Swallow mortality in Fairbanks, Alaska***

Investigator: Luke DeCicco, Alaska Bird Observatory

I investigated the relationship between Tree Swallow (*Tachycineta bicolor*) chick mortality and two weather variables, cumulative precipitation during rainfall events and minimum daily temperature at Creamer's Field Migratory Waterfowl Refuge in Fairbanks, Alaska. I collected mortality data at 2- to 4-day intervals during the breeding season over a six-year period (1999-2004). I used the program MARK to estimate daily survival rate and the relationship between daily survival rate and the two weather variables, minimum temperature and cumulative precipitation during rainy periods for the six-year data set. There was a strong negative relationship ($y = -0.82x + 4.09$) between daily survival rate and cumulative precipitation and a weaker positive relationship ($y = 0.08x + 0.70$) between daily minimum temperature and daily survival rate. These results suggest that Tree Swallow chick mortality is largely related to cumulative precipitation and that minimum temperature had only a weak influence on daily survival. Since Tree Swallows are aerial insectivores and their food source is likely reduced when it rains, adverse weather events may indirectly cause chick mortality from starvation.

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***Project: Transplanting Rock Ptarmigan from Attu Island to Agattu Island, Aleutian Islands: 2004 progress report***

Primary Investigator: Steve Ebbert, U.S. Fish and Wildlife Service

Restoration of natural biodiversity following removal of introduced predators in one of the main objectives of Alaska Maritime National Wildlife Refuge. Following fox eradication, many native birds (like seabirds) reoccupy islands on their own from nearby offshore rocks, but some species are poor dispersers and need help reoccupying their former range. Rock ptarmigan (*Lagopus mutus*) are such poor dispersers that populations on each major island group show genetic differentiation suggesting little interchange occur. One of these subspecies, Evermann's Rock Ptarmigan (*L. m. evermanni*) is now confined to a single island, Attu, having been extirpated from the rest of its historic range in the Near Island group.

The refuge instituted a project in 2003 to try to restore this rare ptarmigan to Agattu Island to increase its chances for long-term survival. The project also provides a continuing opportunity to evaluate ptarmigan translocation methods which may be used in the future elsewhere in the Aleutian Islands where other subspecies of Rock Ptarmigan may also need to be restored.

In 2004, 27 ptarmigan were moved from Attu to Agattu in spring (Table 1). Twenty birds were moved in the spring of 2003, and six more were transplanted during August. There was no late summer transplant effort in 2004. The spring 2004 transplant brought the total moved to Agattu in a twelve month period to 53 birds.

Noosing proved to be the most effective technique to capture both males and females. We tried noose carpets with and without decoys. The three birds captured in noose carpets were caught without the aid of decoys.

The 2004 spring capture effort began one week earlier than the effort in 2003. The birds seemed less settled in their territories in 2004. Only one egg was laid during holding this year, in comparison to 18 eggs collected in 2003. The 2004 egg was laid on the final day of transport.

Post-translocation monitoring is necessary to evaluate the survival and breeding success of the transplanted birds on Agattu. In 2005, we plan to concentrate on surveying Agattu in spring for ptarmigan. Future transplants from Attu will depend on the results of the 2005 surveys.

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***Project: Rusty Blackbirds: Linking breeding and wintering population using stable isotopes***

Investigators: Keith Hobson, Canadian Wildlife Service, and Russell Greenberg , Smithsonian Migratory Bird Center

The Rusty Blackbird (*Euphagus carolinus*) is a widespread North American species that has shown chronic long-term and acute short-term population declines, based both on breeding season and wintering ground surveys. The decline, although one of the most profound for any North American species, is poorly understood. Given the species close association with wooded wetlands throughout the year, it could prove to be an excellent indicator species for environmental processes in these threatened ecosystems.

Narrowing the hypotheses for the cause of the decline in the Rusty Blackbird depends on developing a better understanding for the geographical pattern where winter populations originate. Rusty Blackbirds have historically bred across the boreal forest and wintered throughout Southeastern U.S. Because much of the breeding range is inaccessible, we will employ the newly developed techniques feather isotope analysis to develop a connectivity map of regions of the breeding and winter range. The use of deuterium ratios will allow us to estimate the breeding latitude of birds sampled on the wintering grounds which because of the Northwest-Southeast orientation of boreal forests should allow us to infer what region of the boreal forests birds originated. For example, the analysis could determine if most birds originated in Alaska versus Central Canada, versus the Maritime Provinces. We will sample feathers from birds captured or collected in the wild. However, the use of historically collected specimens (most of which were collected in the early 20$^{th}$ Century) will allow us to test for major shifts in the source of wintering birds. This will provide tremendous insight into the nature of the population declines.

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***Project: Estimating the global abundance of McKay's Buntings on St. Matthew Island, Alaska***

Investigators: Steve Matsuoka and Jim Johnson, U.S. Fish and Wildlife Service; Dan Ruthrauff, Lee Tibbitts, and Robert Gill, U.S. Geological Survey

We estimated for the first time the global abundance of McKay's Buntings (*Plectrophenax hyperboreus*) from surveys conducted in 2003 across their restricted breeding range on St. Matthew and Hall islands, Alaska. We used a multi-model approach to both estimate population size from counts with distances estimation and measure the relative effects of environmental variables on abundance and its subcomponents. We counted 2,400 individuals along over 200 km of transect during our surveys. Probability of detecting birds on surveys varied strongly both with habitat and observer experience conducting line-transect surveys. The number of birds encountered per km of transect increased relative to slope, presumable because birds were selecting steep slopes with abundant rock crevices for nesting. When adjusting counts for detectability and slope we estimated 32,300 birds (CV 6.9%) in the global population. This was 5-16 times the number of birds previously suspected to comprise the species.

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***Project: Breeding biology of the Yellow-bellied Flycatcher,* Empidonax flaviventris*, in central Alaska***

Investigators: Paul Martin and Frances Bonier, University of Washington

During pilot field work just north of Eureka, Alaska (northwest of Fairbanks) (65.23˚N, 150.18˚W), we located a population of at least 13 pairs of Yellow-bellied Flycatcher in open montane forest (200-600 m elevation). We located a nest with 4 eggs on 30 June, and made observations on breeding biology using video cameras. The nest was built on the ground, in a small depression at the base of small *Alnus* and *Salix* saplings, on a steep embankment. Behavior was video-taped for 24-hours at a time, during incubation, early nestling, and late nestling periods. Three young fledged from the nest on 20 July, a nestling period of 15 days. One egg did not hatch, showing partial development. This nest may represent the first confirmed breeding of Yellow-bellied Flycatcher in Alaska, and a range extension for the species. We were unable to adequately survey the area this season, and thus our estimate of 13 pairs represents a minimum number. The abundance of similar habitat in the area suggests that the true size of the breeding population is much larger.

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***Project: Gyrfalcon monitoring protocol development on Yukon Delta NWR***

Investigators: Brian McCaffery and Phil Schempf, U.S. Fish and Wildlife Service; Travis Booms, University of Alaska Fairbanks; Mark Fuller, U.S. Geological Survey (Snake River Field Station) and Boise State University's Raptor Research Center

At the 2003 Raptor Research Foundation Annual Meeting, biologists from the U.S. Fish and Wildlife Service (Migratory Bird Management, Alaska) and the U.S. Geological Survey (Snake River Field Station) convened a workshop as the first step in developing a continental Gyrfalcon (*Falco* rusticolus) monitoring protocol. Participants determined that two particular issues needed to be addressed in order to make progress on a standardized approach to population monitoring. First, in order to select the best time and type of survey, it would be necessary to determine the detectability of breeding Gyrfalcons using different survey protocols and during different times of the year. Second, in order to know what is actually being surveyed in a long-term monitoring program, it would be necessary to determine whether the membership of local "populations" is stable from year to year (i.e., site-faithful) or reflects a dynamic process of constant immigration and emigration.

Because of its very high local Gyrfalcon densities, the Yukon Delta NWR initiated a collaborative effort in 2004 to address these two objectives. Both can be addressed through the use of radio telemetry; the second can also be explored through genetic analyses. Our study area was the Ingakslugwat Hills, a complex of small ancient volcanic craters, outcroppings, and lava flows. The primary objectives of this pilot effort were to: 1) test various adult trapping methods, 2) trap adults and harness each with a satellite or VHF transmitter, 3) collect genetic, contaminant, and diet data from nest areas, and 4) band nestlings with metal USGS and orange color bands.

Seven different trapping techniques were attempted: 1) a live Great Horned Owl placed in front of a set of Dho Gaza nets, 2) bow net with a live pigeon, 3) noose jacket on a pigeon, 4) Bal-chatri with a pigeon lure, 5) noose carpets, 6) noose prey envelopes, and 7) noosed dead quail. Despite the diversity and frequency of trapping efforts, no gyrfalcon adults were captured for attaching radios. The trapping efforts in 2004 provided insights as to alternative trapping approaches which may prove successful in 2005. Two female fledglings were outfitted with PTTs (satellite transmitters). Both birds survived at least into early winter, concentrating their activity along the southern delta between Nunivak Island and the mouth of the Kuskokwim River.

Our field crew visited all 9 nests in the Ingakslugwat Hills, banding, measuring, and collecting blood quills from each of 26 nestlings. Each nestling was banded with a USFWS band on the right tarsus, and an orange color band on the left tarsus. We also collected 280 pellets and 20 bags of prey remains for an analysis of gyrfalcon diet in the Ingakslugwat Hills. Pellet and prey samples will be analyzed and summarized on contract. Finally, we collected 67 molted adult feathers which, along with the blood quills, will be used for genetic analyses.

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***Project: Arctic Warbler breeding biology along the Denali Highway***

Investigators: Richard Ring, Nancy DeWitt, and Susan Sharbaugh, Alaska Bird Observatory

The Arctic Warbler (*Phylloscopus borealis*) is a U.S. Fish and Wildlife Service "Species of Concern." This designation is due to its limited range and the paucity of information on this species in North America. Little is known about the breeding ecology, natural history, or habitat requirements of Arctic Warblers in Alaska. In June 2004, the Alaska Bird Observatory initiated a three-year study on the breeding ecology and habitat requirements of Arctic Warblers along the Denali Highway between Tangle Lakes and Maclaren Summit. Primary objectives for the 2004 field season included target netting and color banding adult Arctic Warblers, recording basic breeding phenology and behavior, identifying and describing breeding territories and nest sites, and documenting nest success.

We established four 10-ha study plots in areas where Arctic Warblers have been observed singing during Breeding Bird Surveys and similar to those described as breeding habitat in previous studies. Vegetation type varied among the plots. Plots 1 and 2 contained a mixture of dwarf birch and willow. The shrub layer was both taller and thicker than that of Plots 3 and 4 and was dominated by short and thin willow shrub. Plot 1 contained widely scattered spruce trees. Plots 3 and 4 contained small meadow-like patches of forbs and grasses. *Sphagnum* and other mosses formed a nearly continuous ground cover on all plots.

Singing males were first observed on 8 June. Twenty-two adult birds (16 males, 4 females, and 2 unknown) were captured in mist nests and color banded. We discovered the first Arctic Warbler nest on 28 June, already with a complete clutch. We located 22 nests inside our plots and 2 nests adjacent to plots. Seven nests were found during incubation. The remainder contained nestlings when discovered. Clutch size ranged from three to seven, with five or six being most common. Brood reduction was common. The first nestlings were observed on 7 July and the first fledging on 16 July. We banded 48 nestlings from 11 nests. Family groups, with one or two adults feeding fledglings, were observed from 16 to 30 July. All nests except one had fledged or failed when we left the study site on 30 July; it was within a few days of fledging.

