Boreal Partners in Flight
2009 Project Summaries

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BCR 1

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Most work relevant to landbird conservation is ongoing removal of introduced mammals on Aleutian Islands. There were some post-translocation surveys of Evermann's Rock Ptarmigan on Agattu Island in the western Aleutians. (Reintroduced from Attu after fox eradication, currently has a stable population of about 26 pairs). We continue to conduct beach passerine transects and off-road point counts annually at 3-5 sites. Norway rats were removed from Rat Island in late 2008. Island Conservation conducted some pre-eradication landbird surveys but no report has been submitted.

BCR 2

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Projects completed:

- Five Breeding Bird Survey Routes were completed: King Salmon (Alaska Peninsula staff), 2 on Kodiak (C. Trussell of Kodiak College and R. MacIntosh with Kodiak NWR support), Dillingham (Togiak staff), and Izembek (Cold Bay, Izembek staff)
- Five Christmas Bird Counts are scheduled: Cold Bay (sponsored by Izembek staff), King Salmon (sponsored by Alaska Peninsula/Becharof NWR), 2 at Kodiak (supported by Kodiak NWR), and Dillingham (sponsored by Togiak staff),
- Two North American Migration Counts (May 2009): Dillingham and King Salmon (sponsored by Togiak and Alaska Peninsula/Becharof staff, respectively)
- Off road point counts: Izembek (20 off-road points in the isthmus between Kinzarof and Izembek Lagoons).

- Bald Eagle Monitoring: Togiak NWR completed a refuge-wide bald eagle survey following Patuxent's new dual-frame design; Nests – Road System, Cold Bay (Izembek NWR)
- Raptor First Aid and Transport / collection of carcasses (Alaska Peninsula/Becharof, Izembek, Kodiak, and Togiak NWRs)
- Enter historic incidental bird observations: National Park Service, Southwest AK Network funded the Alaska Natural Heritage Program to enter data from Alagnak Wild River, Aniakchak NMP, Katmai NPP and Lake Clark NPP into Alaska eBird; Alaska Peninsula/Becharof NWR funded an intern to enter incidental avian observations from the Refuge and Migratory Bird Management projects on the Alaska Peninsula into a database maintained at the Refuge.

Outreach:

- NPS-Southwest Alaska Network founded Alaska Natural Heritage Program to help develop an educational template that encourages SWAN park visitors, staff and researchers to contribute bird observation data to Alaska eBird.
- Togiak Refuge staff visited local public schools to encourage participation in the Alaska Migratory Bird Calendar Contest. Alaska Peninsula/Becharof staff visited two schools in Bristol Bay Borough for the same purpose and one in Lake and Peninsula Borough. Izembek Refuge visited five schools in the Aleutians East Borough school district also for Migratory Bird Calendar outreach.
- Izembek Refuge staff provided a field trip including instructions on binocular use for the Cold Bay School during International Migratory Bird Day.
- Weekly episodes of Bristol Bay Field Notes were completed and broadcast on the local radio station, KDLG (Togiak NWR).
- Staff at Togiak NWR presented information on migratory birds at Dillingham Elementary and led an outdoor bird walk.

Issues: Please refer to 2005 BCR Report

New issues: The Omnibus Public Land Management Act of 2009 was signed into law on March 30, 2009. In the Act, Congress directed that an EIS be prepared to evaluate the impacts of a proposed land exchange between USFWS and the State of Alaska and the King Cove Corporation for the purpose of constructing a single-lane gravel road between the communities of King Cove and Cold Bay, Alaska through the Izembek Wilderness portion of Izembek National Wildlife Refuge. Completion of this land exchange would set a dangerous precedent for development within wilderness areas.

Renewable Energy Development: Multiple entities are considering the development of alternative energy to save money, reduce the carbon footprint, and/or supply energy in remote areas where other options are limited. The following projects have come to the attention of BCR 2 members. Naknek Electric Association is currently drilling a well for geothermal energy development. The envisioned development will include transmission lines to multiple villages in the Bristol Bay region. Alaska Peninsula and Izembek NWR are conducting environmental compliance in preparation for installation of several wind

generators in the vicinity of refuge complex buildings. The following villages are exploring the feasibility of, or in the process of installing, wind generators: Nome, Sand Point, St. George, King Cove, Nikolski, and False Pass. Several villages have already installed generators: Port Heiden and Perryville. The Donnelly mine is exploring the feasibility of generating power for their operation using wind. The Air Force is exploring placing wind generators at three remote radar sites: Cape Newenham, Cape Rozmanof, and Cape Lisburne (BCR 3).

BCR 5

Melissa Cady[1] (BCR Coordinator)

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Several of the ongoing projects in BCR 5 are reported in more detail below:

- Breeding Bird Surveys and Christmas Bird Counts
- Survival of Prince of Wales Spruce Grouse in Southeast Alaska
- Investigating Breeding Season Ecology and Migratory Connectivity of the Rapidly Declining Rusty Blackbird (*Euphagus carolinus*) in Alaska
- A Pilot Project to Investigate Migratory Connectivity in the Rusty Blackbird (*Euphagus carolinus*) using geolocators
- Candidate Assessment for the Prince of Wales Spruce Grouse

Another major accomplishment was the publication of Distribution, Abundance, and Ecology of Forest Owls in Southeast Alaska by Michelle Kissling and Steve Lewis.

The Tongass and Chugach National Forests also participated in a wide variety of interpretation and education events this year, including the Copper River Shorebird Festival, the Stikine River Birding Festival, and many others.

PROJECT SUMMARIES

FORT WAINWRIGHT TANANA FLATS TRAINING AREA (TFTA) AND YUKON TRAINING AREA (YTA), ALASKA

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MONITORING/INVENTORY

Breeding Bird Survey (BBS)

FWA has participated in the BBS program since 1982. A total of 21 species, (441 individuals), was detected during the 2009 Little Salcha BBS. Yellow-rumped Warbler (21%), Swainson's Thrush (18%), and Orange-crowned Warbler (14%) were the most numerous species detected. The little Salcha Route was mapped with a GPS in 2007 and the data points were added to the most current GIS vegetation layer. In 2009, we re-surveyed the vegetation and habitat characteristics at each point. Training and logging activities in the YTA may alter habitat in the coming years. Changes in bird species composition will be documented as changes occur.

ALMS/Off-Road Point Counts

FWA has participated in ALMS since 2006. Two ALMS plots have been successfully established in the YTA. A total of 15 species, (261 individuals), was detected during the 2009 ALMS. Yellow-rumped Warbler (21%), Swainson's Thrush (17%), and Ruby-crowned Kinglet (13%) were the most numerous species detected.

In 1998, the Alaska Bird Observatory studied the distribution of landbirds among habitats on the TFTA and YTA at Fort Wainwright. With increasing demands on these training areas, we decided to resample the point counts and vegetation for changes in habitat and species composition. The 2009 season being limited by field crews, we continued to selectively resample the points over a four year period. We re-surveyed 44 points in the YTA. A total of 23 species, (352 individuals), was detected between May 27th and June 20th. Dark-eyed Junco (25%), Yellow-rumped Warbler (16%), and Swainson's Thrush (10%) were the most numerous species detected. This year, we documented a singing Least Flycatcher for the first time.

Cavity nesting Ducks

In 2000, a duck box project was initiated on Fort Wainwright, Alaska. The purpose of the project was to encourage cavity nesting waterfowl to take residence on lake and river systems, and provide educational and aesthetic value to boaters and outdoor enthusiasts on military lands. The waterfowl species targeted by this project, are the Bufflehead,

Bucephala albeola, Barrow's Goldeneye, *Bucephala islandica*, and Common Goldeneye, *Bucephala clangula*. Currently, there are a total of 16 boxes placed on FWA. Nine boxes were utilized by waterfowl in 2009 as evidenced by eggs, eggshell fragments and down.

Prior to the 2007 season, the purpose of the project was to determine usage. Nesting success was secondary information and not considered quantifiable. In 2009, nest box monitoring, brood surveys, and Indicated Breeding Pair surveys were initiated on water bodies with boxes. Qualitative data has provided optimal survey periods with which to assess use and productivity of YTA and FWA water bodies. In 2009, we also placed a game camera at a known active box to better estimate hatching dates. We will continue surveys and monitoring in 2010.

Ruffed Grouse Drumming Surveys

Ruffed grouse surveys were initiated along Quarry Road Yukon Training Area (YTA) in 2003. Methods are consistent with state and national survey techniques. Survey routes consist of ten stops spaced roughly a mile apart along a roadway in habitat favoring Ruffed Grouse. At each stop, the observer listens for a period of four minutes, and records drumming and direction to the grouse. Any sighting should also be documented and recorded. It is best to conduct counts during peak drumming periods, usually in the early morning and late evening, roughly ½ hour before sunrise and 2 hours before sunset. Date, time, temperature, wind, and rain should all be documented. Surveys should be conducted during periods of calm or light winds (< 20 km/h) and precipitation minimal. The route was run four times between April 29th and April 30th. Ruffed grouse were detected at 5 stops. Data was compiled and incorporated into the Ruffed Grouse population status in Interior Alaska as part of the Upland Game report submitted annually by W. Taylor.

Trumpeter Swan Nesting and Brood Surveys in Tanana Flats Training Area

The Army has participated with USFWS, conducting trumpeter swan surveys in the Tanana Flats Training Area (TFTA), as part of the swan population assessment for North America since the late '70's. United States ARMY Garrison Alaska (USAG-AK) biologists began TFTA aerial trumpeter swan surveys for the purpose of gathering information regarding swan distributions and abundance on military lands. The USAG-AK surveys 1979-1990, (every year), 1992-1998 (every year), 2000, and 2002- 2004 (every year) have contributed invaluable information regarding swan populations on military lands. The swan surveys have also added to the USFWS North American database, as well as the data gathering effort as part of the Tanana Flats Recreational Impact Study commissioned in 2002 (2002 – 2007). In 2003, spring nesting surveys were initiated in the TFTA in addition to the traditional fall brood survey to collect nesting location, and individual nesting success information. The TFTA nesting and brood surveys were conducted annually until the end of the Recreational Impact Study in the fall of 2007. Swan surveys were re-initiated in 2009 in response to proposed increases in military use and training in TFTA. Nesting surveys detected a total of 192 swans; 16 singles, 3 flocks (total 18), 79 pairs and 27 nest locations. Brooding surveys

identified a total of 178 swan; 12 singles, 4 flocks (total 13), 40 pairs and 14 pairs with broods.