The Arctic Warbler nests on these plots were dome-shaped with a side entrance, typically on the ground built into the base of a grass or sedge tussock, or at the base of a willow or birch shrub. All were built of grass (often *Deschampsia caespitosa*) or *Carex* species interwoven with moss and most were lined with moose hair. The nests were extremely cryptic, particularly from above. Plot 3 contained the greatest number of nests (8), followed by Plot 4 (6). Plots 1 and 2 had four nests each. While all nests were found within 2 m of dwarf birch or willow clumps, nests on Plots 3 and 4 were often also adjacent to small meadow-like openings. No nests were found within the areas of dense, tall (over 2 m) willow on Plot 1 and some nests on Plot 2 had almost no willow within a 10-m radius. Adjacent nests were as close as 75 m.

Plans for 2005 include increasing our target-netting and color banding efforts, extending fieldwork into mid-August, and collecting vegetation data that will allow us to develop a habitat model.

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***Project: Song Sparrow behavior on islets with and without rats, Bay of Islands, Adak, May-July 2004***.

Investigator: Alexandra Rose, University of California, Santa Cruz.

While camped at Bay of Islands, Adak, I monitored 29 nests of 3 songbird species: Song Sparrow ($n$ = 17), Winter Wren ($n$ = 4) and Lapland Longspur ($n$ = 8) were monitored at Bay of Islands, Adak in summer 2004. I measured survivorship, chick growth and fledging success. Additionally, I observed 4 incidences of rat predation and 1 nest was depredated by an unknown predator (likely Common Raven). All four incidences of rat predation occurred on Song Sparrow nests/fledglings. No cases of egg predation were observed, however in one nest where nestlings were killed, an un-hatched egg was also consumed. In two cases, nests were known to have been attacked at night (or early morning) and parts of nestlings (and in one case, the brooding female) were scattered in and around the nest.

Additionally, I surveyed 9 islands with rats in the Bay of Islands for songbird, shorebird and raptor abundance. On smaller islands ($n$ = 5), I conducted area searches and mapped all breeding territories as accurately as possible. On larger islands ($n$ = 4), I walked transects across islands and used visual and auditory cues to identify and count birds within a 50-m swath. When nests were found, I made notes as to their contents.

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University of California, Santa Cruz, CA 95064; email: rose@biology.ucsc.edu

***Project: Developing mitochondrial and microsatellite DNA markers for evaluating the phylogeography of the Prince of Wales Spruce Grouse***

Primary Investigator: Sandra Talbot, U.S. Geological Survey

Little is known about the population status, population genetic relationships, and taxonomic distinction of the Prince of Wales (POW) Spruce Grouse (*Falcipennis canadensis isleibi*) relative to nearby (mainland) spruce grouse populations ascribed to the subspecies *F. p. franklinii*. To provide the means for population- and phylogeographic-level investigations of this taxon, we are screening and testing genetic markers with contrasting modes of inheritance (mitochondrial DNA control region, autosomal and sex-linked signal copy nuclear exons and introns and nuclear microsatellite loci). These markers will help determine the taxonomic distinctiveness of the POW Spruce Grouse on southeastern Alaskan islands, and measure the degree of isolation from and direction of gene flow with nearby mainland populations. To date, we have screened spruce grouse sampled from several south central Alaskan populations, for variability at 10 nuclear microsatellite loci developed for other Tetraonid species. We found that seven of the 10 loci were polymorphic among spruce grouse of south central Alaska, and will test them on POW Spruce Grouse as soon as samples become available. We are now screening 20 nuclear exons and introns for variability in spruce grouse, and will test mitochondrial DNA primers, already developed for Tetraonid species, for reliability in POW Spruce Grouse, again as soon as samples become available. Final results of this screen will be used to select a suite of loci of sufficient consistency and resolution for use in population genetics and phylogeographic investigations targeted toward this taxon.

Contact: Sandra Talbot, U.S. Geological Survey–Alaska Science Center (USGS-ASC), 1011 E. Tudor Road, MS 701, Anchorage, Alaska 99503, 907-786-3683, sandy_talbot@usgs.gov.

## MULTI-SPECIES STUDIES/RESEARCH

### *Project: Quantifying and correcting measurement error in point transect counts*

Investigators: Colleen Handel, Lee Tibbitts, Melissa Cady, and Dan Ruthrauff, U.S. Geological Survey, and Bill Thompson, National Park Service

Point transect sampling, where observers record distances from a point to detected individuals, is a widespread survey approach that incorporates detectability into density estimates of songbirds during the breeding season. A key assumption of this method is that distances are measured without error. However, very little research has been performed on quantifying the magnitude of measurement errors in different sampling contexts, although there has been some work on developing corrections to density estimators when measurement errors are present (Marques 2004; Biometrics 60:757-763). Measurement error in aural surveys of birds may arise due to habitat structure/composition, weather conditions, pitch and volume of vocalization, frequency of vocalization, bird position (distance from point, height, direction of vocalization), method of measurement, and observer. Preliminary observational data comparing estimated versus known distances to birds by different observers exhibited a trend of increasing error with increasing actual distance. However, errors overall were fairly consistent among observers and were not overly large. We propose a more formal evaluation of measurement error via both observational and quasi-experimental designs under different sampling conditions. The observational study would be based on two or more observers, where one observer would estimate distance to a bird from a randomly selected quadrant of a point and the other observer(s) would locate the bird to obtain an actual distance. The quasi-experimental design would use an artificial source for vocalizations and would account for more factors potentially affecting distance measurement. We issued a call for assistance from current projects conducting point-transect counts to provide additional observational data on measurement error in various sampling contexts (contact Colleen Handel). Such information could be gathered during the pre-season training program and/or during fieldwork.

Contact: Colleen Handel, U.S. Geological Survey, Alaska Science Center, 1011 East Tudor Road, Anchorage, AK 99503. email: colleen_handel@usgs.gov

### *Project: Development of survey protocols for primary cavity excavators on the Tongass National Forest*

Primary Investigator: Michelle Kissling, U.S. Fish and Wildlife Service

In southeast Alaska, flying squirrels, woodpeckers, passerines, waterfowl, and forest owls use natural or excavated cavities. Although many species rely on cavities for nesting and roosting sites, only a few species known to occur in southeast Alaska (i.e., Hairy Woodpecker, Northern Flicker (*Colaptes auratus*), Red-breasted Sapsucker (*Sphyrapicus ruber*), Downy Woodpecker (*Picoides pubescens*), American Three-toed Woodpecker (*Picoides tridactylus*), and Chestnut-backed Chickadee (*Poecile rufescens*) are capable of creating cavities. Furthermore, distribution and abundance of these species vary greatly within the region. Basic ecology, habitat requirements, seasonal movements, and chronology of woodpeckers in southeast Alaska are poorly understood. Current avian monitoring programs (e.g., Breeding Bird Survey, Off-road Point Count Program) are suspected to occur at an unsuitable time for maximizing detections of woodpeckers.

The objectives of this project were: (1) to review and determine the efficacy of existing habitat capability models developed for Red-breasted Sapsucker and Hairy Woodpecker, (2) to develop a survey protocol(s) appropriate for primary cavity excavators in southeast Alaska, and (3) to investigate the feasibility of monitoring woodpecker populations in response to management activities on the Tongass National Forest.

Survey routes were established in the Juneau ($n$ = 5) and Petersburg ($n$ = 3) areas. On each route, at least 10 stations were established 200 meters apart (Juneau, $n$ = 50; Petersburg, $n$ = 34). Juneau routes were established along accessible trails (i.e., Herbert River, Windfall Lake, Petersburg Lake, North Douglas, and Treadwell Ditch). Two Petersburg routes were located on established trails, and one route was a repeat of a survey route used by C. Iverson (USFS) and others in the early 1990s. We identified nine, 10-day survey intervals starting May 1 and continuing to June 29. Each route was surveyed once during each survey interval, except surveying of Petersburg routes did not begin until May 1. Counts were conducted between 0400-1200 and were not conducted in inclement weather (i.e., heavy precipitation or strong winds). Generally, one route was surveyed for presence/absence using broadcast methods and abundance using variable circular plot methods in a given morning. Abundance surveys were conducted first (stations 1-10), and presence/absence surveys occurred in the opposite direction as the surveyor left the area (stations 10-1).

From April 1 – June 29, 2004, 654 silent and 654 broadcast surveys were conducted. Thirty-three migratory and resident species were detected, including Hairy Woodpecker, American Three-toed Woodpecker, Downy Woodpecker, Red-breasted Sapsucker, Chestnut-backed Chickadee, Red-breasted Nuthatch, and Brown Creeper. Generally speaking, we recommend that surveying for cavity- and bark-nesting species in southeast Alaska should occur from April 21 – May 30 with the optimal survey window being May 1 – 20. However, these data were collected over one breeding season at a limited number of stations and results should be interpreted with caution. Woodpecker abundance is not only subject to annual variability, but also spatial variability, and peak periods of detectability in the Juneau and Petersburg areas may not reflect those in other parts of the Tongass.

We opportunistically located 54 nests of four species throughout the 2004 breeding season. Most nests were found in western hemlock (*Tsuga heterophylla*) and in dead trees with hard wood and some external deterioration. Average DBH for all nest trees was greater than 70 cm and average height was greater than 17 m, although given the low sample size there was a lot of variability in the estimates. For comparison, the cavity-nesting northern flying squirrel (*Glaucomys sabrinus*) denned in trees with a median DBH of 68 cm in live trees and 71 cm in snags versus available trees with medians of 58 cm and 60 cm, respectively (see Bakker and Hastings 2002 for details). These data suggest that cavity- and bark-nesting birds are nesting in similar trees that flying squirrels use for denning, and all of these species seem to be using trees larger than those available in the forest. While competition for cavities is unlikely in older forests with high snag abundance, availability of trees with necessary characteristics for cavity excavation or nesting may be limited in younger forests. More data on nest site characteristics and selection are needed to quantify nesting habitat requirements for these important species and to increase the reliability of habitat capability models.

Contact: Michelle Kissling, U.S. Fish and Wildlife Service, Juneau Fish and Wildlife Field Office, 3000 Vintage Park Blvd, Suite 201, Juneau, Alaska 99801. Email: michelle_kissling@fws.gov.

***Project: Aleut village sites support distinct assemblages of songbirds***

Investigators: Jonathan Knudsen, Nancy Huntly, and Kimberly Gilliland, Idaho State University

The plant communities of Aleut village sites differ from those of the surrounding landscape on the lower Alaska Peninsula, Sanak, and islands in the Aleutians. We tested whether this landscape alteration affects the diversity, species composition, or behavior of a higher trophic level. Songbirds were observed on village sites and adjacent control sites on Sanak Island. Village sites had significantly more species and higher species diversity of birds. Control sites had significantly higher activity levels of birds. Thus, the unique vegetation of ancient villages may alter overall diversity and activity level of birds.

Contact: Jonathan Knudsen, Department of Biological Sciences, Idaho State University, Pocatello, ID 83209-8007. email: knudjona@isu.edu

***Project: Comparative population divergence and natural history of arctic, temperate and tropical passerine birds***

Investigators: Paul Martin and Frances Bonier, University of Washington

The latitudinal gradient in diversity arises, in part, from higher rates of speciation at lower latitudes. In birds, speciation occurs through the gradual divergence of populations in allopatry. If speciation rates are currently higher in the tropics, then we should see conspecific populations in the process of diverging towards new species, thus enabling us to examine aspects of population divergence that drive latitudinal variation in speciation. We set up two study plots, 420 km apart, at each of three latitudes: 0˚ (Ecuador), 40˚N (California), and 60˚N (Alaska). We will compare patterns of population divergence in 3 groups of passerine birds: tyrannid flycatchers (*Myiophobus*, *Empidonax*), thrushes (*Catharus*), and sparrows (*Zonotrichia*) found at all of the 3 latitudes.

In 2004, we located study plots in Alaska just north of Eureka (northwest of Fairbanks), and near Tok. Focal species in Alaska include Alder Flycatcher (*Empidonax alnorum*), Gray-cheeked Thrush (*Catharus minimus*), and White-crowned Sparrow (*Zonotrichia leucophrys*). During the past season, we set up study plots, and collected preliminary data on vocalizations and breeding biology (nest sites, incubation behavior, nestling feeding behavior) using song recording and video-taping. The Tok site became inaccessible due to fire; however, 5 Gray-cheeked Thrush nests, 7 Alder Flycatcher nests, and 4 White-crowned Sparrow nests were examined in Eureka. 2005 will be the first full field season at these sites, where we hope to quantify breeding biology in 12 nests per species per site.

Contact: Paul R. Martin or Frances Bonier, Department of Biology, University of Washington, Box 351800, 24 Kincaid Hall, Seattle, WA 98195-1800, USA.

***Project: Breeding landbird communities in a recently deglaciated landscape***

Investigators: Jim Saracco, Institute for Bird Populations, and Scott Gende, National Park Service

Landbirds are an important Vital Sign for many parks in the lower 48 states and may be important indicators of environmental health in Glacier Bay. Few studies, however, have examined the distribution, abundance, habitat relationships, or community composition of landbirds in the park. Jim Saracco conducted landbird surveys and collected habitat data at 57 points along ten transects in forested coastal areas (generally < 1 km from the shoreline) of Glacier Bay in June 2004. In general, landbird communities varied as a function of major habitat type; some species were characteristic of deciduous habitats of the upper Bay (Gray-cheeked Thrush, Yellow Warbler, Fox Sparrow), while others were characteristic of coniferous forests of the lower Bay (Pacific-slope Flycatcher, Golden-crowned Kinglet, Chestnut-backed Chickadee). Interestingly, bird communities also seemed to differ between eastern and western sites; western sites tended to have higher diversity. Additional data are needed to confirm these patterns and to develop hypotheses to explain their generation.

Contact: Jim Saracco, The Institute for Bird Populations, PO Box 1346, Pt. Reyes Station, CA 94956. email: jsaracco@horizoncable.com

***Project: Avian nest survival in post-logging coastal buffer strips on Prince of Wales Island, Alaska***

Investigator: David Sperry and Luke George, Humboldt State University

The association between declines in songbird populations and forest fragmentation has received a great deal of attention in the last few decades. Recent forest management practices have focused on protecting and maintaining habitat quality for terrestrial wildlife, including migratory and resident species of birds. In the Pacific Northwest, timber harvesting has resulted in removal of large expanses of old-growth forest, fragmenting original forest and increasing the amount of forest edge. Under the Tongass Land Management Plan a 304.8m (1000ft) slope distance no-harvest buffer zone exists along all marine coastlines. Although studies of avian density within riparian buffers are extensive little is known about avian productivity within coastal buffers. During 2002 and 2003 a total of 171 nests of eight species were monitored within coastal forested buffers on Prince of Wales Island, Alaska. Daily survival rate of cavity and cup nests were significantly different and therefore analyzed separately. I modeled daily survival as functions of landscape and nest site covariates independently. For cavity and cup nests the variable species was the best approximating model describing variation in daily survival at both scales. Due to small sample sizes single species analysis was used for only Hermit Thrush (*Catharus guttatus*) nests ($n$ = 47). Daily survival for Hermit Thrush nests increased with distant from coast edge. Results indicate variation in daily survival rate is greater between species than all other covariates. Future avian research evaluating management guidelines should focus on a single species.

Contact: Dave Sperry, Humboldt State University, Arcata CA, 95521.

## CONSERVATION

### *Project: Status review of landbirds included as featured species in the Alaska Department of Fish and Game's* Comprehensive Wildlife Conservation Strategy

Investigator: Alaska Natural Heritage Program

The Alaska Natural Heritage Program (AKNHP) has been developing status reports and reviewing conservation status ranks for a number of landbird species that were highlighted as "*featured species*" within the Alaska Department of Fish and Game's Comprehensive Wildlife Conservation Strategy. Landbird species reviewed during 2004 included the Queen Charlotte Goshawk, Short-eared Owl, Olive-sided Flycatcher, Violet-green Swallow, Cliff Swallow, Gray-cheeked Thrush, Smith's Longspur, and McKay's Bunting. During 2005, we are updating information on the Northern Harrier, Snowy Owl, Brown Creeper, Hermit Thrush, Townsend's Warbler, Blackpoll Warbler, White-crowned Sparrow, and Rusty Blackbird.

Within each status report we summarize information on individual species' life history traits, distribution, population abundance and trends, habitat needs, level of protection, threats, conservation status, and potential conservation and management actions at both state and global levels. Reports are largely based on published and unpublished literature and personal communication with experts. Each report also receives expert and public review. Species reports developed during 2004 are available on-line at: http://aknhp.uaa.alaska.edu/zoology/Zoology_Home.htm

For further information contact: Tracey Gotthardt, Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska Anchorage, 707 A Street, Anchorage, AK 99501. Tel: 907-257-2782; Fax: 907-257-2789; E-mail: antg@uaa.alaska.edu.

### *Project: Identifying and cataloging the Important Bird Areas of Alaska*

Investigator: Audubon Alaska

The Important Bird Area (IBA) concept was developed in Europe in the 1980s by BirdLife International, and IBAs are now recognized around the world as a valuable tool in bird conservation. As the BirdLife International partner in the U.S., the National Audubon Society launched an IBA initiative in 1995 and now has IBA programs in 46 states. To qualify as an IBA, sites must satisfy at least one of a series of strict scientific criteria: they must support (1) species of conservation concern, (2) species with restricted ranges, (3) species with particular habitat requirements, and/or (4) species, or groups of species, which are vulnerable because they congregate at specific sites. IBAs are usually discrete sites that stand out from the surrounding landscape as having local, continental or global significance for birds.

Building on work in the Bering Sea and Cook Inlet regions, Audubon Alaska is launching a statewide IBA project, and, over the next few years, plans to identify and inventory IBAs across Alaska. Most of the sites in Alaska are expected to be of global significance. Much of this work will involve collaboration and cooperation with a range of partnering organizations and communities across Alaska.

To request an IBA nomination package, or for further information, contact: Dr. Iain Stenhouse, Audubon Alaska, 715 L Street, Suite 200, Anchorage, AK 99501. Tel: 907-276-7034; Fax: 907-276-5069; E-mail: istenhouse@audubon.org

Table 1a. 2004 **Fall** Migration Banding Summary for Alaska.

| BIOREGION: | Southcentral | | | | Central | | | | Central | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Campbell Tract | | | | Creamer's Field | | | | Denali Institute | | | |
| CONTACT | Bruce Seppi | | | | Tim Walker | | | | Tim Walker | | | |
| AFFLIATION | BLM | | | | ABO | | | | ABO | | | |
| Type of Banding | Fall Migration | | | | Fall Migration | | | | Fall Migration | | | |
| Range of dates: | 8/11 – 9/14 | | | | 7/15 - 9/29 | | | | 7/30 - 9/8 | | | |
| Number of days: | 22 | | | | 61 | | | | 38 | | | |
| No. net-hours: | 906 | | | | 11,760 | | | | 2,633 | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UKN | TOT |
| Sharp-shinned Hawk | | | | 0 | 3 | | | 3 | | | | 0 |
| Boreal Owl | | | | 0 | | | | 0 | | | | 0 |
| Solitary Sandpiper | | | | 0 | | | | 0 | | | | 0 |
| Wilson's Snipe | | | | 0 | | | | 0 | | | | 0 |
| Belted Kingfisher | | | | 0 | | | | 0 | | | | 0 |
| Downy Woodpecker | | | | 0 | | | | 0 | | | | 0 |
| Hairy Woodpecker | | | | 0 | | 1 | | 1 | | | | 0 |
| Black-backed Woodpecker | | | | 0 | | | | 0 | | | | 0 |
| Three-toed Woodpecker | | | | 0 | | | | 0 | 1 | | | 1 |
| Yellow-shafted Flicker | | | | 0 | | | | 0 | | | | 0 |
| Red-breasted Sapsucker | | | | 0 | | | | 0 | | | | 0 |
| Yellow-bellied Sapsucker | | | | 0 | | | | 0 | | | | 0 |
| Olive-sided Flycatcher | | | | 0 | | | | 0 | 2 | | | 2 |
| Western Wood-Pewee | | | | 0 | | | | 0 | | | | 0 |
| Yellow-bellied Flycatcher | | | | 0 | | | | 0 | | | | 0 |
| Alder Flycatcher | 10 | | | 10 | 21 | 14 | 5 | 40 | 7 | | | 7 |
| Least Flycatcher | | | | 0 | | | | 0 | | | | 0 |
| Hammond's Flycatcher | | | | 0 | 40 | 9 | 3 | 52 | 2 | | | 2 |
| Red-eyed Vireo | | | | 0 | | | | 0 | | | | 0 |
| Warbling Vireo | | | | 0 | | | | 0 | | | | 0 |
| Philadelphia Vireo | | | | 0 | | | | 0 | | | | 0 |
| Blue-headed Vireo | | | | 0 | | | | 0 | | | | 0 |
| Gray Jay | | | | 0 | 1 | | | 1 | | | | 0 |
| Black-billed Magpie | | | | 0 | | | | 0 | 1 | 1 | | 2 |
| Black-capped Chickadee | 48 | 6 | | 54 | 20 | | 1 | 21 | 5 | | | 5 |
| Boreal Chickadee | 13 | | | 13 | | | | 0 | 12 | | | 12 |
| Red-breasted Nuthatch | 4 | 3 | | 7 | | | | 0 | | | | 0 |
| Brown Creeper | | | | 0 | | | | 0 | | | | 0 |
| Arctic Warbler | | | | 0 | | | | 0 | 9 | 1 | | 10 |
| Golden-crowned Kinglet | 8 | | | 8 | | | | 0 | | | | |
| Ruby-crowned Kinglet | 111 | 1 | | 112 | 48 | 15 | 1 | 64 | 189 | 18 | 1 | 208 |
| Townsend's Solitaire | | | | 0 | 1 | | | 1 | | | | |
| Gray-cheeked Thrush | | | | 0 | 20 | 1 | | 21 | 35 | 7 | | 42 |
| Swainson's Thrush | 11 | 1 | | 12 | 226 | 7 | 1 | 234 | 41 | 2 | | 43 |
| Hermit Thrush | 76 | 1 | | 77 | 26 | | | 26 | 10 | 2 | | 12 |
| American Robin | 1 | 1 | | 2 | 54 | 15 | 5 | 74 | 10 | 2 | 1 | 13 |
| Varied Thrush | 1 | | | 1 | 11 | 1 | | 12 | 20 | 4 | 1 | 25 |
| American Pipit | | | | 0 | | | | 0 | | | | 0 |

Table 1a (cont.). 2004 **Fall** Migration Banding Summary for Alaska.