Ospreys

Osprey nesting on Fort Wainwright has been documented since 2005. Annually, a pair of Osprey will build a stick nest on the tallest power pole above the Chena River just off the departure / arrival path of Ladd Army Airfield. Limited observations began in 2006; time spent observing increased in 2007. In 2008, a total of 163 hours, (89 visits), were spent observing the breeding ospreys between May14th and September 23rd. Two chicks were successfully fledged in 2008. Behavioral information including time spent incubating, brooding, and perching were taken for both male and female osprey as well post fledging behavior of the family unit prior to permanently leaving the natal area in late September. Male and female ospreys share incubation and brooding of their young (Poole, 1989). This was verified during 2008 observations. The female osprey spent significantly more time at both activities; Incubation: $t(56) = 2.145$, $p = (0.036)$, Brooding: $t(44)$, $p = (0.0003)$. These observations are consistent with Poole, 1989.

The nest appeared to be the focal food transfer point during the entire summer, even after fledging had occurred. Fish delivery and transfer were never observed occurring anywhere but at the nest during the entire 2008 season. Post-fledging, the chicks continued to use the nest as the food transfer site. Young ospreys often rely on their parents for food at least 10 – 20 days after fledging (Poole, 1989). The nest can be critical for food transfer until young have attained adequate fishing skills. The fledglings utilized the structure until they departed in late September.

Once fledged, chicks may fly to nearby nests to take advantage of nestlings not yet fledged, and obtain food. Poole (1982, 1989) discusses observations of interloper fledglings seeking food from breeding ospreys in nearby nests. These adult ospreys rarely chased off interloper fledglings, and often fed the intruders, perhaps unable to recognize the difference between the newcomers and their own brood. Poole also suggests that nest switching is apparent in areas in which nests are in close proximity. In 2008, we documented an interloper chick on the 20th, 21st, 28th of August, and the 4th of September. In every case, the interloper attempted to acquire food from either the adults or steal from the nestlings. On the 28th of August, the female adult exhibited a high level of aggression towards the interloper, grasping the fledgling in her talons, calling loudly and incessantly. The adult female finally retreated and the intruding fledgling remained on the nest eating remains of fish discarded by the resident chicks. On September 4th, the interloper made an attempt to receive fish from the returning adult male, but was challenged by one of the resident chicks and subsequently left the nest.

Reactions to anthropogenic disturbances were documented in 2008. Trimper et al. (1998) measured anthropogenic disturbances in the form of low-level jet aircraft noise. Their study found that Osprey behavior did not differ significantly between pre- and post-overflight periods, however, Osprey did react strongly to other raptors, and humans entering the area. In 2008, disturbances ranged from fixed-winged planes (both turbine

and jet), rotary aircraft, jet boats, trains, motorized vehicles (trucks, motor bikes and four-wheelers) to walkers with and without dogs. In all observed disturbance bouts, the ospreys were the most distressed by people on foot along a path located on the other side of river. Agitation levels were based on calling and posture. Poole (1981), studied human disturbance on breeding Osprey and found although Osprey showed strong reactions to human activity at or near the nest, the disturbance in itself did not contribute to overall nest failure. During the 2008 observations, the motorized disturbances in the air, on the ground and along the river did not elicit evident anxiety. Seventeen separate events were recorded in which boats, trains, ORV's and or aircraft passed close to the nest creating loud disturbances. On each occasion, the ospreys were alert, watching the traffic, exhibiting no measurable level of agitation.

Two breeding pair of Osprey attempted to nest along the Chena River on Fort Wainwright in 2009. The local utility company attempted to prevent nesting early on in the season, but both pair successfully built nest structures despite the deterrents. One pair successfully fledged a single chick, while the other pair, although not successfully breeding, maintained residence at their nest throughout the summer. We compiled behavioral information for time activity budget analysis. A total of 213 observation hours (104 visits) were collected on the breeding pair, and 80 observation hours (61 visits) were obtained for the non-breeding pair of Osprey.

We approached the utility company early in the spring of 2009 with regards to placement of nesting platforms near established nest sites. Plans have been finalized for the placement of two nesting platforms within 50m of each documented nest site. Placement will occur during fall 2009 and use will be documented at the start of the 2010 breeding season. We also hope to expand this monitoring to a live feed system for educational purposes in the community and to discover and document nesting activities not seen from the ground.

Poole, A.F. 1981. The Effects of Human Disturbance on Osprey Reproductive Success. Colonial Waterbirds, (4), 20-27.

Poole, A.F. 1982. Breeding Ospreys Feed Fledglings That Are Not Their Own. The Auk (99)781-784.

Poole, A.F. 1989. *Ospreys A Natural and Unnatural History*. Cambridge University Press, Cambridge.

Trimper, P.G., Standen N. M., Lye L. M., Lemon D., Chubbs T. E.and G.W. Humphries. 1998. Effects of Low-Level Jet Aircraft Noise on the Behaviour of Nesting Osprey. Journal of Applied Ecology, (35) 122-130.

AMERICAN PEREGRINE FALCON (*FALOCPEREGRINUS ANATUM*) MONITORING ALONG THE UPPER YUKON RIVER IN YUKON-CHARLEY RIVERS NATIONAL PRESERVE

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American peregrine falcons along the upper Yukon River and the Charley River, including Yukon-Charley Rivers National Preserve (YUCH), Alaska, have been monitored almost continuously since 1973. This and other local populations in interior Alaska have increased steadily since the late 1970s, following the ban of DDT in the United States in 1972, and their listing as endangered in 1973 under the Endangered Species Act (U.S. Congress). In August 1999, the U.S. Fish and Wildlife Service (USFWS) removed the American peregrine falcon from the list of Threatened and Endangered Wildlife. Section 4(g)(1) of the Endangered Species Act requires that all species which have recovered and have been removed from the list are monitored for not less than five years following delisting. In 2004, the last year of this five-year monitoring program was implemented by the Air Force, USFWS, and National Park Service (NPS). In 2003, the upper Yukon River peregrine falcon population was identified as one of two index populations (the other is the Tanana River) in Alaska for long-term monitoring beyond 2004 (USFWS 2003), and in 2005 by the Central Alaska Network (as part of the NPS Vital Signs Inventory and Monitoring Program) as an important vital sign in determining ecosystem health (MacCluskie and Oakley 2005). A monitoring protocol was prepared (Ambrose et al. 2005) following standards of Oakley et al. (2003), which is currently in the peer review process.

Extensive flooding occurred in mid May of 2009 during spring thaw along a stretch of the upper Yukon River survey area. Massive chunks of ice, debris and high water inundated the upper banks of the river and the communities of Eagle and Eagle Village, Alaska, where we refuel during the survey. The ice and floodwater destroyed many homes and businesses along the banks of these communities. Consequently, the 2009 occupancy survey was delayed by one week until the river was safely accessible and services were restored in Eagle, Alaska.

In 2009, 265 km (165 miles) of the upper Yukon River were surveyed. The occupancy and nest-site survey was conducted from May 27-June 6. Territories were checked for productivity from June 23-July 8. Fifty-three nesting territories, the most ever recorded, were occupied by American peregrine falcons (53 pairs of adults on territories). Thirty-two of the 52 pairs (60.4%) were successful, and produced 71 nestlings. Productivity was 1.34 nestlings per total pair and 2.22 nestlings per successful (≥ 1 nestling observed) pair. Between 1973 and 2009, the number of total and successful pairs nesting along the upper Yukon River has been steadily increasing, though the percentage of total pairs nesting successfully has been leveling off. This may be attributable to increased competition for resources due to increased density. In 2009, one new territory was established by a pair of peregrines at Simon Bluff (YUKO 34.0) on cliffs not previously used by peregrines in

over 30 years of observations. Of the four new territories established last year (2008), [Simon Bluff (YUKO 24.0), Upper Biederman Bluff (YUKO 148.0), Woodchopper + 2 km (YUKO 189.0) and Webber Creek-Middle (YUKO 199.5)], only 3 were occupied (no pairs were detected at YUKO 24.0) and of these three, one was successful (YUKO 195.5) with one nestling in the aerie. In addition, three new nest sites were established on routinely-occupied territories at Nine Mile (YUKO 250.0), Edwards Creek (YUKO 181.5) and Chester Bluff (YUKO 155.5).

Recent contaminants analyses of Peregrine Falcon eggs from YUCH suggest that mercury is currently at levels that may affect reproduction, and trends suggest that mercury levels may be increasing (Ambrose et al. 2000). Mercury is a persistent compound which bioaccumulates at high trophic levels causing toxic effects (similar to DDT). Additionally, DDT and other pesticides are still being used in wintering grounds, which may cause continued risk to the population. In response to these threats, addled eggs and samples of nestling feathers are collected to determine contaminants levels on the nesting grounds. Molted adult feathers are collected to assess contaminants levels on the wintering grounds. When possible, samples of nestling and molted adult feathers, buccal swabs (Handel et al. 2006) and egg-shell fragments are collected for genetic comparison of the upper Yukon River population to other North American peregrine populations (Talbot per. comm 2006). Both contaminants and genetics samples are analyzed via interagency cooperative agreements with USFWS Ecological Services in Fairbanks, Alaska and USGS Molecular Ecology Laboratory in Anchorage, Alaska, respectively. In 2009, a shed adult feather was collected for contaminants analyses at both Takoma Creek (YUKO 208.5) and at 70 mile -2 km (YUKO 48.5). Three addled eggs were collected for contaminants analyses from Upper Nation (YUKO 88.0). For genetics analyses, two empty egg shells were collected at 70 mile -2 km (YUKO 48.5) and six buccal swabs were collected at Boulder Creek (YUKO 25.0), (one swab from one nestling); 70 mile -2 km (YUKO 48.5), (one swab from one nestling); Woodchopper +4.5 km (YUKO 191.5) (one swab each from three nestlings); and Woodchopper +8 km (YUKO 195.0), (one swab from one nestling).

TONGASS NATIONAL FOREST PARTNERS IN FLIGHT

Gwen Baluss[1] and Mark Hopey

1Juneau Ranger District, Tongass National Forest, 8510 Mendenhall Loop Road, Juneau, AK 99801

Educational presentations

- International Migratory Bird Day (JRD)

Two events were held in Juneau, an evening presentation that also celebrated the designation of Mendenhall Wetlands as an IBA, and a bird-banding demonstration at the Juneau Community Garden

- Sea Week Bird Walks (JRD)

Gwen Baluss and Mark Hopey birded with multiple school classes as part of this week-long series of courses for 4th and 5th grade students with naturalists and professionals in the biological sciences.

•Crystal lake Day Camp (JRD)

Bird-banding demonstration for the 5th grade attendees of this FS sponsored summer nature-study camp.

•Educational materials (YRD)

Yakutat birding and ecotourism project: drafts produced for informational website and brochure highlighting bird-watching opportunities and an area species checklist. Internet posting and publication expected in 2010.

Monitoring

•BBS Routes (YRD and JRD)

Yakutat and Harlequin lake routes completed.

•Alaska Landbird Monitoring Survey (ALMS)--Forest-wide participation

This was the seventh year of implementing this protocol on the Tongass NF. The USFS continues to be a leader in the statewide effort. Eight survey blocks were visited: one in Ecoregion 29 (Alaska Gulf), one in Ecoregion 31(Boundary ranges) and 6 in Ecoregion 32 (Alexander Archipelago). All are within Bird Conservation Region 5. This was a total of 170 count points. Habitat work was done for new additions and a few places where habitat changes (logging) have occurred since the project began. Data were compiled and sent to the USGS Alaska Science Center for analysis.