| BIOREGION: | Southcentral | | | | Central | | | | Central | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Campbell Tract | | | | Creamer's Field | | | | Denali Institute | | | |
| CONTACT | Bruce Seppi | | | | Tim Walker | | | | Tim Walker | | | |
| AFFLIATION | BLM | | | | ABO | | | | ABO | | | |
| Type of Banding | Fall Migration | | | | Fall Migration | | | | Fall Migration | | | |
| Range of dates: | 8/11 – 9/14 | | | | 7/15 - 9/29 | | | | 7/30 - 9/8 | | | |
| Number of days: | 22 | | | | 61 | | | | 38 | | | |
| No. net-hours: | 906 | | | | 11,760 | | | | 2,633 | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UKN | TOT |
| Bohemian Waxwing | | | | 0 | | | | 0 | | 1 | | 1 |
| Cedar Waxwing | | | | 0 | | | | 0 | | | | 0 |
| Northern Shrike | | | | 0 | 1 | | | 1 | | | | 0 |
| Orange-crowned Warbler | 55 | | 1 | 56 | 366 | 36 | 6 | 408 | 71 | 15 | | 86 |
| Tennessee Warbler | | | | 0 | | | | 0 | | | | 0 |
| Yellow Warbler | 66 | 2 | | 68 | 84 | 7 | 5 | 96 | 6 | 2 | | 8 |
| Magnolia Warbler | | | | 0 | | | | 0 | | | | 0 |
| Myrtle Warbler | 181 | 2 | | 183 | 394 | 17 | 4 | 415 | 40 | 8 | | 48 |
| Townsend's Warbler | 6 | | | 6 | 8 | 6 | 4 | 18 | | | | 0 |
| Western Palm Warbler | | | | 0 | 1 | | | 1 | | | | 0 |
| Bay-breasted Warbler | | | | 0 | | | | 0 | | | | 0 |
| Blackpoll Warbler | 10 | | | 10 | 53 | 1 | | 54 | 9 | 6 | | 15 |
| American Redstart | | | | 0 | | | | 0 | | | | 0 |
| Northern Waterthrush | 3 | | | 3 | 55 | 8 | | 63 | 35 | 15 | | 50 |
| MacGillivray's Warbler | | | | 0 | | | | 0 | | | | 0 |
| Common Yellowthroat | | | | 0 | | | | 0 | | | | 0 |
| Wilson's Warbler | 53 | 1 | | 54 | 141 | 8 | 4 | 153 | 370 | 60 | 8 | 438 |
| Western Tanager | | | | 0 | | | | 0 | | | | 0 |
| American Tree Sparrow | 1 | | | 1 | 39 | 17 | | 56 | 49 | 2 | 1 | 52 |
| Chipping Sparrow | | | | 0 | | | | 0 | | | | 0 |
| Savannah Sparrow | 1 | | | 1 | 47 | 5 | | 52 | 6 | 3 | | 9 |
| Fox Sparrow | 8 | | | 8 | 10 | 2 | | 12 | 16 | 10 | | 26 |
| Lincoln's Sparrow | 16 | | | 16 | 257 | 19 | 6 | 282 | 6 | 1 | | 7 |
| Swamp Sparrow | | | | 0 | | | | 0 | | | | 0 |
| Golden-crowned Sparrow | 12 | | | 12 | 2 | 1 | | 3 | | 1 | | 1 |
| White-throated Sparrow | | | | 0 | | | | 0 | | | | 0 |
| White-crowned Sparrow | 13 | 1 | | 14 | 38 | 6 | 1 | 45 | 99 | 39 | 12 | 150 |
| Slate-colored Junco | 392 | 10 | | 402 | 356 | 28 | 4 | 388 | 70 | 4 | 2 | 76 |
| Rusty Blackbird | | | | 0 | | | | 0 | | | | 0 |
| Pine Grosbeak | | | | 0 | | | | 0 | | | | 0 |
| White-winged Crossbill | | | | 0 | | | | 0 | 1 | | | 1 |
| Purple Finch | | | | 0 | | | | 0 | | | | 0 |
| Common Redpoll | | | | 0 | | 2 | | 2 | 5 | 11 | | 16 |
| Pine Siskin | 1 | | | 1 | | | 2 | 2 | | | | 0 |
| TOTAL OF ALL SPECIES | 1,101 | 29 | 1 | 1,131 | 2,323 | 226 | 52 | 2,601 | 1,127 | 215 | 26 | 1,368 |
| CAPTURE RATE (#/100nh) | 121.5 | 3.2 | 0.1 | 124.8 | 19.8 | 1.9 | 0.4 | 22.1 | 42.8 | 8.2 | 1.0 | 52.0 |

Table 1b. 2004 **Fall** Migration Banding Summary for Alaska.

| BIOREGION: | Central | | | | Yukon | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Pump Station, Tetlin NWR | | | | Albert's Creek | | | | | | | |
| CONTACT | Bud Johnson | | | | Ted Murphy-Kelly | | | | | | | |
| AFFLIATION | USFWS | | | | PLUS | | | | | | | |
| Type of Banding | Fall Migration | | | | Fall Migration | | | | | | | |
| Range of dates: | 7/28 - 9/29 | | | | 7/20 - 9/22 | | | | | | | |
| Number of days: | 59 | | | | 53 | | | | | | | |
| No. net-hours: | 6,842 | | | | 5,058 | | | | | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UKN | TOT |
| Sharp-shinned Hawk | 7 | 4 | | 11 | 1 | 2 | | 3 | 11 | 6 | 0 | 17 |
| Boreal Owl | 1 | | | 1 | | | | 0 | 1 | 0 | 0 | 1 |
| Solitary Sandpiper | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Wilson's Snipe | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Belted Kingfisher | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Downy Woodpecker | | 1 | | 1 | | | | 0 | 0 | 1 | 0 | 1 |
| Hairy Woodpecker | | | | 0 | | | | 0 | 0 | 1 | 0 | 1 |
| Black-backed Woodpecker | | | | 0 | 0 | 1 | | 1 | 0 | 1 | 0 | 1 |
| Three-toed Woodpecker | 1 | 1 | | 2 | | | 1 | 1 | 2 | 1 | 1 | 4 |
| Yellow-shafted Flicker | | 3 | | 3 | | 1 | | 1 | 0 | 4 | 0 | 4 |
| Red-breasted Sapsucker | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Yellow-bellied Sapsucker | | | | 0 | 18 | 3 | | 21 | 18 | 3 | 0 | 21 |
| Olive-sided Flycatcher | | | | 0 | | | | 0 | 2 | 0 | 0 | 2 |
| Western Wood-Pewee | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Yellow-bellied Flycatcher | | | | 0 | | 1 | | 1 | 0 | 1 | 0 | 1 |
| Alder Flycatcher | 55 | 13 | 6 | 74 | 128 | 80 | 9 | 217 | 221 | 107 | 20 | 348 |
| Least Flycatcher | | | | 0 | 16 | 2 | 1 | 19 | 16 | 2 | 1 | 19 |
| Hammond's Flycatcher | 8 | 1 | | 9 | 2 | | | 2 | 52 | 10 | 3 | 65 |
| Red-eyed Vireo | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Warbling Vireo | | | | 0 | 21 | 6 | 1 | 28 | 21 | 6 | 1 | 28 |
| Philadelphia Vireo | | | | 0 | | 1 | | 1 | 0 | 1 | 0 | 1 |
| Blue-headed Vireo | | | | 0 | 4 | 2 | | 6 | 4 | 2 | 0 | 6 |
| Gray Jay | 2 | 2 | | 4 | 1 | | | 1 | 4 | 2 | 0 | 6 |
| Black-billed Magpie | | | | 0 | | | | 0 | 1 | 1 | 0 | 2 |
| Black-capped Chickadee | 6 | | | 6 | 8 | 4 | | 12 | 87 | 10 | 1 | 98 |
| Boreal Chickadee | 60 | 2 | | 62 | 3 | 1 | 2 | 6 | 88 | 3 | 2 | 93 |
| Red-breasted Nuthatch | 2 | | | 2 | | 1 | | 1 | 6 | 4 | 0 | 10 |
| Brown Creeper | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Arctic Warbler | | | | 0 | | | | 0 | 9 | 1 | 0 | 10 |
| Golden-crowned Kinglet | | | | 0 | | | | 0 | 8 | 0 | 0 | 8 |
| Ruby-crowned Kinglet | 250 | 51 | | 301 | 35 | 10 | 3 | 48 | 633 | 95 | 5 | 733 |
| Townsend's Solitaire | | | | | | | | 0 | 1 | 0 | 0 | 1 |
| Gray-cheeked Thrush | 70 | 24 | | 94 | 7 | 1 | 2 | 10 | 132 | 33 | 2 | 167 |
| Swainson's Thrush | 330 | 52 | 1 | 383 | 90 | 14 | | 104 | 698 | 76 | 2 | 776 |
| Hermit Thrush | 36 | 1 | | 37 | 7 | | | 7 | 155 | 4 | 0 | 159 |
| American Robin | 9 | 4 | | 13 | 5 | 1 | | 6 | 79 | 23 | 6 | 108 |
| Varied Thrush | 41 | 36 | | 77 | 3 | | | 3 | 76 | 41 | 1 | 118 |
| American Pipit | 1 | 1 | | 2 | 2 | | | 2 | 3 | 1 | 0 | 4 |

Table 1b (cont.). 2004 **Fall** Migration Banding Summary for Alaska.

| BIOREGION: | Central | | | | Yukon | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Pump Station, Tetlin NWR | | | | Albert's Creek | | | | | | | |
| CONTACT | Bud Johnson | | | | Ted Murphy-Kelly | | | | | | | |
| AFFLIATION | USFWS | | | | PLUS | | | | | | | |
| Type of Banding | Fall Migration | | | | Fall Migration | | | | | | | |
| Range of dates: | 7/28 - 9/29 | | | | 7/20 - 9/22 | | | | | | | |
| Number of days: | 59 | | | | 53 | | | | | | | |
| No. net-hours: | 6,842 | | | | 5,058 | | | | | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UKN | TOT |
| Bohemian Waxwing | | | | 0 | | | | 0 | 0 | 1 | 0 | 1 |
| Cedar Waxwing | | | | 0 | 1 | 7 | | 8 | 1 | 7 | 0 | 8 |
| Northern Shrike | | | | 0 | | | | 0 | 1 | 0 | 0 | 1 |
| Orange-crowned Warbler | 207 | 66 | | 273 | 149 | 48 | 2 | 199 | 848 | 165 | 9 | 1,022 |
| Tennessee Warbler | | | | 0 | 10 | 2 | | 12 | 10 | 2 | 0 | 12 |
| Yellow Warbler | 14 | 14 | | 28 | 119 | 35 | 5 | 159 | 289 | 60 | 10 | 359 |
| Magnolia Warbler | | | | 0 | 20 | 6 | 0 | 26 | 20 | 6 | 0 | 26 |
| Myrtle Warbler | 184 | 54 | 1 | 239 | 99 | 39 | | 138 | 898 | 120 | 5 | 1,023 |
| Townsend's Warbler | | 1 | | 1 | | | | 0 | 14 | 7 | 4 | 25 |
| Western Palm Warbler | | | | 0 | | | | 0 | 1 | 0 | 0 | 1 |
| Bay-breasted Warbler | | | | 0 | 0 | 1 | | 1 | 0 | 1 | 0 | 1 |
| Blackpoll Warbler | 14 | 7 | | 21 | 31 | 13 | | 44 | 117 | 27 | 0 | 144 |
| American Redstart | | | | 0 | 20 | 16 | | 36 | 20 | 16 | 0 | 36 |
| Northern Waterthrush | 21 | 13 | | 34 | 71 | 24 | | 95 | 185 | 60 | 0 | 245 |
| MacGillivray's Warbler | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Common Yellowthroat | | | | 0 | 89 | 17 | 1 | 107 | 89 | 17 | 1 | 107 |
| Wilson's Warbler | 242 | 130 | | 372 | 128 | 71 | 4 | 203 | 934 | 270 | 16 | 1,220 |
| Western Tanager | | | | 0 | 1 | 1 | | 2 | 1 | 1 | 0 | 2 |
| American Tree Sparrow | 41 | 19 | 1 | 61 | 47 | 19 | | 66 | 177 | 57 | 2 | 236 |
| Chipping Sparrow | | | | 0 | 7 | 2 | | 9 | 7 | 2 | 0 | 9 |
| Savannah Sparrow | 50 | 11 | | 61 | 12 | 7 | | 19 | 116 | 26 | 0 | 142 |
| Fox Sparrow | 115 | 67 | | 182 | 11 | 3 | 1 | 15 | 160 | 82 | 1 | 243 |
| Lincoln's Sparrow | 5 | 1 | | 6 | 63 | 27 | 1 | 91 | 347 | 48 | 7 | 402 |
| Swamp Sparrow | | | | 0 | 7 | | | 7 | 7 | 0 | 0 | 7 |
| Golden-crowned Sparrow | 2 | | | 2 | 1 | | | 1 | 17 | 2 | 0 | 19 |
| White-throated Sparrow | | | | | 24 | 5 | 2 | 31 | 24 | 5 | 2 | 31 |
| White-crowned Sparrow | 39 | 5 | | 44 | 6 | 6 | | 12 | 195 | 57 | 13 | 265 |
| Slate-colored Junco | 851 | 104 | | 955 | 30 | 14 | | 44 | 1,699 | 160 | 6 | 1,865 |
| Rusty Blackbird | | | | 0 | 1 | 10 | | 11 | 1 | 10 | 0 | 11 |
| Pine Grosbeak | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| White-winged Crossbill | 2 | 5 | | 7 | | | | 0 | 3 | 5 | 0 | 8 |
| Purple Finch | | | | 0 | 3 | | | 3 | 3 | 0 | 0 | 3 |
| Common Redpoll | 1 | | | 1 | | | | 0 | 6 | 13 | 0 | 19 |
| TOTAL OF ALL SPECIES | 2,669 | 697 | 9 | 3,375 | 1,305 | 505 | 35 | 1,845 | 8,525 | 1,672 | 123 | 10,320 |
| CAPTURE RATE (#/100nh) | 39.0 | 10.2 | 0.1 | 49.3 | 25.8 | 10.0 | 0.7 | 36.5 | | | | |