NEW NATIONAL EAGLE TAKE PERMIT PROGRAM

Maureen de Zeeuw[1]

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The USFWS has instituted a major change in bald and golden eagle management nationally, including Alaska: as of November 10, 2009, permits will be available for the "take" (kill, wound, disturb) of eagles and their nests. This is a result of the de-listing under the ESA of the bald eagle in the Lower 48. Take was allowed under the ESA, but not under the Bald and Golden Eagle Protection Act (BGEPA) which still applies. So changes needed to be made to BGEPA, i.e., a take permit program instituted. These are not permits for purposeful take, but for unavoidable take that occurs in the course of some other activity unrelated to take of eagles. There is to be a permit threshold that is to be adjusted each year based on population and productivity data. While the permit applications have now been made available by Washington D.C. there are more questions than answers right now concerning permit issuance, and guidance is still under public review. Some of the problems: we do not have reliable eagle data in Alaska, and in fact golden eagle data is unreliable in most of country. In Alaska, we are unlikely to have the necessary data for the foreseeable future. There is no guidance concerning such critical issues as mitigation and monitoring, and while programmatic permits are promised, their development has not begun. There were other oversights only recently recognized, such as there being no permit for long-term take (e.g., wind industry). We appreciate the

involvement of raptor experts in helping us to craft a program that will be "compatible with the preservation of the eagle" (as the new regulations require).

TUNDRA SWAN AVIAN INFLUENZA SAMPLING ON THE NORTH SLOPE OF ALASKA

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[2]ABR Inc. Fairbanks, AK.

ABR assisted USGS in capturing Tundra Swans on the North Slope of Alaska. Helicopters and runners on-foot were used to access and capture swans in order to sample for Avian Influenza. One hundred swans were captured (including nine recaptures) and sampled during a five-day period, but the lab results are not finalized at this point.

BIOGEOGRAPHY OF SELECT AVIAN SPECIES IN ALASKA'S NATIONAL PARKS

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In response to the detection of the highly pathogenic Asian H5N1 avian influenza (HPAI) in wild birds in Asia, the U.S. Interagency Strategic Plan for early detection of HPAI recommended that monitoring efforts focus on cross-over routes of birds from Asia to North America. Understanding migration strategies is essential in examining the role of wild birds in the spread of avian influenza and in predicting transmission routes within and across continents. The migratory connection between Alaska and Asia and the avian data available in National Parks make Alaska's National Parks logical targets for data summarization efforts. The objective of this project was to collect and summarize occurrence information to display seasonal distribution and potential migratory patterns for 36 avian species within and adjacent to Alaska's 16 National Parks. Target taxa were selected because they were recognized by the Alaska Interagency HPAI Bird Surveillance Working Group as having the highest potential of contacting the H5N1 virus and bringing it to Alaska. Information on the occurrence and seasonal distribution of the 36 avian target species was collected from numerous and disparate data sources and summarized in a relational/spatial (Access/ArcGIS) linked geodatabase. In total, we summarized 11,042 observations for this project from 319 unique data sources which spanned the time period 1881 to 2008. Observation data for individual species varied by total number, observation type (e.g., breeding, migration, stopover, wintering), season and presence within the four park networks. To assist managers with identification of seasonal distribution patterns or avian concentration areas, we designed the geodatabase

to allow for easy viewing by number of birds observed, observation type, and season for each species. Findings were also summarized in species accounts, which include information on range, migration, distribution and seasonal occurrence within Alaska's National Parks, provided specific dates on the timing of spring and fall migration, first breeding, molting and staging.

ELMENDORF AFB

Herman Griese[1] and Matt Moran[1]

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Elmendorf AFB due to staffing shortage accomplished less than planned this year. Griese participated in 2008 Anchorage and Eagle River CBC. For 4th consecutive year Griese conducted unofficial roadside BBS within EAFB boundary. Griese conducted only one calling owl survey. However, loon watch volunteers completed 25th annual loon breeding survey on EAFB/FRA. EAFB/FRA recorded 2nd trumpeter swan nesting pair (Otter and Sixmile Lakes), producing 6 total cygnets. Volunteer birders continued monitoring for unusual species – added great blue heron to installation species list. EAFB continued to host S. Matsuoka's rusty blackbird study.

LANDBIRD UPDATE FOR KANUTI NATIONAL WILDLIFE REFUGE

Christopher Harwood[1]

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An Alaska Bird Observatory survey crew completed two Alaska Landbird Monitoring Survey (ALMS) plots (#37154 and #37393) on Kanuti National Wildlife Refuge (NWR) in June 2009. Plot #37393 was previously surveyed in 2005 and 2007, while #37154 was surveyed in 2006. Kanuti NWR observers handled both bird and bird-habitat surveys of the ALMS plots in previous years. Bird-habitat surveys have been done each year for plot #37393 because the unit burned severely in 2004 and successional vegetation changes have been marked.

Kanuti NWR personnel also completed three bird surveys for its biological inventory program in June 2009. The inventory uses the ALMS statewide sampling scheme, of which 64 ALMS plots fall within the refuge boundary. Unlike the statewide ALMS plots which are composed of potentially 25 points, the Kanuti "Inventory" plots are 12 points (i.e., half ALMS grids). The Inventory plots are not currently slated to be revisited for monitoring purposes (unlike the two ALMS plots noted above). Since 2004, bird and bird-habitat surveys (both using ALMS protocols) have been completed for 12 of the 64 grids within the refuge; this includes the 2 ALMS plots, as well as 10 Inventory plots. An eleventh Inventory plot was also visited this year but the survey was cancelled when access and egress by floatplane became questionable because of low water levels.

The annual Kanuti Canyon and Kanuti Lake Breeding Bird Surveys were not done in 2009 because the crew was occupied with competing fieldwork.

For the second year in a row, observers "sprung out" at the Kanuti Lake administrative cabin (arriving by helicopter on 30 April). The crew again documented arrival dates for migrant landbirds.

USING SATELLITE TELEMETRY TO DETERMINE MIGRATORY MOVEMENTS OF SHORT-EARED OWLS FROM THE SEWARD PENINSULA, ALASKA

James Johnson[1], Steven Matsuoka[1], Lucas Decicco[1] and Travis Booms[2]

[1]U.S. Fish and Wildlife Service, Migratory Bird Management
[2]Alaska Department of Fish and Game

Several data sources indicate that Short-eared Owl populations are declining across their North American range; habitat loss and fragmentation are believed to be the primary factors linked to declines and extirpations. What we know about seasonal connectivity of North American Short-eared Owl populations is based on only a few band recoveries and until recently migration strategies of Short-eared Owls that breed or otherwise occur in Alaska were unknown.

Determining connectivity and habitats used throughout the annual cycle, may enable biologists to better address and measure effects of environmental conditions on Short-eared Owl life history, including vital rates such as survival. Furthermore, an understanding of spatial linkages and temporal patterns among Short-eared Owl populations will enable biologists in Alaska and elsewhere to create collaborative partnerships at the flyway scale.

In this study, we attached 12 gram solar-powered satellite transmitters to 14 Short-eared Owls during June 2009 at Nome, Alaska. Telemetry data suggest that Short-eared Owls caught at Nome use two principal flyways: an inland route through the Prairie Provinces and Great Plains states and a coastal route through Southeast Alaska and British Columbia. Currently, owls are dispersed across 25 degrees of longitude, from the Pacific Northwest east to the Great Plains, and 30 degrees of latitude, from the Prairie Provinces south to central Mexico.

Based on our findings, Short-eared Owls carrying satellite transmitters are clearly capable of moving long distances. We intend to expand this study to include other regions in Alaska, including the interior (2010) and the north slope (2011).

LANDBIRD UPDATE FROM TETLIN NWR, ALASKA

W.N. (Bud) Johnson[1], Peter Keller, and Hank Timm[1]

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MONITORING/INVENTORY

First Arrivals/Spring Phenology

Tetlin Refuge has recorded spring (first) arrival dates for migrants passing through the Upper Tanana Valley since 1982. In the past, most of these records came from refuge staff who recorded incidental observations while participating in other activities and additional observations came from the public. In 1999, a spring phenology route was established to systematically record the annual passage of migrants through the valley. A set route with predetermined stops is driven several times a week in April and May. Effort is estimated by recording total survey time and mileage similar to the Christmas Bird Count (CBC).

In 2009, our phenology route was run 20 times between 7 April and 22 May. This year after each survey, we posted our observations on a large dry erase board in our office lobby to visually depict the progression of migration. We found this to be a very effective outreach tool that prompted lots of discussion and interest from refuge visitors and local residents. Results of the surveys bolster our first arrival information, provide an index to the annual 'pulse" of migration, and over the long-term may detect changes in the pattern of migration.

North American Migration Count (NAMC)

The NAMC tallies the number of individuals by bird species within a defined area on the second Saturday in May. The NAMC is similar to the CBC; however, the NAMC is conducted on the same day throughout the continent and thus provides a "snapshot" of the progress of spring migration. Locally, it bolsters our spring phenology efforts and it's easily incorporated into outreach activities associated with International Migratory Bird Day. We conducted our 18th annual count on 9 May with four parties tallying 1,684 individuals and 60 species within our count area (GMU 12). Unusual sightings included a Red-throated Loon while Fox Sparrow and American Pipit were conspicuously absent from this years' count.

Breeding Bird Survey (BBS)

Tetlin Refuge has participated in the BBS program since 1989, completing an impressive eight routes in 1997! Presently we survey four routes in the Upper Tanana Valley and have used the same observer since 1999. These four routes were completed in 2009 although one survey was stopped after 40 points because of high winds. Several sections adjacent to one route on the Taylor Highway burned in 2004. Response to the burn so far has been negligible with regards to species composition but the distribution of species along the route has changed. For example, Yellow-bellied Flycatchers had occurred consistently at several stops on this route. Since the fire, this species is still heard on the route but are now found at other points.

ALMS/Off-Road Point Counts

Off-Road Point Counts (ORPC) routes were established on the Refuge in 1994 as part of a regional pilot project to determine the feasibility of using ORPC to monitor trends in landbirds on large roadless areas. Seven routes were randomly established within the major habitat types on the Refuge. After the refinement of the ALMS program we adjusted our protocols to mesh with the new ALMS protocols and continued to conduct our counts and contribute our data to the statewide effort. We successfully completed our 16th year of point counts in June.