Table 2a. 2004 **Spring** Migration Banding Summary for Alaska.

| BIOREGION: | Central | | | | Yukon | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Creamer's Field | | | | Albert's Creek | | | | Total | | | |
| CONTACT | Tim Walker | | | | Ted Murphy-Kelly | | | | | | | |
| AFFLIATION | ABO | | | | PLUS | | | | | | | |
| Type of Banding | spring migration | | | | Spring migration | | | | | | | |
| Range of dates: | 25 April - 7 June | | | | 30 April - June 13 | | | | | | | |
| Number of days: | 33 | | | | 39 | | | | | | | |
| No. net-hours: | 5,020 | | | | 3,863 | | | | | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT |
| Sharp-shinned Hawk | | 1 | | 1 | | | | 0 | 0 | 1 | 0 | 1 |
| Lesser Yellowlegs | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Solitary Sandpiper | | 3 | | 3 | | | | 0 | 0 | 3 | 0 | 3 |
| Spotted Sandpiper | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Semipalmated Sandpiper | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Downy Woodpecker | | 1 | | 1 | | | | 0 | 0 | 1 | 0 | 1 |
| Hairy Woodpecker | | 2 | | 2 | | 1 | | 1 | 0 | 3 | 0 | 3 |
| Black-backed Woodpecker | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Three-toed Woodpecker | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Yellow-shafted Flicker | | 1 | | 1 | | 2 | | 2 | 0 | 3 | 0 | 3 |
| Red-breasted Sapsucker | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Yellow-bellied Sapsucker | | | | | | 15 | | 15 | 0 | 15 | 0 | 15 |
| Olive-sided Flycatcher | | | | 0 | | 2 | | 2 | 0 | 2 | 0 | 2 |
| Yellow-bellied Flycatcher | | | | 0 | | 2 | | 2 | 0 | 2 | 0 | 2 |
| Alder Flycatcher | | | | 0 | | 19 | | 19 | 0 | 19 | 0 | 19 |
| Least Flycatcher | | | | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Hammond's Flycatcher | | 10 | | 10 | | 1 | | 1 | 0 | 11 | 0 | 11 |
| Red-eyed Vireo | | | | 0 | | 1 | | 1 | 0 | 1 | 0 | 1 |
| Warbling Vireo | | | | 0 | | 11 | | 11 | 0 | 11 | 0 | 11 |
| Philadelphia Vireo | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Blue-headed Vireo | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Tree Swallow | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Pine Grosbeak | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Gray Jay | 2 | | | 2 | | 1 | | 1 | 2 | 1 | 0 | 3 |
| Black-capped Chickadee | | 5 | | 5 | | 5 | | 5 | 0 | 10 | 0 | 10 |
| Boreal Chickadee | | | | 0 | | 1 | | 1 | 0 | 1 | 0 | 1 |
| Chestnut-backed Chickadee | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Red-breasted Nuthatch | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Winter Wren | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Ruby-crowned Kinglet | | | | 0 | | 51 | | 51 | 0 | 51 | 0 | 51 |
| Arctic Warbler | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Gray-cheeked Thrush | | 2 | | 2 | | 18 | | 18 | 0 | 20 | 0 | 20 |
| Swainson's Thrush | | 19 | | 19 | | 53 | | 53 | 0 | 72 | 0 | 72 |
| Hermit Thrush | | 1 | | 1 | | 3 | | 3 | 0 | 4 | 0 | 4 |
| American Robin | | 14 | | 14 | | 13 | | 13 | 0 | 27 | 0 | 27 |
| Varied Thrush | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Cliff Swallow | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| American Pipit | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Cedar Waxwing | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |

Table 2b (cont.). 2004 **Spring** Migration Banding Summary for Alaska.

| BIOREGION: | Central | | | | Yukon | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Creamer's Field | | | | Albert's Creek | | | | Total | | | |
| CONTACT | Tim Walker | | | | Ted Murphy-Kelly | | | | | | | |
| AFFLIATION | ABO | | | | PLUS | | | | | | | |
| Type of Banding | spring migration | | | | Spring migration | | | | | | | |
| Range of dates: | 25 April - 7 June | | | | 30 April - June 13 | | | | | | | |
| Number of days: | 33 | | | | 39 | | | | | | | |
| No. net-hours: | 5,020 | | | | 3,863 | | | | | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT |
| Orange-crowned Warbler | | 10 | | 10 | | 286 | | 286 | 0 | 296 | 0 | 296 |
| Tennessee Warbler | | | | 0 | | 49 | | 49 | 0 | 49 | 0 | 49 |
| Yellow Warbler | | 6 | | 6 | | 61 | | 61 | 0 | 67 | 0 | 67 |
| Magnolia Warbler | | | | 0 | | 4 | | 4 | 0 | 4 | 0 | 4 |
| Myrtle Warbler | | 16 | | 16 | | 268 | | 268 | 0 | 284 | 0 | 284 |
| Townsend's Warbler | | | | 0 | | 1 | | 1 | 0 | 1 | 0 | 1 |
| Bay-breasted Warbler | | | | 0 | | 1 | | 1 | 0 | 1 | 0 | 1 |
| Blackpoll Warbler | | 1 | | 1 | | 22 | | 22 | 0 | 23 | 0 | 23 |
| American Redstart | | | | 0 | | 18 | | 18 | 0 | 18 | 0 | 18 |
| Northern Waterthrush | | 6 | | 6 | | 69 | | 69 | 0 | 75 | 0 | 75 |
| MacGillivray's Warbler | | | | 0 | | 1 | | 1 | 0 | 1 | 0 | 1 |
| Common Yellowthroat | | | | 0 | | 17 | | 17 | 0 | 17 | 0 | 17 |
| Wilson's Warbler | | 5 | | 5 | | 501 | | 501 | 0 | 506 | 0 | 506 |
| Western Tanager | | | | 0 | | 2 | | 2 | 0 | 2 | 0 | 2 |
| American Tree Sparrow | | 4 | | 4 | | 172 | | 172 | 0 | 176 | 0 | 176 |
| Chipping Sparrow | | | | 0 | | 4 | | 4 | 0 | 4 | 0 | 4 |
| Savannah Sparrow | | 3 | | 3 | | 38 | | 38 | 0 | 41 | 0 | 41 |
| Fox Sparrow | | 2 | | 2 | | 28 | | 28 | 0 | 30 | 0 | 30 |
| Lincoln's Sparrow | | 8 | | 8 | | 42 | | 42 | 0 | 50 | 0 | 50 |
| Swamp Sparrow | | | | 0 | | 2 | | 2 | 0 | 2 | 0 | 2 |
| Golden-crowned Sparrow | | | | 0 | | 6 | | 6 | 0 | 6 | 0 | 6 |
| White-throated Sparrow | | | | 0 | | 9 | | 9 | 0 | 9 | 0 | 9 |
| White-crowned Sparrow | | 14 | | 14 | | 184 | | 184 | 0 | 198 | 0 | 198 |
| Slate-colored Junco | | 32 | | 32 | | 194 | | 194 | 0 | 226 | 0 | 226 |
| Oregon Junco | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Lapland Longspur | | | | 0 | | 2 | | 2 | 0 | 2 | 0 | 2 |
| Rusty Blackbird | | | | 0 | | 5 | | 5 | 0 | 5 | 0 | 5 |
| Purple Finch | | | | 0 | | 10 | | 10 | 0 | 10 | 0 | 10 |
| Common Redpoll | | 1 | | 1 | | 68 | | 68 | 0 | 69 | 0 | 69 |
| Hoary Redpoll | | | | 0 | | | | 0 | 0 | 0 | 0 | 0 |
| Pine Siskin | | | | 0 | | 3 | | 3 | 0 | 3 | 0 | 3 |
| TOTAL OF ALL SPECIES | 2 | 167 | 0 | 169 | 0 | 2,266 | 0 | 2,266 | 2 | 2,433 | 0 | 2,435 |
| CAPTURE RATE (#/100nh) | 0.0 | 3.3 | 0.0 | 3.4 | | 58.7 | | 58.7 | | | | |

Table 3. 2004 **Miscellaneous** Banding Summary for Alaska.

| BIOREGION: | Western | | | | Central | | | | Central | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Old Woman/Anvik Rivers | | | | Creamer's Field | | | | Creamer's Field | | | |
| CONTACT | Bruce Seppi | | | | Tim Walker | | | | Tim Walker | | | |
| AFFLIATION | BLM | | | | ABO | | | | ABO | | | |
| Type of Banding | research | | | | Research, education, rehab | | | | Summer banding | | | |
| Range of dates: | 6-8 to 7-5 | | | | | | | | | | | |
| Number of days: | 5 | | | | | | | | | | | |
| No. net-hours: | 520 | | | | | | | | | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT |
| Spotted Sandpiper | | 2 | | 2 | | | | 0 | | | | 0 |
| Rufous Hummingbird | | | | | | | | | | | | 0 |
| Hairy Woodpecker | | | | | | | | 0 | 5 | 1 | | 6 |
| Red-breasted Sapsucker | | | | | | | | 0 | | | | 0 |
| Alder Flycatcher | | 2 | | 2 | | | 2 | 2 | | | | 0 |
| Gray Jay | | 2 | | 2 | | | | 0 | | | | 0 |
| Boreal Chickadee | | 1 | | 1 | | | | 0 | | | | 0 |
| Black-capped Chickadee | 7 | | | 7 | | | | 0 | 3 | | 3 | 6 |
| Chestnut-back Chickadee | | | | | | 24 | | 24 | | | | 0 |
| Brown Creeper | | | | | | | | | | | | 0 |
| Winter Wren | | | | | | | | 0 | | | | 0 |
| Golden-crowned Kinglet | | | | | | | | | | | | 0 |
| Ruby-crowned Kinglet | | | | | | | | 0 | | | | 0 |
| Swainson's Thrush | | 37 | | 37 | | | | 0 | 1 | 1 | | 2 |
| Hermit Thrush | | | | | 48 | 22 | | 70 | | 1 | | 1 |
| American Robin | | 1 | | 1 | | | | 0 | 3 | | | 3 |
| Varied Thrush | 1 | | | 1 | | | | 0 | | | | 0 |
| Orange-crowned Warbler | | 2 | | 2 | | | | 0 | | 5 | | 5 |
| Yellow Warbler | | 20 | | 20 | | | | 0 | | 1 | | 1 |
| Myrtle Warbler | | 5 | | 5 | | | | 0 | | | | 0 |
| Audbon's Warbler | | | | | | | | | | | | 0 |
| Yellow-rumped Warbler | | | | | | | | | | | | 0 |
| Townsend's Warbler | | | | | | | | 0 | | | | 0 |
| Blackpoll Warbler | | 8 | | 8 | | | | 0 | | | | 0 |
| American Redstart | | | | | | | | | | | | 0 |
| Northern Waterthrush | 3 | 64 | | 67 | | | | 0 | 2 | | | 2 |
| MacGillivray's Warbler | | | | | | | | | | | | 0 |
| Common Yellowthroat | | | | | | | | | | | | 0 |
| Wilson's Warbler | | 19 | | 19 | | | | 0 | | | | 0 |
| Savannah Sparrow | | | | | | | | 0 | | 2 | | 2 |
| Fox Sparrow | 1 | 1 | | 2 | | | | 0 | | | | 0 |
| Song Sparrow | | | | | | | | | | | | 0 |
| Lincoln's Sparrow | 1 | 2 | | 3 | | | | 0 | 24 | 4 | | 28 |
| Golden-crowned Sparrow | | | | | | | | 0 | 1 | 2 | | 3 |
| White-crowned Sparrow | | 4 | | 4 | | | | 0 | | | | 0 |
| Slate-colored Junco | | 4 | | 4 | | | | 0 | 12 | | | 12 |
| Oregon Junco | | | | | | | | | | | | 0 |
| Rusty Blackbird | | | | | | | | 0 | | | | 0 |
| Common Redpoll | | 21 | | 21 | | | | 0 | | | | 0 |
| TOTAL ALL SPECIES | 13 | 195 | | 208 | 48 | 46 | 2 | 96 | 51 | 17 | 3 | 71 |
| CAPTURE RATE (#/100nh) | 2.5 | 37.5 | | 40.0 | | | | | | | | |

Table 3 (cont.). 2004 **Miscellaneous** Banding Summary for Alaska.

| BIOREGION: | Southeastern | | | | Southeastern | | | | Southeastern | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SITE NAME: | Mendenhall Glacier | | | | Ketchikan | | | | Juneau | | | |
| CONTACT | Gwen Baluss | | | | Gwen Baluss | | | | Gwen Baluss | | | |
| AFFLIATION | USFS | | | | USFS | | | | USFS | | | |
| Type of Banding | MAPS | | | | Education | | | | Education | | | |
| Range of dates: | 6/4 to 8/1 | | | | 4/15 to 4/17 | | | | 5/4 to 9/14 | | | |
| Number of days: | 7 | | | | 3 | | | | 3 | | | |
| No. net-hours: | 400 | | | | 30 | | | | 10 | | | |
| SPECIES | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT | HY | AHY | UNK | TOT |
| Spotted Sandpiper | | | | 0 | | | | 0 | | | | 0 |
| Rufous Hummingbird | 1 | 2 | 2 | 5 | | | | 0 | | | | 0 |
| Hairy Woodpecker | | | | 0 | | 1 | | 1 | | | | 0 |
| Red-breasted Sapsucker | | | | 0 | | 1 | | 1 | | | | 0 |
| Alder Flycatcher | | | | 0 | | | | 0 | 1 | | | 1 |
| Gray Jay | | | | 0 | | | | 0 | | | | 0 |
| Boreal Chickadee | | | | 0 | | | | 0 | | | | 0 |
| Black-capped Chickadee | | | | 0 | | | | 0 | | | | 0 |
| Chestnut-back Chickadee | | | | 0 | | | | 0 | | | | 0 |
| Brown Creeper | 1 | | | 1 | | | | 0 | | | | 0 |
| Winter Wren | | 1 | | 1 | | | | 0 | | | | 0 |
| Golden-crowned Kinglet | 3 | | | 3 | | 1 | | 1 | | | | 0 |
| Ruby-crowned Kinglet | 39 | 9 | | 48 | | | | 0 | | | | 0 |
| Swainson's Thrush | | | | 0 | | | | 0 | | | | 0 |
| Hermit Thrush | 5 | 3 | | 8 | | | | 0 | | | | 0 |
| American Robin | | 2 | | 2 | | | | 0 | | | | 0 |
| Varied Thrush | 2 | 3 | | 5 | | 1 | | 1 | | | | 0 |
| Orange-crowned Warbler | 20 | 9 | | 29 | | | | 0 | 3 | 1 | | 4 |
| Yellow Warbler | 2 | 2 | | 4 | | | | 0 | 1 | 1 | | 2 |
| Myrtle Warbler | 1 | 4 | | 5 | | | | 0 | | | | 0 |
| Audbon's Warbler | | 1 | | 1 | | | | 0 | | | | 0 |
| Yellow-rumped Warbler | 1 | | | 1 | | | | 0 | | | | 0 |
| Townsend's Warbler | 1 | | | 1 | | | | 0 | | | | 0 |
| Blackpoll Warbler | | | | 0 | | | | 0 | | | | 0 |
| American Redstart | | 2 | | 2 | | | | 0 | | | | 0 |
| Northern Waterthrush | | 1 | | 1 | | | | 0 | | | | 0 |
| MacGillivray's Warbler | 1 | | | 1 | | | | 0 | | | | 0 |
| Common Yellowthroat | | | | 0 | | | | 0 | 1 | | | 1 |
| Wilson's Warbler | 17 | 1 | | 18 | | | | 0 | | | | 0 |
| Savannah Sparrow | | | | 0 | | 1 | | 1 | | 2 | | 2 |
| Fox Sparrow | | | | 0 | | 2 | | 2 | | | | 0 |
| Song Sparrow | 1 | | | 1 | | 3 | | 3 | 1 | | | 1 |
| Lincoln's Sparrow | | 1 | | 1 | | | | 0 | 2 | | | 2 |
| Golden-crowned Sparrow | | | | 0 | | | | 0 | | | | 0 |
| White-crowned Sparrow | | | | 0 | | | | 0 | 1 | 1 | | 2 |
| Slate-colored Junco | | | | 0 | | | | 0 | | | | 0 |
| Oregon Junco | 54 | 3 | | 57 | | | | 0 | | 1 | | 1 |
| Rusty Blackbird | | | | 0 | | | | 0 | | | | 0 |
| Common Redpoll | | | | 0 | | | | 0 | | | | 0 |
| TOTAL OF ALL SPECIES | 149 | 44 | 2 | 195 | 0 | 10 | 0 | 10 | 10 | 6 | 0 | 16 |
| CAPTURE RATE (#/100nh) | 37.3 | 11.0 | 0.5 | 49 | | | | | | | | |

Table 3 (cont.). 2004 **Miscellaneous** Banding Summary for Alaska.

| BIOREGION: | Total | | | |
|---|---|---|---|---|
| SITE NAME: | | | | |
| CONTACT | | | | |
| AFFLIATION | | | | |
| Type of Banding | | | | |
| Range of dates: | | | | |
| Number of days: | | | | |
| No. net-hours: | | | | |
| SPECIES | HY | AHY | UNK | TOT |
| Spotted Sandpiper | 0 | 2 | 0 | 2 |
| Rufous Hummingbird | 1 | 2 | 2 | 5 |
| Hairy Woodpecker | 5 | 2 | 0 | 7 |
| Red-breasted Sapsucker | 0 | 1 | 0 | 1 |
| Alder Flycatcher | 1 | 2 | 2 | 5 |
| Gray Jay | 0 | 2 | 0 | 2 |
| Boreal Chickadee | 0 | 1 | 0 | 1 |
| Black-capped Chickadee | 10 | 0 | 3 | 13 |
| Chestnut-backed Chickadee | 0 | 24 | 0 | 24 |
| Brown Creeper | 1 | 0 | 0 | 1 |
| Winter Wren | 0 | 1 | 0 | 1 |
| Golden-crowned Kinglet | 3 | 1 | 0 | 4 |
| Ruby-crowned Kinglet | 39 | 9 | 0 | 48 |
| Swainson's Thrush | 1 | 38 | 0 | 39 |
| Hermit Thrush | 53 | 26 | 0 | 79 |
| American Robin | 3 | 3 | 0 | 6 |
| Varied Thrush | 3 | 4 | 0 | 7 |
| Orange-crowned Warbler | 23 | 17 | 0 | 40 |
| Yellow Warbler | 3 | 24 | 0 | 27 |
| Myrtle Warbler | 1 | 9 | 0 | 10 |
| Audbon's Warbler | 0 | 1 | 0 | 1 |
| Yellow-rumped Warbler | 1 | 0 | 0 | 1 |
| Townsend's Warbler | 1 | 0 | 0 | 1 |
| Blackpoll Warbler | 0 | 8 | 0 | 8 |
| American Redstart | 0 | 2 | 0 | 2 |
| Northern Waterthrush | 5 | 65 | 0 | 70 |
| MacGillivray's Warbler | 1 | 0 | 0 | 1 |
| Common Yellowthroat | 1 | 0 | 0 | 1 |
| Wilson's Warbler | 17 | 20 | 0 | 37 |
| Savannah Sparrow | 0 | 5 | 0 | 5 |
| Fox Sparrow | 1 | 3 | 0 | 4 |
| Song Sparrow | 2 | 3 | 0 | 5 |
| Lincoln's Sparrow | 27 | 7 | 0 | 34 |
| Golden-crowned Sparrow | 1 | 2 | 0 | 3 |
| White-crowned Sparrow | 1 | 5 | 0 | 6 |
| Slate-colored Junco | 12 | 4 | 0 | 16 |
| Oregon Junco | 54 | 4 | 0 | 58 |
| Rusty Blackbird | 0 | 0 | 0 | 0 |
| Common Redpoll | 0 | 21 | 0 | 21 |
| TOTAL OF ALL SPECIES | 271 | 318 | 7 | 596 |
| CAPTURE RATE (#/100nh) | | | | |

Table 4. Trends (% change per yr) in population size of Alaskan breeding birds from 1980–2003 calculated from data from the North American Breeding Bird Survey both collected in Alaska and the conterminous U.S. and Canada combined (Sauer et al. 2004).