Raptors

Tetlin Refuge has collected raptor nesting territory occupancy and productivity data in GMU 12 in the Upper Tanana Valley annually since 1991. Bald Eagle (*Haliaeetus leucocephalus*), Osprey (*Pandion haliaetus*) and American Peregrine Falcon (*Falco peregrinus anatum*) nests accounted for 81% of 521 raptor nests documented since 1961. Raptor occupancy and productivity surveys were completed between 9 May and 29 July 2009. Most raptor nests were located along rivers and wetlands within the habitats that sustain their prey.

In 2009, Bald Eagle occupancy (61.5%; $\bar{x}$ = 66.0% ± 3.3 (1991-2008 mean ± 95% C.I.) was slightly lower than expected for 65 nesting territories surveyed. Success (35.0%; $\bar{x}$ = 51.9% ± 5.9) and productivity (0.40 young per occupied nest; $\bar{x}$ = 0.66 ± 0.09) were both the second lowest recorded since 1991, while mean brood size (1.14 young per successful nest; $\bar{x}$ = 1.26 ± 0.07) was lower than expected.

Osprey occupancy was within expected ranges in 2009 (76.5%; $\bar{x}$ = 75.3% ± 3.1) for 34 nesting territories surveyed. Success (82.6%; $\bar{x}$ = 59.2% ± 5.6) and productivity (1.65; $\bar{x}$ = 1.10 ± 0.14) were both the highest recorded since 1991, while mean brood size (2.00; $\bar{x}$ = 1.85 ± 0.15) was within expected ranges.

In 2009, Peregrine Falcon occupancy (94.4%; $\bar{x}$ = 88.0% ± 5.5) was within expected ranges for 18 nesting territories surveyed. Success (78.6%; $\bar{x}$ = 88.0% ± 6.1), productivity (1.71; $\bar{x}$ = 2.31 ± 0.31) and mean brood size (2.18; $\bar{x}$ = 2.60 ± 0.24) were all lower than expected. Mean dates were estimated for Peregrine Falcons using nestling ages (n = 24) for egg laying ($\bar{x}$ = 18 May 09, range 10 May–2 June 09), hatching ($\bar{x}$ = 20 June 09, range 12 June–4 July 09) and fledging ($\bar{x}$ = 30 July 09, range 22 July-13 Aug 09). The number of known falcon territories has increased from three to 22 since 1991.

Fall Migration Banding Station

This fall marked the 17th year of operation for our fall migration banding station. Birds were banded from 30 July through 27 September to obtain data on species composition, fat deposition, age and sex composition, and seasonal patterns of abundance during fall

migration in the Upper Tanana Valley. We banded 1797 birds of 31 species this year, and recaptured 125 birds of 13 species. These numbers are slightly below our long-term average of 2235 birds/32 species (new captures) and 206 birds/17 species (recaptures), but well within the normal range. Unusual species banded this year included one Brown Creeper and one Western Wood-Pewee. We caught record low numbers of Alder Flycatchers (15; $\bar{x} = 60$).

Christmas Bird Count (CBC)

The 22nd annual CBC was completed by refuge staff and local citizen scientists on 16 December. Reasonable temperatures provided good survey conditions and good participation. Despite a record high 19 species for count week no other records or new species were recorded.

RESEARCH

Prey Diversity and Abundance in Relation to Rusty Blackbird Nesting Territories

This project was designed to bolster current efforts by the US Fish and Wildlife Service (USFWS) and the Alaska Department of Fish & Game (ADF&G) to document breeding phenology of Rusty Blackbirds in southcentral and interior Alaska in relation to prey diversity and abundance. The project on the Tetlin Refuge was partially funded through ADF&G and a Challenge Cost Agreement with John Hudson and the UAF Museum of the North. The goal was to implement a pilot study using standardized protocols at specific sites supplemented by collecting of odonates throughout the refuge.

The primary study area was located on the Tetlin Refuge between Scottie and Desper Creeks adjacent to the Alaska Hwy. Following up from last year's observational study of RUBL breeding ecology in this area, refuge staff located RUBL territories and documented evidence of numerous breeding pairs. At 3 sites on 3 different wetlands, we took surface and subsurface samples with nets, and took pH, temperature, conductivity, and total dissolved solids data. Also at each site, we wrapped wooden dowels with plastic sheets and coated them with Tanglefoot and placed them vertically within or near emergent vegetation, leaving approximately 2' above the surface to catch emerging insects. Samples are still being sorted and analyzed.

Some problems came up with the sample collection. There were high water level fluxuations such that on subsequent visits, dowel locations that had been in the water before were now on dry land up to 30' from the bank. This primarily happened on the sites that were connected to Scottie Creek during high water, but affected other sites to a lesser degree. Other issues included lack of any emergent vegetation early in the year (21 May), and no growth of emergents in areas until after the second or third visit. Therefore, the surface net samples were also ineffective (without vegetation to sweep), as were the dowels until later in the spring/summer. Aquatic sampling with D-frame nets was by far the most productive, with numerous large inverts in most samples.

One nest was observed during duck surveys on 8 June near Desper Creek. This nest was primarily made of willow twigs; ~1m above ground in a willow shrub and held 4 fledglings. During this week of waterfowl surveys, we often encountered RUBLs carrying adult odonate prey.

Mercury Contamination in Alaskan Birds

Last summer the BioDiversity Research Institute (BRI) and the U.S. Fish and Wildlife Service cooperated in a new study to measure methylmercury (MeHg) levels in birds throughout Alaska. Tetlin NWR participated in this effort by collecting blood and feather samples of passerines and sharp-shinned hawks caught during our fall migration banding. The study seeks to (1) provide a baseline assessment of MeHg risk to Alaskan birds; (2) determine biological Hg hotspots in Alaska; and (3) compare MeHg levels between birds breeding in Alaska and other parts of North America. We contributed samples from Gray-cheeked and Varied Thrushes, Northern Waterthrushes, Sharp-shinned Hawks, Yellow-bellied Flycatchers, and Lincoln's Sparrows. Samples have been analyzed, we have the data and the report should be out soon from BRI.

THE AUDUBON ALASKA WATCHLIST

Matt Kirchhoff[1]

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The Audubon Alaska WatchList is revised and published every 3-5 years as a means of drawing public attention to regularly occurring birds in Alaska that are either declining or are deemed vulnerable. We use data from breeding bird surveys, Christmas bird counts, and agency surveys to inform population size and trend scores. Minimum-area-occupied scores based either on breeding and wintering ranges, staging areas, or migration stopovers, are used to reflect additional vulnerability. A new "stewardship" score was added this year, based on the proportion of the North American population that occurs in Alaska. We sum the scores for each regularly occurring species, or subspecies, in Alaska, and identify a threshold for making the list. The process is straightforward in concept, but messy in execution. The main obstacles include inadequate or conflicting survey data on population size and trend, uncertainty about "minimum–area-occupied" scores for many species, and the inherent advantage subspecies hold over species in such scoring systems. Despite these limitations, the Audubon Alaska WatchList has proven itself an effective means of increasing public awareness about the state of the birds in Alaska, and promoting their conservation. The presentation at the Boreal Partners In Flight meeting will review the scoring for land birds, identify which species are expected to make the Audubon Alaska WatchList, and compare those findings with other listing efforts.

BIRD MONITORING AT INNOKO NWR

Steven Kovach[1]

[1]Innoko NWR McGrath, AK

Landbirds
In 2009, Innoko NWR once again ran its two boat based BBS routes for the 17th consecutive year. All 50 stops of the Mud River route were completed but only 45 stops of the Hather Creek route were completed due to the onset of rain. A total of 43 species were detected on the Mud River route; 48 species on the Hather Creek route. This represents the third highest and highest species detections on Mud River and Hather Creek routes, respectively. New species recorded for the routes include red-necked grebe on Hather Creek and northern hawk-owl on Mud River. Total species diversity recorded on these two routes is now 94, 70 of which have been recorded on both routes.

With the assistance of the Alaska Bird Observatory, Innoko NWR finally managed to get their other 2 ALMS sites surveyed for the first time. Results of that survey have not been received by the refuge as of this writing.

For the 13th year, Innoko NWR assisted the US Air Force by running the land vehicle based BBS route for their Tatalina Long Range Radar facility.

Waterfowl
In late May, Innoko NWR completed the second of three scheduled intensive breeding pair surveys in the Yukon River floodplain (between the village of Holy Cross and Holikachuk Slough) and the Iditarod River basin. Once the third survey is completed next year, Innoko NWR biologists will work with waterfowl biologists in the Migratory Bird Management (MBM) office to analyze the data and compare the results to the original surveys conducted in 1994 and 1995.

Once again, Innoko NWR completed a survey of molting white-fronted and Canadian geese on the refuge; 2009 marked the 10th year of this survey. The refuge attempted to investigate the Yukon River floodplain area for areas of molting geese, but the extreme flood waters appeared to displace birds from apparently suitable habitat.

Innoko NWR continued to host the MBM crews and assisted with banding 1,080 new white-fronted geese; 97 previously banded birds were recaptured.

USAF GOOSE FORAGE STUDY, THE NEAR ISLAND GROUP IN WESTERN ALEUTIANS

Matt Macander[1] and Gene Augustine[2]

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The objective of this project was to determine the relative importance of Eareckson Air Station on Shemya Island to the regional Aleutian Cackling goose population. Studies of goose foraging patterns and habitat use occurred on Attu Island in spring (2008) and fall (2006 and 2009) and on Shemya Island in spring and fall 2006. Using remote sensing, habitat characteristics are mapped on all of the Near Islands and patterns of foraging and habitat use can be extrapolated to the island group. Final report expected in the spring of 2010. ABR Inc completed the fall 2009 field work on Attu, September 2-18. Fall scat counts, dominant plants and grazing evidence were recorded at randomly selected plots stratified by preliminary habitat type. More detailed vegetation cover and structure data were recorded at a subset of plots to support improvement of the archipelago-wide habitat map. Location, size and habitat of flocks encountered within 200m of sampling routes were recorded. Based on a preliminary review of the scat plot data, the highest use habitats were shorelines, alpine meadows, and dwarf shrub (empetrum/vacinnium) graminoid tundra.

As an aside to the project ABR reported they did not see many landbirds during the September 2-18 fieldwork. The following is a list of species they reported: Common Eider (*Somataria mollissima*), Red-Breasted Merganser (*Mergus serrator*), Harlequin Duck (*Histrionicus histrionicus*), Aleutian Cackling Goose (*Branta hutchinsii leucopareia*), Glaucous-Winged Gull (*Larus glaucescens*), Lapland Longspur (*Calcarius lapponicus*), Snow Bunting (*Plectrophenax nivalis*), Song Sparrow (*Melospiza melodia*), Pelagic Cormorant (*Phalacrocorax pelagicus*), Snowy Owl (*Bubo scandiacus*), Rock Sandpiper (*Calidris ptilocnemis*), Common Raven (*Corvus Corvax*), Peregrine Falcon (*Falco peregrinus pealei*), Green-Winged Teal (*Anas crecca*).

NORTH AMERICAN BREEDING BIRD SURVEY, ALASKA

Steve Matsuoka[1] and Keith Pardieck[2]

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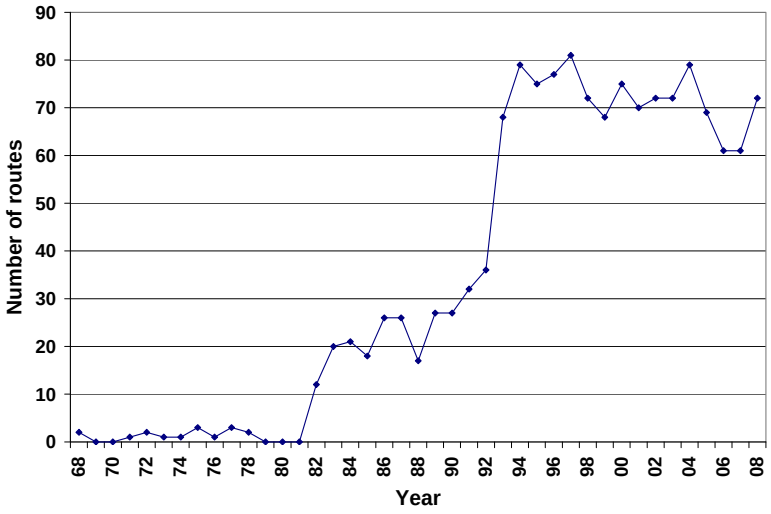
Fig. 1. BBS routes run annually in Alaska, 1968–2008.



Boreal Partners in Flight began supporting the BBS program in Alaska in 1992 after which participation in the program grew quickly to its current level (Fig. 1). Through the dedication of many observers, the program has now run 13 routes for ≥20 years and 66

routes for ≥10 years. This effort is paying dividends as trends in abundance of birds in Alaska are now available on the web for 107 species (Table 1, http://www.mbr-pwrc.usgs.gov/bbs/). Notably, 5 species showed populations declines and 12 species population increases ($P \leq 0.15$, $n \geq 12$ routes) from 1980–2007 in Alaska (Table 2). The fewer species with declines compared to increases reflects the greater difficulty in estimating declines due to a diminishing number of birds available to count over time.

Declining birds in Alaska included Lesser Yellowlegs (-2.0% per year) and Blackpoll Warbler (-3.0% per year); the number one and three most steeply declining species survey-wide since 1980. The causes of such declines should be the focus of research and conservation. Trends in Violet-green Swallows (-3.3% per year) may reflect a larger problem of continental declines among aerial insectivores including swallows, swifts, nightjars, nighthawks, and flycatchers. The list of increasing birds in Alaska includes nest predators such as Gray Jay (1.7% per year), Common Raven (2.9% per year), and Northwestern Crow (4.8% per year) and avian predators such as Bald Eagle (5.1% per year) and Merlin (7.6% per year). The effects of these increases on their prey should be of interest to avian ecologist and may prove to be an important theme of research in the future.

The BBS remains the most vital monitoring program for a wide variety of bird species in Alaska. Thus maintaining the current survey effort is a high priority. There is a current push to implement the Alaska Landbird Monitoring Survey (ALMS), a program to monitor birds in roadless areas of Alaska. This program will work in tandem with the BBS with the data from the two program jointly analyzed for populations trends. This will add considerable power to detect declines in bird populations to the BBS. It is our hope to have a fully implemented ALMS program in the next 3–4 years.

Table 1. Alaska and Continental population trends (% / year) from 1980–2005 for birds detected on the North American Breeding Bird Survey in Alaska. Data are available on the web at [http://www.pwrc.usgs.gov/bbs, November 2006].

	Alaska					Continental U.S. & s. Canada[1]					
Species	Trend	*P*	*n*	Abun[2]	Cred[3]	Trend	*P*	*n*	Abun	Cred	Longer Term[4]
Common Loon	0.7	0.67	28	0.26	3	0.8	0.54	481	1.14	1	+
Horned Grebe	8.0	0.24	9	0.11	3	-4.0	0.04	76	0.34	2	–
Red-necked Grebe	-0.5	0.9	24	0.42	3	-0.3	0.78	90	0.35	2	
Pelagic Cormorant	-6.4	0.75	4	0.36	3	-1.9	0.57	14	0.78	2	
Great Blue Heron	-4.3	0.32	8	0.66	3	0.0	0.92	2475	0.81	2	+
Canada Goose	-0.6	0.89	42	2.70	3	7.3	0.00	1774	4.34	2	+
American Wigeon	1.4	0.36	45	5.17	3	-0.2	0.80	310	0.81	2	
Mallard	4.8	0.28	47	1.44	3	0.1	0.83	2344	4.97	2	
Northern Shoveler	2.8	0.60	17	0.59	3	3.9	0.00	342	1.12	1	+
Northern Pintail	3.9	0.35	27	2.46	3	-0.8	0.48	381	1.70	1	–
Green-winged Teal	5.1	0.28	40	2.13	3	-1.6	0.35	325	0.29	2	
Ring-necked Duck	38.3	0.14	10	0.11	3	3.3	0.08	187	0.22	2	
Lesser Scaup	3.3	0.55	15	0.44	3	-1.9	0.08	231	1.79	1	
Bufflehead	2.9	0.69	16	0.55	3	5.8	0.01	106	0.31	2	+

	Alaska					Continental U.S. & s. Canada[1]					
Species	Trend	*P*	*n*	Abun[2]	Cred[3]	Trend	*P*	*n*	Abun	Cred	Longer Term[4]
Common Goldeneye	-5.7	0.31	18	0.51	3	4.1	0.18	99	0.19	2	
Barrow's Goldeneye	4.3	0.17	10	0.60	3	0.6	0.52	50	0.26	2	
Common Merganser	-6.1	0.15	24	0.21	3	2.3	0.01	393	0.23	2	+
Red-breasted Merganser	0.1	0.96	19	4.04	3	1.4	0.45	18	0.02	3	+
Bald Eagle	5.1	0.03	51	1.35	3	4.6	0.08	284	0.14	2	+
Northern Harrier	10.7	0.07	9	0.06	3	-0.4	0.36	1014	0.43	2	–
Sharp-shinned Hawk	14.1	0.14	5	0.02	3	3.9	0.02	322	0.02	3	
Northern Goshawk	7.7	0.18	6	0.02	3	2.2	0.06	71	0.02	3	
Red-tailed Hawk	-0.5	0.93	22	0.12	3	1.6	0.00	3066	1.10	1	+
Golden Eagle	10.2	0.50	6	0.05	3	3.3	0.00	334	0.20	2	
American Kestrel	15.5	0.10	5	0.04	3	-1.1	0.00	2384	0.86	2	–
Merlin	7.6	0.12	12	0.06	3	7.4	0.00	170	0.05	3	+
Ruffed Grouse	3.7	0.75	9	0.16	3	-3.2	0.02	532	0.35	2	–
Sooty Grouse	-1.6	0.90	11	2.36	3	-1.6	0.02	104	0.35	2	–
Sandhill Crane	1.4	0.58	37	1.41	3	5.0	0.00	398	1.16	1	+
Killdeer	2.9	0.19	2	0.05	3	-1.1	0.00	3363	5.33	2	–
Greater Yellowlegs	1.1	0.70	38	1.40	3	10.1	0.00	24	0.17	3	
Lesser Yellowlegs	-2.0	0.11	45	2.34	3	-17.1	0.00	34	0.16	2	–
Solitary Sandpiper	-3.1	0.18	27	0.57	3	4.6	0.43	15	0.04	3	
Spotted Sandpiper	-0.7	0.82	46	2.28	3	-1.4	0.02	896	0.42	2	
Upland Sandpiper	-11.4	0.00	6	0.09	3	-0.9	0.04	589	2.38	2	
Wilson's Snipe	1.7	0.07	88	9.83	3	-0.6	0.06	1156	2.37	2	
Herring Gull	-2.3	0.58	26	0.61	2	-3.2	0.00	331	3.99	1	–
Glaucous-winged Gull	-0.8	0.90	36	8.27	3	-2.5	0.48	39	10.13	2	
Rock Pigeon	13.7	0.03	4	3.03	3	-1.1	0.00	2508	4.72	2	
Great Horned Owl	11.1	0.25	15	0.13	3	-1.9	0.00	1226	0.18	2	
Short-eared Owl	13.8	0.34	8	0.14	3	-3.0	0.09	145	0.18	2	–
Rufous Hummingbird	2.7	0.51	18	2.18	3	-1.8	0.00	218	1.29	1	–
Belted Kingfisher	-2.3	0.32	38	0.45	3	-2.1	0.00	1875	0.30	2	–
Red-breasted Sapsucker	6.7	0.00	17	10.3	3	2.4	0.00	1157	1.97	2	+
Downy Woodpecker	19.0	0.29	19	0.06	3	-0.6	0.00	2591	1.18	1	
Hairy Woodpecker	1.0	0.71	30	0.20	3	0.9	0.01	2158	0.52	2	+
Am. Three-toed Woodpecker	-3.5	0.43	16	0.09	3	7.1	0.17	44	0.06	3	
Northern Flicker	0.8	0.78	41	0.34	3	-1.4	0.00	3292	2.75	2	–
Olive-sided Flycatcher	-1.0	0.46	56	1.50	3	-3.3	0.00	737	1.17	1	–
Western Wood-Pewee	-0.4	0.94	25	0.46	3	-0.7	0.08	871	3.07	1	–
Yellow-bellied. Flycatcher	51.8	0.28	5	0.09	3	1.0	0.43	210	1.10	2	
Alder Flycatcher	0.0	0.96	79	17.94	2						
Least Flycatcher	24.0	0.58	3	0.03	3	-1.8	0.00	1237	4.10	1	–
Hammond's Flycatcher	-0.9	0.77	23	2.04	3	0.8	0.10	346	3.49	1	
Pacific-slope Flycatcher	1.1	0.60	16	16.45	3						
Say’s Phoebe	3.6	0.76	10	0.11	3	1.2	0.16	665	0.90	2	+
Warbling Vireo	10.9	0.31	5	0.84	3	0.7	0.00	2075	3.52	1	+
Gray Jay	1.7	0.01	57	5.07	3	-0.9	0.17	389	0.93	2	
Steller's Jay	0.2	0.88	24	3.90	3	0.1	0.68	492	3.17	1	
Black-billed Magpie	1.4	0.27	32	0.90	3	0.6	0.12	798	6.43	2	