| | Alaska | | | | | U.S. & Canada[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Species | Trend | *P* | *n* | Abundance[2] | Credibility[3] | Trend | *P* | *n* | Abundance | Credibility |
| Common Loon | 2.3 | 0.44 | 26 | 0.26 | 2 | 2.2 | <0.01 | 413 | 0.91 | 2 |
| Horned Grebe | -0.2 | 0.96 | 6 | 0.08 | 2 | -4.7 | <0.01 | 69 | 0.35 | 2 |
| Red-necked Grebe | 4.5 | 0.41 | 24 | 0.46 | 2 | 0.7 | 0.48 | 71 | 0.42 | 2 |
| Pelagic Cormorant | 7.4 | 0.28 | 4 | 0.42 | 2 | -1.6 | 0.66 | 14 | 0.78 | 2 |
| Great-blue Heron | 1.0 | 0.88 | 8 | 0.74 | 2 | 0.7 | 0.06 | 2266 | 0.82 | 1 |
| Canada Goose | 8.7 | 0.38 | 36 | 2.93 | 2 | 9.1 | <0.01 | 1485 | 4.08 | 1 |
| American Wigeon | 1.5 | 0.41 | 41 | 5.46 | 2 | 0.3 | 0.76 | 276 | 0.85 | 3 |
| Mallard | 0.3 | 0.96 | 40 | 1.45 | 2 | 1.6 | 0.01 | 2141 | 5.12 | 1 |
| Northern Shoveler | 7.0 | 0.21 | 13 | 0.65 | 2 | 4.1 | <0.01 | 301 | 1.17 | 3 |
| Northern Pintail | -0.9 | 0.89 | 23 | 1.73 | 2 | 0.8 | 0.66 | 351 | 1.80 | 3 |
| Green-winged Teal | 9.8 | 0.10 | 37 | 2.47 | 1 | 0.6 | 0.72 | 280 | 0.32 | 1 |
| Ring-necked Duck | 26.8 | 0.16 | 9 | 0.09 | 2 | 5.5 | 0.01 | 148 | 0.21 | 1 |
| Lesser Scaup | 6.7 | 0.41 | 15 | 0.46 | 2 | -1.5 | 0.10 | 212 | 1.85 | 3 |
| Bufflehead | 5.9 | 0.46 | 16 | 0.58 | 2 | 6.8 | 0.02 | 83 | 0.27 | 2 |
| Common Goldeneye | -5.8 | 0.29 | 11 | 0.35 | 2 | 2.2 | 0.36 | 73 | 0.18 | 2 |
| Barrow's Goldeneye | 13.3 | 0.19 | 8 | 0.60 | 2 | 3.3 | 0.06 | 47 | 0.31 | 1 |
| Common Merganser | -6.8 | 0.41 | 21 | 0.29 | 2 | 1.5 | 0.12 | 342 | 0.24 | 1 |
| Red-breasted Merganser | -1.4 | 0.65 | 16 | 3.73 | 2 | -7.5 | 0.09 | 14 | 0.03 | 2 |
| Bald Eagle | 5.8 | 0.02 | 45 | 1.25 | 1 | 5.6 | 0.01 | 208 | 0.14 | 1 |
| Northern Harrier | 14.0 | 0.01 | 7 | 0.06 | 1 | -1.1 | 0.03 | 907 | 0.45 | 2 |
| Northern Goshawk | -2.2 | 0.62 | 3 | 0.02 | 2 | 0.0 | 1.00 | 57 | 0.02 | 2 |
| Red-tailed Hawk | -8.5 | 0.05 | 17 | 0.11 | 1 | 2.0 | <0.01 | 2819 | 1.05 | 1 |
| Golden Eagle | 7.6 | 0.48 | 6 | 0.06 | 2 | 3.4 | 0.02 | 292 | 0.20 | 2 |
| American Kestrel | 1.7 | 0.53 | 3 | 0.04 | 2 | -1.1 | <0.01 | 2240 | 0.87 | 1 |
| Merlin | 4.1 | 0.40 | 9 | 0.09 | 2 | 6.7 | <0.01 | 123 | 0.05 | 1 |
| Ruffed Grouse | 2.5 | 0.62 | 6 | 0.16 | 2 | -0.7 | 0.50 | 469 | 0.33 | 1 |
| Blue Grouse | 0.0 | 1.00 | 10 | 2.29 | 1 | -1.8 | 0.01 | 81 | 0.37 | 2 |
| Sandhill Crane | 2.9 | 0.34 | 32 | 1.27 | 2 | 4.7 | <0.01 | 340 | 1.16 | 3 |
| Greater Yellowlegs | 4.3 | 0.05 | 37 | 1.16 | 1 | 9.1 | 0.28 | 15 | 0.28 | 2 |
| Lesser Yellowlegs | -2.0 | 0.15 | 45 | 2.52 | 2 | -18.4 | <0.01 | 28 | 0.19 | 1 |
| Solitary Sandpiper | -3.2 | 0.10 | 22 | 0.61 | 1 | 3.3 | 0.41 | 13 | 0.04 | 2 |
| Spotted Sandpiper | -0.3 | 0.89 | 38 | 1.97 | 2 | -1.1 | 0.09 | 810 | 0.43 | 2 |
| Upland Sandpiper | -0.2 | 0.97 | 6 | 0.12 | 2 | -1.2 | 0.02 | 550 | 2.33 | 1 |
| Common Snipe | 1.5 | 0.09 | 83 | 10.11 | 2 | -0.5 | 0.20 | 1080 | 2.34 | 1 |
| Herring Gull | 18.0 | 0.10 | 21 | 0.59 | 1 | -3.2 | <0.01 | 303 | 4.05 | 3 |
| Glaucous-winged Gull | -0.1 | 0.99 | 34 | 9.51 | 2 | -3.5 | 0.30 | 36 | 11.35 | 3 |
| Rock Pigeon | 1.4 | 0.79 | 4 | 2.39 | 2 | -1.3 | <0.01 | 2341 | 4.86 | 1 |
| Great-horned Owl | 20.7 | 0.39 | 12 | 0.12 | 2 | -1.9 | 0.02 | 1113 | 0.19 | 2 |
| Short-eared Owl | 8.0 | 0.44 | 7 | 0.16 | 2 | -4.9 | 0.01 | 117 | 0.18 | 1 |
| Rufous Hummingbird | 3.9 | 0.33 | 17 | 4.33 | 2 | -2.3 | 0.01 | 201 | 1.36 | 3 |

| | Alaska | | | | | U.S. & Canada[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Species | Trend | *P* | *n* | Abundance[2] | Credibility[3] | Trend | *P* | *n* | Abundance | Credibility |
| Belted Kingfisher | -2.5 | 0.32 | 32 | 0.44 | 2 | -1.6 | <0.01 | 1754 | 0.31 | 1 |
| Red-breasted Sapsucker | 1.9 | 0.50 | 16 | 8.43 | 2 | n/a | | | | |
| Downy Woodpecker | 0.0 | 1.00 | 16 | 0.09 | 2 | -0.4 | 0.05 | 2433 | 1.16 | 3 |
| Hairy Woodpecker | 6.8 | 0.05 | 28 | 0.20 | 1 | 1.1 | <0.01 | 1975 | 0.49 | 1 |
| Am. Three-toed Woodpecker | 6.5 | 0.33 | 16 | 0.10 | 2 | -3.1 | 0.64 | 31 | 0.03 | 1 |
| Northern Flicker | 0.2 | 0.95 | 34 | 0.34 | 2 | n/a | | | | |
| Olive-sided Flycatcher | -2.1 | 0.23 | 53 | 1.49 | 2 | -3.6 | <0.01 | 684 | 1.22 | 3 |
| Western Wood-pewee | -4.2 | 0.38 | 22 | 0.46 | 1 | -1.0 | 0.01 | 811 | 3.08 | 3 |
| Yellow-bellied Flycatcher | 46.8 | 0.55 | 3 | 0.05 | 2 | 2.7 | 0.03 | 178 | 1.11 | 1 |
| Alder Flycatcher | -0.7 | 0.34 | 72 | 18.00 | 1 | n/a | | | | |
| Hammond's Flycatcher | -0.3 | 0.91 | 20 | 1.84 | 2 | 1.2 | 0.08 | 319 | 3.51 | 3 |
| Pacific-slope Flycatcher | 1.3 | 0.61 | 16 | 16.45 | 2 | n/a | | | | |
| Say's Phoebe | -10.9 | 0.01 | 8 | 0.11 | 1 | 0.9 | 0.34 | 577 | 0.92 | 1 |
| Warbling Vireo | 3.7 | 0.68 | 4 | 0.77 | 2 | 1.0 | <0.01 | 1936 | 3.49 | 3 |
| Gray Jay | 2.4 | 0.01 | 56 | 5.29 | 2 | 0.1 | 0.93 | 359 | 0.94 | 2 |
| Steller's Jay | 0.4 | 0.78 | 22 | 3.57 | 2 | 0.6 | 0.09 | 463 | 3.23 | 3 |
| Black-billed Magpie | 3.1 | 0.06 | 28 | 0.91 | 2 | 0.8 | 0.05 | 746 | 6.52 | 1 |
| Northwestern Crow | 4.7 | 0.02 | 21 | 16.29 | 2 | -0.5 | 0.54 | 32 | 12.80 | 1 |
| Common Raven | 3.2 | 0.35 | 92 | 3.76 | 3 | 1.9 | <0.01 | 1603 | 5.38 | 3 |
| Horned Lark | 21.2 | 0.01 | 4 | 0.13 | 1 | -2.9 | <0.01 | 1793 | 24.44 | 1 |
| Tree Swallow | 2.9 | 0.17 | 57 | 3.27 | 3 | -0.7 | 0.04 | 1968 | 4.48 | 1 |
| Violet-green Swallow | -5.1 | 0.01 | 37 | 1.22 | 1 | -0.2 | 0.75 | 601 | 4.24 | 3 |
| Bank Swallow | 4.1 | 0.05 | 38 | 8.06 | 2 | -1.9 | 0.05 | 947 | 2.76 | 3 |
| Cliff Swallow | -6.0 | 0.09 | 30 | 3.07 | 2 | 0.5 | 0.36 | 1841 | 17.19 | 1 |
| Barn Swallow | 0.9 | 0.89 | 10 | 1.12 | 1 | -2.1 | <0.01 | 3275 | 12.54 | 1 |
| Black-capped Chickadee | 2.2 | 0.31 | 46 | 0.79 | 2 | 0.7 | <0.01 | 1666 | 3.41 | 3 |
| Chestnut-bked Chickadee | 2.0 | 0.41 | 20 | 8.24 | 2 | -0.7 | 0.31 | 178 | 4.28 | 3 |
| Boreal Chickadee | -0.5 | 0.80 | 43 | 0.80 | 2 | -1.9 | 0.18 | 135 | 0.36 | 1 |
| Red-breasted Nuthatch | -0.6 | 0.82 | 17 | 0.07 | 2 | 1.2 | <0.01 | 1055 | 2.29 | 3 |
| Brown Creeper | 22.3 | 0.20 | 14 | 0.48 | 2 | -0.9 | 0.32 | 539 | 0.37 | 2 |
| Winter Wren | -1.4 | 0.14 | 21 | 17.08 | 2 | 2.3 | <0.01 | 742 | 7.34 | 1 |
| American Dipper | -36.6 | 0.08 | 4 | 0.02 | 1 | -0.5 | 0.73 | 96 | 0.11 | 2 |
| Golden-crowned Kinglet | -0.5 | 0.83 | 31 | 1.89 | 2 | -1.1 | 0.09 | 635 | 2.39 | 1 |
| Ruby-crowned Kinglet | 0.8 | 0.59 | 75 | 6.15 | 2 | -0.1 | 0.87 | 641 | 6.48 | 1 |
| Townsend's Solitaire | 7.3 | <0.01 | 6 | 0.15 | 2 | -2.1 | 0.06 | 309 | 0.66 | 1 |
| Swainson's Thrush | -1.0 | 0.24 | 80 | 24.40 | 3 | -0.8 | 0.01 | 717 | 15.15 | 1 |
| Hermit Thrush | -1.8 | 0.06 | 65 | 5.73 | 1 | 0.9 | <0.01 | 1040 | 5.04 | 3 |
| American Robin | 1.5 | 0.12 | 94 | 19.61 | 3 | 0.5 | <0.01 | 3275 | 26.95 | 3 |
| Varied Thrush | -0.1 | 0.89 | 85 | 11.44 | 3 | -1.0 | 0.07 | 186 | 6.11 | 1 |
| European Starling | -12.3 | 0.36 | 4 | 0.78 | 2 | -0.8 | <0.01 | 3294 | 30.29 | 3 |
| Orange-crowned Warbler | 0.2 | 0.84 | 90 | 17.30 | 3 | -1.3 | <0.01 | 444 | 2.64 | 3 |
| Yellow Warbler | -0.7 | 0.51 | 90 | 9.98 | 1 | 0.2 | 0.28 | 2351 | 4.33 | 3 |
| Yellow-rumped Warbler | 1.8 | 0.04 | 76 | 13.87 | 1 | -0.1 | 0.69 | 1130 | 6.11 | 3 |