	Alaska					Continental U.S. & s. Canada[1]					
Species	Trend	*P*	*n*	Abun[2]	Cred[3]	Trend	*P*	*n*	Abun	Cred	Longer Term[4]
Northwestern Crow	4.8	0.00	22	17.00	3	-0.6	0.41	35	11.72	2	
Common Raven	2.9	0.13	100	4.39	1	1.9	0.00	1775	5.66	1	+
Horned Lark	12.2	0.04	4	0.14	3	-2.4	0.00	1900	23.86	2	–
Tree Swallow	2.7	0.36	69	4.55	2	-1.0	0.00	2185	4.31	2	
Violet-green Swallow	-3.3	0.10	43	1.06	3	-0.4	0.52	656	4.27	1	
Bank Swallow	5.8	0.05	44	10.67	3	-2.8	0.00	1010	2.55	2	–
Cliff Swallow	0.6	0.86	30	3.17	3	0.3	0.53	2019	16.80	2	+
Barn Swallow	0.1	0.99	12	1.12	3	-1.7	0.00	3361	12.36	2	–
Black-capped Chickadee	-0.1	0.95	56	0.96	3	0.6	0.00	1772	3.41	1	+
Chestnut-bkd. Chickadee	0.1	0.96	20	8.17	3	-1.0	0.08	194	4.17	1	
Boreal Chickadee	0.3	0.88	52	0.80	3	-2.0	0.08	154	0.39	2	–
Red-breasted Nuthatch	19.7	0.23	19	0.08	3	0.9	0.00	1154	2.54	1	+
Brown Creeper	13.6	0.23	16	0.58	3	-0.3	0.74	620	0.36	2	
Winter Wren	-0.7	0.31	23	17.18	3	1.1	0.04	806	7.60	2	
American Dipper	-26.0	0.12	4	0.02	3	0.1	0.91	105	0.10	2	
Golden-crowned Kinglet	-1.2	0.52	33	1.83	3	-1.7	0.00	700	2.48	2	
Ruby-crowned Kinglet	0.1	0.90	77	6.11	3	-0.6	0.13	707	6.83	2	–
Townsend’s Solitaire	29.9	0.35	9	0.14	3	-2.1	0.05	352	0.62	2	
Swainson's Thrush	0.5	0.37	82	25.42	1	-0.8	0.00	788	15.76	2	–
Hermit Thrush	0.2	0.75	69	6.09	3	0.7	0.02	1139	5.26	1	+
American Robin	1.3	0.06	100	19.51	1	0.2	0.00	3437	26.92	1	+
Varied Thrush	0.8	0.33	89	11.81	1	-1.0	0.05	199	6.03	2	
European Starling	-5.1	0.79	4	0.71	3	-0.9	0.00	3465	29.65	1	–
Orange-crowned Warbler	-0.4	0.48	93	17.07	1	-1.2	0.00	487	2.53	1	–
Yellow Warbler	-0.8	0.39	95	10.51	2	-0.3	0.06	2511	4.35	1	
Yellow-rumped Warbler	0.1	0.84	82	14.02	2	-0.5	0.12	1206	6.36	1	
Townsend's Warbler	0.7	0.80	40	2.95	3	0.2	0.74	198	5.88	2	
Blackpoll Warbler	-3.0	0.00	56	5.94	3	-9.5	0.00	65	2.74	3	
American Redstart	14.9	0.19	3	0.45	3	-1.0	0.00	1303	3.14	2	–
Northern Waterthrush	2.0	0.01	72	12.37	3	-1.0	0.03	591	1.60	2	
MacGillivray's Warbler	-11.4	0.39	5	1.16	3	-1.0	0.01	468	3.88	1	–
Common Yellowthroat	9.9	0.01	8	0.07	3	-0.8	0.00	2944	7.42	2	–
Wilson's Warbler	0.9	0.30	90	15.30	3	-2.9	0.00	513	1.44	1	–
Western Tanager	-12.5	0.21	5	0.31	3	1.5	0.00	675	4.42	2	+
Chipping Sparrow	-6.2	0.35	13	0.30	3	-0.1	0.36	2919	8.09	2	
Savannah Sparrow	-0.7	0.10	77	21.21	3	-1.1	0.00	1662	8.07	2	–
Fox Sparrow	2.9	0.00	95	15.59	3	-0.8	0.33	243	2.07	1	
Song Sparrow	0.2	0.94	31	1.02	3	-0.3	0.01	2650	10.91	2	–
Lincoln's Sparrow	3.3	0.05	71	3.01	3	-0.9	0.13	500	2.47	2	
White-crowned Sparrow	-0.5	0.49	79	28.32	1	-0.3	0.77	317	2.03	1	

	Alaska					Continental U.S. & s. Canada[1]					
Species	Trend	*P*	*n*	Abun[2]	Cred[3]	Trend	*P*	*n*	Abun	Cred	Longer Term[4]
Dark-eyed Junco	0.0	0.94	84	23.22	1	-1.7	0.00	1132	7.26	1	–
Red-winged Blackbird	-2.4	0.73	9	0.09	3	-0.9	0.00	3592	51.56	2	–
Rusty Blackbird	-2.4	0.59	28	0.82	3	-9.7	0.00	67	0.23	2	–
Pine Grosbeak	1.5	0.57	40	0.43	3	0.8	0.68	94	0.17	2	
Red Crossbill	1.3	0.69	16	6.30	3	-2.5	0.00	460	1.73	1	–
White-winged Crossbill	4.2	0.18	49	3.27	3	-1.9	0.62	135	2.03	2	
Pine Siskin	-2.1	0.19	43	2.56	2	-5.0	0.00	837	4.67	1	–

[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 1966–2007. 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:
3: 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).
1: This category reflects data with at least 14 samples in the long term, of moderate precision, and of moderate abundance on routes.

[4] Species with significant ($P < 0.05$) trends (+/-) trends from 1966–2005.

TABLE 2. Species with significant trends in abundance ($P \leq 0.15$) as measured by the BBS in Alaska 1980–2007. Only those species detected on $\geq$ 12 routes (n = number of routes) are included. Species with $\geq$ 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
Common Merganser	-6.1	0.15	24	0.21
Violet-green Swallow	-3.3	0.10	43	1.06
Blackpoll Warbler *	-3.0	0.00	56	5.94
Lesser Yellowlegs *	-2.0	0.11	45	2.34
Savannah Sparrow *	-0.7	0.10	77	21.21
American Robin *	1.3	0.06	100	19.51
Gray Jay	1.7	0.01	57	5.07
Wilson's Snipe	1.7	0.07	88	9.83
Northern Waterthrush	2.0	0.01	72	12.37
Fox Sparrow	2.9	0.00	95	15.59
Common Raven *	2.9	0.13	100	4.39
Lincoln's Sparrow	3.3	0.05	71	3.01
Northwestern Crow	4.8	0.00	22	17.00

Bald Eagle *	5.1	0.03	51	1.35
Bank Swallow	5.8	0.05	44	10.67
Red-breasted Sapsucker *	6.7	0.00	17	10.30
Merlin *	7.6	0.12	12	0.06

An asterisk indicates that the trends in Alaska are consistent with survey-wide trends for the species.

ASSESSING THE VALUE OF DEPARTMENT OF DEFENSE LANDS IN ALASKA TO A DECLINING SPECIES, THE RUSTY BLACKBIRD

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Abstract. In 2007 and 2008 we examined the ecology of Rusty Blackbirds (*Euphagus carolinus*) nesting on military lands in Alaska to contribute to the range-wide understanding of the species' resource requirements and to help identify the factors contributing to the species chronic and range-wide decline. Our study was designed to assess the value of military lands in Alaska to this species within a range-wide perspective and was therefore closely coordinated with other studies throughout the species' global range which includes Alaska, Canada, and the continental U.S. Our surveys and nest monitoring of Rusty Blackbirds clearly showed the importance of military lands in Alaska in terms of providing unfragmented habitats where the species breeds at high relative densities and benefits from high rates of reproductive success. This is unlike the eastern breeding range where Rusty Blackbirds have become quite rare possibly due to low reproductive success in areas recently harvested for timber and high exposures to methylmercury which are likely reducing adult and juvenile survival. Thus, undisturbed wetlands on military lands Alaska may be quite important as centers of production for this declining species.

Our detailed studies of habitat use on military lands in combination with our analysis of nests throughout Alaska and Canada has shown that a preponderant use of small spruce as nest sites across the breeding range is due to selectivity which results in high reproductive success. Ponds, lakes, and wetlands with emergent vegetation were also important predictors of blackbird abundance as were dense willows or dense black spruce near water bodies. The survey methods that we developed were particularly effective and detected 97% of the nesting pairs breeding on the sites we examined. These techniques are already being applied elsewhere in the species' breeding range. Our contributions to a range-wide study examining rates of infection by blood parasites has found that Rusty Blackbirds suffer from unexpectedly high rates of infection on the wintering grounds which indicates that the species' immune system may be lowered due to stressors encountered during the non-breeding season.

Although Rusty Blackbirds populations on military lands in Alaska appear be healthy compared to populations elsewhere, military lands are not without their causes for concerns. Lakes and ponds across boreal Alaska have been shrinking in size as a result of climate warming; if this pattern continues it will result in losses of breeding habitats for the species. The average levels of blood mercury in adult Rusty Blackbirds were 3-times lower in Alaska than in New England and the Maritime Provinces. However, some birds nesting on the Eagle River Flats and the Tanana Flats had levels that approached those in the eastern range. Similarly, levels of mercury and strontium in eggs collected on military lands approached levels of concern, although other metals and persistent organic contaminants did not. Coal-fired energy production in China is increasing at alarming rates and the prevailing winds carry such pollution from Asian to North America where it makes first landfall in Alaska. Thus mercury levels in Rusty Blackbirds should be monitored periodically in Alaska as increases above current levels will likely accelerate declines. Finally, our preliminary results indicated that adult survival was variable from 2007–2009 with survival low in 2008 and at levels equivalent to survival rates of other species of declining blackbirds in the continental U.S. Thus more information is needed to determine whether Rusty Blackbirds on military lands in Alaska are suffering from chronically low or variable rates of adult survival, both of which have been linked to species declines elsewhere.

SMITH'S LONGSPUR DENSITY AND DISTRIBUTION IN THE BROOKS RANGE, ALASKA

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Smith's Longspur (*Calcarius pictus*) is a species of concern, yet few studies have been conducted on their breeding grounds in Alaska. To develop effective conservation measures, we need an understanding of population abundance and distribution. We conducted point count surveys for breeding Smith's Longspur at six sites in the Brooks Range in 2006-2009. Our main objectives were to document density, distribution, and habitat associations for Smith's Longspurs and to use this information to develop models to predict their distribution across northern Alaska. Density estimates ranged from 0.07 - 0.47 birds/sq ha. We created distribution models from presence information and environmental variables using TreeNet. A preliminary distribution model resulted in a 69% predictive accuracy and AUC of 0.765. The predicted distribution suggested Smith's

Longspurs occur farther west than currently known. Important environmental variables included slope, elevation, distance to river, and landcover.

SURVIVAL OF PRINCE OF WALES SPRUCE GROUSE IN SOUTHEAST ALASKA

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Prince of Wales spruce grouse (*Falcipennis canadensis isleibi*) are of conservation concern in Southeast Alaska for several reasons because they inhabit temperate rainforest where large-scale landscape alteration due to timber harvest has occurred and these birds may receive subspecies classification. During 2007-2008, we radio-marked 40 grouse to investigate how timber practices affected their mortality risk. We also examined how season, gender, and breeding status affect survival probability. Breeding status caused the most variation in survival probability. The annual survival of non-breeding birds was 0.72±0.082 ($\hat{S}$±SE_S) while for breeding birds it was 0.08±0.099. Survival for non-breeding birds was highest during the period spanning winter and spring, 0.93±0.089, compared to equivalent rates for summer and fall, 0.88±0.058. Effects of breeding lasted throughout the year, with non-breeding birds being about twice as likely to survive each season as breeding birds. Seasonal survival for breeding birds in winter-spring, 0.41±0.156, was similar to survival in summer and fall, 0.42±0.021. Timber harvest was not as important in predicting survival as breeding status, with no differences detected between habitat types. Road-related mortality (hunter harvest and vehicle strike) was the largest known source of death, 42%, for spruce grouse with predation, 25%, and unknown causes, 25%, following. Our results show that the time when birds are breeding is the most critical period of survival and this investment in reproduction can have long-term implications. If survival of Prince of Wales spruce grouse is of concern and hunting has an additive effect on survival, it may be beneficial to allow broods to utilize the road network safely through temporary and limited closure of logging roads.

SNOW GOOSE AND BRANT MONITORING

Robert Ritchie[1], Robert Burgess[1], John Shook[1] and Tim Obritschkewitsch[1]

[1] ABR Inc. Fairbanks, AK.

ABR has monitored Brant and Snow Goose productivity along the central Arctic Coastal Plain since 1992 for the North Slope Borough. As in previous years, aerial surveys were conducted during incubation and brood-rearing. Ground, nest fate searches were conducted at the Snow Goose Colony on the Ikpikpuk River Delta. Banding of Snow Geese on the Ikpikpuk River colony was cancelled this year due to low numbers of brood-rearing geese after Brown Bears caused the failure of 99% of the ~3,000 nests we located.

CANDIDATE ASSESSMENT: PRINCE OF WALES SPRUCE GROUSE (*FALCIPENNIS CANADENSIS ISLEIBI*)

Sarah Schoen[1] and Michelle Kissling[1]

[1]U.S. Fish and Wildlife Service, 3000 Vintage Park Blvd, Suite 201, Juneau, AK 99801

The Prince of Wales Spruce Grouse (*Falcipennis canadensis isleibi*; POW SPGR) is a subspecies endemic to several islands in southeast Alaska. Although it was differentiated from other subspecies of Spruce Grouse based on morphology in 1996, the genetic distinctness of this subspecies was only recently confirmed. The restricted distribution, high isolation, and small population size of the POW SPGR raise concerns for its conservation, especially given the history of timber harvesting across its range. The U. S. Fish and Wildlife Service is currently conducting a Candidate Assessment on the POW SPGR. The purpose of this document is to compile the best available information on the natural history, population size and trend, and threats to the POW SPGR. We will use this guiding document to determine if the subspecies needs continued consideration for protection under the Endangered Species Act. We aim to have a complete draft for internal review by January 31, 2010 and to begin external review of the assessment in February 2010.

Please contact: Sarah Schoen, email: Sarah_Schoen@fws.gov; phone: (907) 780-1177.

PEREGRINE FALCON SURVEYS/MONITORING ON THE TANANA RIVER, ALASKA

John Shook[1] and Robert Ritchie[1]

[1]ABR Inc. Fairbanks, AK.

ABR resurveyed cliffs along a section of the Tanana River (Robertson River to Fairbanks) to meet long-term monitoring objectives of the FWS. Most known nesting sites were accessed using a boat. Surveys were conducted during May to determine occupancy and during July to determine nesting success and productivity. Information will be used to continue to determine status of this formerly listed species. Forty occupied nests were located in 2009, 33 of which were successful, producing means of 2.13 young/occupied nest and 2.58 young/successful nest.

BOREAL CANADA: LANDBIRD UPDATE

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Environment Canada's landbird program faces some of the same challenges as in Alaska, particularly the challenge of having a vast region to monitor and manage, and very few people to do it. A major departmental review of avian monitoring programs is almost complete, and will be recommending improving monitoring in the boreal region. Options being considered include augmentation of the North American Breeding Bird Survey by paying volunteer expenses and/or hiring observers for remote routes; enhanced support for the Canadian Migration Monitoring Network including exploring ways of combining data from the 25 stations across the country; supporting Breeding Bird Atlas projects which cover significant boreal areas, including the current project in British Columbia; using remote sensing to monitor changes in habitat; and developing new monitoring programs for the boreal region where needed. Also a priority for Environment Canada is the issue of "incidental take" of migratory birds (i.e. unintentional destruction of birds and nests). Currently we are developing guidelines to help industries avoid incidental take; developing a system of permits for situations in which incidental take cannot be avoided; and developing conservation plans to guide permit conditions. There will be a conservation plan for each Bird Conservation Region, divided by province, resulting in 25 all-bird BCR plans across Canada. Other emerging issues include the increasing number of widespread boreal Species at Risk in Canada; and widespread declines in aerial insectivores. Tools currently being developed and assessed include the Boreal Avian Modeling project; Dendroica bird identification software; the use of omni-directional microphones for bird surveys; and the use of stable isotope analysis for defining catchment areas of banding stations and for linking breeding and wintering ground populations.

LANDBIRD MONITORING UPDATE FROM ALASKA DEPARTMENT OF FISH AND GAME, REGION II

David Tessler[1]

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In June of 2009 we repeated one Alaska Landbird Monitoring Survey (ALMS) plot in Chugach State Park in the vicinity of Crow Pass. We had planned on completing at least two ALMS plots in Chugach State Park, but staffing issues related to an unanticipated State hiring freeze made this impossible. We also repeated Breeding Bird Survey routes on state lands adjacent to the Lake Louise Road and the Glenn Highway near Glenallen, AK, and along the Petersville Road, near Trapper Creek, AK. We intend to begin monitoring one or two additional BBS routes per year.

INVESTIGATING BREEDING SEASON ECOLOGY AND MIGRATORY CONNECTIVITY OF THE RAPIDLY DECLINING RUSTY BLACKBIRD (*EUPHAGUS CAROLINUS*) IN ALASKA

David F. Tessler[1], Martin Berg[2], Erin Cooper[3], Terry Chesser[4], Sam Edmonds[5], Dave Evers[6], Russell Greenberg[7], Keith Hobson[8], Bud Johnson[9], Peter Keller[9], David Loomis[3], Steve Matsuoka[10], April Harding Scurr[11], David Shaw[12] and Susan Sharbaugh[12]

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[12]Alaska Bird Observatory

This project builds on the recent work of Steve Matsuoka and Dave Shaw, and is interwoven with the work of many researchers in Alaska and members of the International Rusty Blackbird Working Group (IRBTWG). This abstract is intended to provide an overview of collaborative efforts, not to take credit for the excellent work of individual researchers whose specific projects may also appear in the BPIF annual summary. This project aligns and expands the research objectives and methodologies of several new or previously unrelated studies of the Rusty Blackbird (*Euphagus carolinus*) at five geographically distinct breeding sites in Alaska: Yukon Flats National Wildlife Refuge, near Fort Yukon, Alaska (YUK); Tanana Flats at Fort Wainwright, Fairbanks Alaska (TAN); Tetlin National Wildlife Refuge, near Tok, Alaska (TET); Ft. Richardson and Elmendorf Air Force Base, Anchorage, Alaska (ANC); Chugach National Forest, Copper River Delta, near Cordova, Alaska (CRD). By employing a shared set of methodologies this coordinated, collaborative, and cooperatively funded effort will address several key aspects of Rusty Blackbird ecology critical to the understanding and management of this species in Alaska, and will determine if there are demographic deficits incurred in this state which may be involved in driving the overall decline. This multi-year project investigates a variety of parameters and how they may vary between years and study sites, including: productivity (nest, hatching, and fledging success); other demographic parameters that regulate population size (over-winter survival, adult survival, natal philopatry, breeding site and mate fidelity); mercury concentration (in the blood of adults and chicks); migratory connectivity (using a combination of miniature "geolocator" data recorders and analyses of deuterium isotopes in toenail and feather samples); dietary differences between adults and chicks, and between breeding and wintering adults (through analyses of stable isotopes of carbon and nitrogen in the blood of adults and chicks); invertebrate prey availability, invertebrate mercury burdens, invertebrate trophic positioning; potential genetic differences between putative eastern and western populations; breeding season social structure and mating strategies using genetic and behavioral methods.

A PILOT PROJECT TO INVESTIGATE MIGRATORY CONNECTIVITY IN THE RUSTY BLACKBIRD (*EUPHAGUS CAROLINUS*) USING GEOLOCATORS

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We are using a combination of techniques to investigate migratory connectivity in Rusty Blackbirds, including analyses of stable isotopes of deuterium and miniature electronic geolocators.

In 2009 and 2010, we are collecting claw and feather samples to establish linkages between breeding and wintering areas based on fractionation of deuterium isotopes (Hobson 2005). We will sample all adult birds captured in the five study areas referred to in the project "*Investigating breeding season ecology and migratory connectivity of the rapidly declining Rusty Blackbird (Euphagus carolinus) in Alaska*." Isotopic ratios from claw samples will provide an approximation of the geographic wintering location of each bird; isotopic analyses of the feathers will help to characterize and refine the deuterium isotope isoclines characterizing breeding areas in Alaska.

Over 2009 and 2010 we will deploy British Antarctic Survey (BAS) geolocators on up to 40 adult birds in the Anchorage, AK study area. This will be a pilot effort intended to evaluate the technique for use on Rusty Blackbirds and to return the first telemetry records for interseasonal movements of this species. If successful, we hope to identify important migration, stopover, and winter areas for Rusty Blackbirds nesting in Alaska. Geolocators must be recovered in subsequent years to download the data; therefore they are most appropriately deployed on birds demonstrating strong breeding site fidelity across years. We selected Anchorage for the pilot study because preliminary data (Matsuoka) suggest about a 70% probability of resighting an adult Rusty Blackbird the following year in this area. We will stage recapture efforts for instrumented birds in 2010 and 2011.

The BAS model Mk10s geolocator is currently the only electronic device that can record location data for an entire annual cycle small enough to fit on Rusty Blackbirds (60 g). The total package is under 3 g: the Mk10s geolocator is 1.2 g and the attachment harness is approximately 1-1.5g. In 2009 we successfully deployed geolocators on 17 adult Rusty Blackbirds using a synscarum leg-loop harness (modified by Luke DiCicco from Rappole and Tipton 1991). In some cases, both pair members were instrumented, and all birds outfitted with geolocators were alive and doing well when last spotted in July. Nearly every pair with one or more instrumented adults successfully fledged chicks. At recovery in subsequent years, the recaptured birds will again be sampled for blood, toenails, and feathers to investigate correlations between geolocator data and wintering

location as determined by deuterium isotope analysis. Should the technique prove successful, we anticipate expanding this effort to additional locations in the future.