| | Alaska | | | | | U.S. & Canada[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Species | Trend | *P* | *n* | Abundance[2] | Credibility[3] | Trend | *P* | *n* | Abundance | Credibility |
| Townsend's Warbler | 0.2 | 0.93 | 35 | 3.00 | 2 | 0.9 | 0.18 | 189 | 5.79 | 1 |
| Blackpoll Warbler | -3.8 | <0.01 | 50 | 5.15 | 2 | -9.2 | <0.01 | 54 | 3.06 | 1 |
| American Redstart | 2.4 | 0.74 | 3 | 0.51 | 2 | -0.4 | 0.25 | 1196 | 3.05 | 3 |
| Northern Waterthrush | 3.0 | 0.01 | 67 | 12.39 | 1 | -0.2 | 0.72 | 525 | 1.56 | 3 |
| MacGillivray's Warbler | -10.8 | 0.29 | 4 | 0.68 | 2 | -0.7 | 0.17 | 437 | 4.03 | 3 |
| Wilson's Warbler | 0.6 | 0.61 | 84 | 14.06 | 2 | -2.5 | <0.01 | 456 | 1.55 | 3 |
| Western Tanager | -11.9 | 0.26 | 4 | 0.22 | 2 | 1.4 | <0.01 | 641 | 4.31 | 1 |
| Chipping Sparrow | -12.5 | 0.23 | 13 | 0.29 | 2 | -0.2 | 0.20 | 2738 | 7.87 | 1 |
| Savannah Sparrow | -0.2 | 0.74 | 73 | 22.10 | 3 | -0.8 | <0.01 | 1562 | 8.23 | 1 |
| Fox Sparrow | 2.7 | 0.02 | 89 | 15.25 | 1 | 0.1 | 0.87 | 214 | 2.14 | 3 |
| Song Sparrow | -1.4 | 0.44 | 31 | 1.05 | 1 | -0.3 | 0.05 | 2491 | 11.05 | 1 |
| Lincoln's Sparrow | 1.4 | 0.40 | 66 | 2.78 | 2 | -0.4 | 0.53 | 446 | 2.44 | 1 |
| White-crowned Sparrow | -1.9 | 0.02 | 73 | 28.43 | 3 | -0.1 | 0.95 | 297 | 2.05 | 1 |
| Dark-eyed Junco | -1.1 | 0.06 | 80 | 22.58 | 3 | -2.0 | <0.01 | 1051 | 7.50 | 3 |
| Red-winged Blackbird | 0.0 | 1.00 | 8 | 0.12 | 2 | -0.9 | <0.01 | 3416 | 52.75 | 1 |
| Rusty Blackbird | -5.8 | 0.03 | 25 | 0.86 | 2 | -8.7 | 0.01 | 60 | 0.27 | 2 |
| Pine Grosbeak | 3.3 | 0.25 | 35 | 0.41 | 2 | -6.7 | 0.01 | 79 | 0.18 | 1 |
| Red Crossbill | 3.8 | 0.04 | 15 | 6.24 | 2 | -2.3 | <0.01 | 413 | 1.91 | 3 |
| White-winged Crossbill | 4.3 | 0.30 | 47 | 3.11 | 2 | -1.2 | 0.80 | 113 | 1.98 | 1 |
| Pine Siskin | 5.5 | 0.10 | 41 | 2.79 | 1 | -3.3 | <0.01 | 791 | 5.11 | 3 |

[1] Survey-wide results for the U.S. & Canada are based on data from survey routes in the contiguous United States and southern Canada run from 1996–2003. Data from Alaska and northern Canada are not included because few northern routes encompass the long-term period.

[2] Abundance is measured as the number of individuals detected per route.

[3] Categories for the credibility of trend estimate are as follows:

1: The regional abundance is less than 0.1 birds/route (very low abundance), the sample is based on less than 5 routes for the long term, or is based on less than 3 routes (very small samples), or the results are so imprecise that a 5%/year change would not be detected over the long-term (very imprecise).

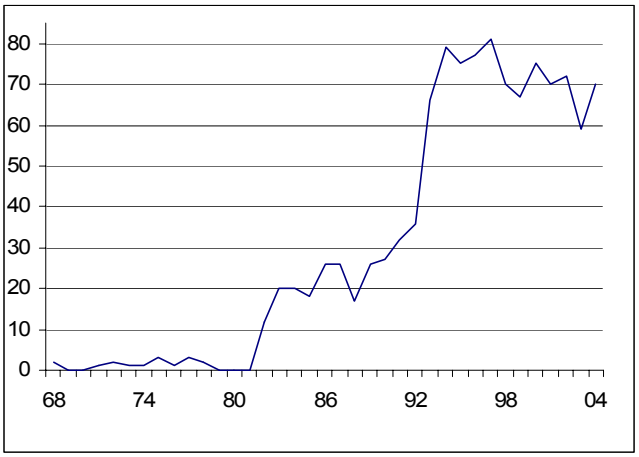
2: This category reflects data with a deficiency. In particular the regional abundance is less than 1.0 birds/route (low abundance), the sample is based on less than 14 routes (small sample size), the results are so imprecise that a 3%/year change would not be detected (quite imprecise), or the sub-interval (1966–1980, 1980–2001) trends are significantly different from each other (P less than 0.05, based on a z-test). This suggests inconsistency in trend over time).

3: This category reflects data with at least 14 samples in the long term, of moderate precision, and of moderate abundance on routes.

TABLE 5. Species with significant trends in abundance ($P \leq 0.15$) as measured by the BBS in Alaska 1980–2003. Only those species detected on ≥ 14 BBS routes ($n$ = number of routes) are included. Species with an average of ≥ 1.0 bird detected per route in Alaska provide more credible estimates of trends than those species with lower numbers of birds per route (abundance).

| Species | Trend | *P* | *n* | Abundance |
|---|---|---|---|---|
| Red-tailed Hawk | -8.5 | 0.05 | 17 | 0.11 |
| Cliff Swallow | -6.0 | 0.09 | 30 | 3.07 |
| Rusty Blackbird | -5.8 | 0.03 | 25 | 0.86 |
| Violet-green Swallow | -5.1 | 0.01 | 37 | 1.22 |
| Blackpoll Warbler | -3.8 | <0.01 | 50 | 5.15 |
| Solitary Sandpiper | -3.2 | 0.10 | 22 | 0.61 |
| Lesser Yellowlegs | -2.0 | 0.15 | 45 | 2.52 |
| White-crowned Sparrow | -1.9 | 0.02 | 73 | 28.43 |
| Hermit Thrush | -1.8 | 0.06 | 65 | 5.73 |
| Winter Wren | -1.4 | 0.14 | 21 | 17.08 |
| Dark-eyed Junco | -1.1 | 0.06 | 80 | 22.58 |
| Common Snipe | 1.5 | 0.09 | 83 | 10.11 |
| American Robin | 1.5 | 0.12 | 94 | 19.61 |
| Yellow-rumped Warbler | 1.8 | 0.04 | 76 | 13.87 |
| Gray Jay | 2.4 | 0.01 | 56 | 5.29 |
| Fox Sparrow | 2.7 | 0.02 | 89 | 15.25 |
| Northern Waterthrush | 3.0 | 0.01 | 67 | 12.39 |
| Black-billed Magpie | 3.1 | 0.06 | 28 | 0.91 |
| Red Crossbill | 3.8 | 0.04 | 15 | 6.24 |
| Bank Swallow | 4.1 | 0.05 | 38 | 8.06 |
| Greater Yellowlegs | 4.3 | 0.05 | 37 | 1.16 |
| Northwestern Crow | 4.7 | 0.02 | 21 | 16.29 |
| Pine Siskin | 5.5 | 0.10 | 41 | 2.79 |
| Bald Eagle | 5.8 | 0.02 | 45 | 1.25 |
| Hairy Woodpecker | 6.8 | 0.05 | 28 | 0.2 |
| Green-winged Teal | 9.8 | 0.10 | 37 | 2.47 |
| Herring Gull | 18.0 | 0.10 | 21 | 0.59 |

Figure 1. Number of routes run by year in Alaska 1968–2004.



**APPENDIX**
**List of citations for 2003-2005 attributed to BPIF members and/or dealing with species or issues shared with BPIF.**

## 2003

Lewis, S.B. 2003. Delivery and consumption of a pigeon guillemot by nesting northern goshawks in Southeast Alaska. Wilson Bulletin 115:483-485.

McCaffery, B. J. 2003. Book review of Sinclair, P. H., W. A. Nixon, C. D. Eckert, and N. L. Hughes (eds.). 2003. Birds of the Yukon Territory. Quarterly Review of Biology 78:488-489.

Sinclair, P.H., W.A. Nixon, C.D. Eckert, and N.L Hughes (eds.). 2003. Birds of the Yukon Territory. UBC Press, University of British Columbia, Vancouver, BC.

## 2004

Andres, B. A., M. J. Stotts, and J. M. Stotts. 2004. Breeding birds of Research Natural Areas in Southeastern Alaska. Northwestern Naturalist 85: 95–103.

Boreal Partners in Flight. 2004. The 2003 annual report of Boreal Partners in Flight. Unpublished report. U.S. Fish and Wildlife Service, Migratory Bird Management, 1011 E. Tudor Rd., ms 201, Anchorage, AK 99503.

Carstensen, R. and B. Armstrong. 2004. Birds and plane safety at Juneau Airport. Juneau Audubon Society. 14 pp.

Harwood, C. M., B. J. McCaffery, F. J. Broerman, and P. A. Liedberg. 2004. A local concentration of Snowy Owls on the Yukon-Kuskokwim Delta in summer 2000. Journal of Raptor Research. 38(3): 275-277.

Interagency Forest Ecology Study Team. 2004. Effects of spruce beetle outbreaks and associated management practices on forest ecosystems in south-central Alaska, symposium proceedings. Available at: <http://www.borough.kenai.ak.us/sprucebeetle/symposium/Follow_up/Program_Introduction.pdf> 4 April 2005.

Lewis, S.B., M.R. Fuller, K. Titus. 2004. A comparison of 3 methods for assessing raptor diets during the breeding season. Wildlife Society Bulletin 32:373-385.

Lewis, S.B., P. DeSimone, K. Titus, M.R. Fuller. 2004. A video surveillance system for monitoring raptor nests in a temperate rainforest environment. Northwest Science 78:70-74.

Pruett, C. L., D.D. Gibson, and K. Winker. 2004. Amak Island Song Sparrows (*Melospiza melodia amaka*) are not evolutionarily significant. Ornithological Science 3: 133–138.

Rosenburg, K. B. Kott, R. S. Hames, R. W. Rohrbaugh, Jr., S. B. Swarthout, and J. D. Lowe. 2004. Effects of recreational development on forest-breeding birds in U.S. National Forests. Final report to USDA Forest Service, Challenge Cost-Share Agreement Number 98-CCS-197. Cornell Lab of Ornithology, Ithaca, NY. Available: http://www.birds.cornell.edu/bfl/results_pubs/RecReport3-4.pdf. Accessed: December 3, 2004.

**2005**

Andres, B. A. 2005. Breeding Bird Atlas of Fort Richardson, Alaska. Unpublished report, U. S. Fish and Wildlife Service, Migratory Bird Management, 1011 East Tudor Rd., Anchorage, AK, 99503. 83 pp.

Andres, B. A., B. T. Browne, and D. L. Brann. 2005. Species composition, abundance, and timing of post-breeding migrant landbirds at Yakutat, Alaska. Wilson Bulletin (*in press*).

MacDonald, R. 2005a. Bird Monitoring on the Togiak National Wildlife Refuge and the Dillingham Area, Alaska, 2004. Unpublished report. U.S. Fish and Wildlife Service, Togiak National Wildlife Refuge, P.O. Box 270, Dillingham, AK 99576.

MacDonald, R. 2005b. Occupancy and Productivity of Nesting Bald Eagles, Togiak National Wildlife Refuge, Alaska, 2004. Unpublished report. U.S. Fish and Wildlife Service, Togiak National Wildlife Refuge, P.O. Box 270, Dillingham, AK 99576.

Matsuoka, S.M. 2005. 2004 update on the North American Breeding Bird Survey, Alaska. Unpublished report. U.S. Fish and Wildlife Service, Migratory Bird Management, 1011 E. Tudor Rd., ms 201, Anchorage, AK 99503.

McCaffery, B. J. and C. McIntyre. 2005. Disparities between results and conclusions: Do Golden Eagles warrant special concern based on migration counts in the western United States? Condor 107: 471-475.

Schonewille, B. and T. Murphy-Kelly. 2005. Albert Creek bird banding and migration monitoring station annual report 2004. Unpublished report. Southeast Yukon Proper Land Use Society, Watson Lake , Yukon Territory.

Sesser, K.A. and G. Jehle. 2005. Alaska Landbird Monitoring Survey, Alaska Peninsula / Becharof National Wildlife Refuge, 9 – 28 June 2004. Unpublished Report. U.S. Fish and Wildlife Service, Alaska Peninsula / Becharof NWR, PO Box 277, King Salmon, Alaska. 99613 (62 pp.).