EVALUATION OF A SURVEY METHOD FOR ESTIMATING NUMBERS OF ACTIVE BALD EAGLE NEST IN KENAI FJORDS NATIONAL PARK

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The Southwest Alaska Network (SWAN) is monitoring the condition of key natural resources or "vital signs" in five national park units in southwest Alaska, including Kenai Fjords National Park (KEFJ). Bald eagles were selected as a vital sign because of their important ecological role in freshwater and marine coastal systems. The monitoring objective is to estimate long-term trends in nest occupancy and productivity of bald eagles in SWAN parks. In KEFJ, bald eagle nest surveys have not been conducted since 2002 and previous surveys, which were primarily boat- and ground-based, did not incorporate a sightability correction. The US Fish and Wildlife Service recently proposed a double-observer method for surveying bald eagle nests that provides a sightability correction for nests that are missed. Therefore, we performed an aerial survey of bald eagle nests along the coastline of KEFJ during May 2009 to field-test the double-observer method, estimate survey costs, and generate a current map of active and empty nests. Information gathered during this pilot survey will be used to design a long-term, sustainable program for monitoring nest occupancy and productivity of bald eagles in KEFJ.

We used an R44 Clipper II helicopter with fixed floats to conduct bald eagle nest surveys in KEFJ during 13-19 May 2009. Front- and rear-seat observers performed independent counts of nests; GPS coordinates, nest characteristics, and geotagged digital photographs were recorded for each detected nest. We constructed a candidate set of mark-recapture models with various individual covariates (factors) thought to affect heterogeneity in sighting probabilities of nests. We then employed a Bayesian hierarchical modeling approach with data augmentation (Royle 2009; Biometrics 65:267-274) to fit the double-observer data and covariates, and used the DIC model selection criterion to choose the best supported model for estimating the number of active nests.

Observers detected 44 active nests with incubating adults or eggs and 36 nests that were empty during the seven-day survey that covered approximately 500 miles (800 kilometers) of park coastline. Thirty-seven of the active nests were in Sitka spruce, four were in mountain hemlock, two were on the ground and one was in a balsam poplar. Thirty-three of 44 (75%) active nests were within 65 feet (20 meters) of the shoreline (maximum distance = 1680 feet [512 meters]). The clearly best supported model based

on DIC included a time-of-day covariate and estimated the number of active nests to be 65 (95% Bayesian credible interval: 50, 101). The time-of-day covariate likely helped account for heterogeneity in sighting probabilities induced by observer fatigue and by lighting/shadow conditions that occurred both during early morning and late afternoon.

Results from this survey will be published in an NPS report that will be available online by January 2010. (http://science.nature.nps.gov/im/units/swan/index.cfm?theme=reports_pub). A file geodatabase containing nest locations, attributes, metadata and hyperlinked digital photos is available to NPS staff through the NPS Alaska Theme Manager.

ALASKAN BEAK DEFORMITIES

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An epidemic of beak deformities in Black-capped Chickadees (*Poecile atricapillus*), Northwestern Crows (*Corvus caurinus*), and other resident species has been documented in Alaska over the past decade. Our recent research has focused on describing the epizoology and pathology of this condition, described as "Beak Keratin Disorder" (BKD). From a 2007–2008 study of crows at six sites in Alaska, we estimated that adults are affected at a rate 10.4 ± 2.6% across all locations. The prevalence of BKD measured in chickadees and crows in Alaska now constitute the highest rates of gross deformities ever documented in wild bird populations. Based on the distribution of crows observed with abnormal beaks, the geographic scope of this epidemic is not restricted to Alaska, as originally described for chickadees. In addition to compromised feeding and preening ability due to functional limitations of overgrown beaks, the deformities may also be a sign of other systemic problems. We recently completed a captive study of chickadees in which we measured beak growth rates in captivity and documented significantly faster, possibly neoplastic, growth in affected birds relative to controls. We also observed high mortality rates and increased susceptibility to infection among chickadees with deformities. These results highlight the severity of this condition and potential implications for individual and population health. Preliminary results from histopathology of affected birds have provided evidence of parakeratosis (abnormal maturation of keratin cells), abnormal thickness of the cornified layer, and fungal hyphae in some specimens. Histological examination of keratinized tissues as well as examination of beaks and feathers with scanning electron and x-ray microscopy is ongoing and a more comprehensive description of the pathology of BKD and potential mechanisms will be provided after completion of this work.

2009 Boreal Partners in Flight Annual Meeting Agenda

Tuesday (Joint Meeting with the Alaska Shorebird Group), Wednesday and Thursday, December 8-10, 2009

DAY 1 - Tuesday, 8 December 2009

8:00-12:30	Joint session with Alaska Shorebird Group	Climate Change Presentations

DAY 2 - Wednesday, 9 December 2009

8:30-8:40	Melissa Cady – Forest Service Amal Ajmi –USARMY	Introductions and Welcome; Housekeeping
8:40-8:50	BPIF Business PART I	Election of new officers - a new co-chair, and any new executive committee members or BCR coordinators

UPDATES

8:50-9:10	Terry Rich	Update on National PIF
9:10-9:30	Pam Sinclair – CWS	Update on the Landbird Conservation in Canada
9:30-10:00	BCR Coordinators	BCR Updates and Designating new BCR Coordinators
10:00-10:20	Tracey Gotthardt – ANHP	Update on Alaska GAP
10:20-10:40	Break	

UPDATES CONTINUED

10:40-11:00	David Tessler – ADF&G	Knowledge Network Node; 2) Breeding Bird Atlas for Alaska
11:00-11:20	David Shaw – ABO	BASH Monitoring
11:20-11:40	Susan Sharbaugh-ABO	ABO education programs
11:40-12:00	Matt Kirchhoff – Alaska Audubon	The Audubon Alaska Watch List 2010

ALASKA RAPTOR GROUP

1:30-1:50	Carol McIntyre – NPS	Introduction and update on Alaska Raptor Group activities
1:50-2:10	Travis Booms - ADFG	The Alaska raptor legacy initiative
2:10-2:30	Erica Craig, BLM, and John Shook, ABR, Inc.	Metadata and new thoughts on annual AK Raptor Group reporting
2:30-2:50	Break	
2:50-3:10	Jim Johnson - USFWS	Project update: Migratory movements of Short-eared Owls
3:10-3:20	Steve Lewis – ADFG	Bald Eagle and Peregrine Falcon research in Icy Bay
3:20-3:35	Carol McIntyre – NPS	Golden Eagle population trends in the western North America
3:35-3:50	Maureen de Zeeuw – USFWS	The new take permit program for bald eagles and their nests
3:50-4:15	Michelle Kissling – USFWS	Proposed Rule to List the Subspecies Queen Charlotte Goshawk (*Accipiter gentilis laingi*) in British Columbia

4:15 – 4:30		Raptor Wrap Up
5:30-8:00	RSVP to Steve Matsuoka	GROUP DINNER AT GINGER

DAY 3 - Thursday, 10 December 2009

SPECIES OF CONCERN

8:00-8:20	Teri Wild, Steve Kendall & Abby Powell – UAF, USFWS	Smith's Longspur density and distribution in the Brooks Range
8:20-8:50	Steve Matsuoka or Dave Tessler	Rusty Blackbirds: Updates on International Working Group plans and progress, as well as recent work on AK military lands
8:50-9:10	Aleya Nelson UAF	Spruce Grouse SE
9:30-9:50	Caroline Van Hemert- USGS	Beak Deformities in Alaskan Birds: Overview and Current Research
9:50-10:20	BPIF Business PART II	BCR Priority Projects: We would like to identify 1-2 tangible things that we'd like to accomplish in each BCR in 2010-2011; discussions should include potential sources of funding and who will do the work. Target projects could be focused on addressing information needs and/or conservation of species of concern.
10:20-10:30	Break	
10:30-10:50	Geoff Holroyd	Declines in Aerial Insectivorous Birds in Canada

BPIF PLAN DISCUSSION

10:50-11:10	Rick Lanctot	How did the Alaska Shorebird Plan get done?
11:10-11:15	Susan Sharbaugh-ABO	All-bird Conservation Plan for BCR4
11:15-12:00	Steve Matsuoka-USFWS and Dave Tessler-ADFG	Discussion and strategy development

ALMS: 1:30-2:00

	Colleen Handel – USGS Steve Matsuoka – USFWS Susan Sharbaugh – ABO	Alaska Landbird Monitoring Survey (ALMS) ALMS funding update, scientific review and program strategy and BBS Update. ABO and ALMS

CLIMATE CHANGE

2:00-2:20	Susan Sharbaugh- ABO	Leadership of the "Fairbanks Community Climate Observatory"
2:30-2:40	Melissa Cady – USFS	Summary of climate change joint session with the Alaska Shorebird Working Group
2:40-3:00	Break	
3:00-4:00	Discussion and strategy development	
4:00-5:00	Bin/other breakouts	

2009 Boreal Partners in Flight Annual Meeting Notes from Discussions

BPIF LEADERSHIP ROLES

CoChairs: Melissa Cady and Matt Kirchhoff
Steering Committee: Steve Matsuoka, Colleen Handel, Melissa Cady, Matt Kirchhoff,
Bird Conservation Region Coordinators: BCR 1 & 2 Susan Savage
BCR 3 Steve Kendall
BCR 4 Maureen de Zeeuw
BCR 5 Melissa Cady

BPIF PLAN DISCUSSION

Agencies and organizations draw upon these kinds of plans to set their priorities and they can influence how funding is distributed. Discussion participants agreed that updating the BPIF plan is something that they want to do and formed a subcommittee to take on this task:

Maureen de Zeeuw
Matt Kirchhoff
Steve Matsuoka
Terry Schick
Caroline van Hemert
Mary Rabe
Susan Savage
Susan Sharbuagh
Dave Tessler
Melissa Cady
Colleen Handel
Jim Johnson

There was some discussion about the audience and what the plan should include, but most discussion was reserved for the subcommittee in future meetings. The goal was to have this completed before they start updating the state wildlife action plan again in 2012.

CLIMATE CHANGE

Climate change is now undeniable, but how will it affect birds and what can we do about it? Migrants can be lost to increasingly severe and frequent storms, warmer days, loss of wetlands, changes in fire regime, changes in global ocean current and wind patterns.

We should identify where we have opportunities to support ecosystem resiliency to ensure that species have the opportunity to adapt to changing conditions. We may need to focus studies on species at the edges of their ranges where they are able to persist under suboptimal conditions, or to study their responses to variability across their ranges to project whether or not they will be able to persist under predicted conditions.

Education is a key component, and the public needs to understand that there may not be an easy fix.

Climate change monies will be tied to federal and state "adaptation plans."