THE 2003 ANNUAL REPORT OF *BOREAL PARTNERS IN FLIGHT*

April 2004

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INTRODUCTION

The 12th year of *Boreal Partners in Flight* was somewhat of a time of transition for our landbird monitoring programs in Alaska. Although substantial work was again focused towards landbirds throughout the state, much of the group's efforts in 2003 were in evaluating past monitoring efforts and planning for the future. In particular, we completed the evaluation of the Monitoring Avian Productivity and Survivorship (MAPS) Program in Alaska and adjacent Canada (see DeSante et al. below) and tested the field methods for the Alaska Landbird Monitoring Survey (ALMS; see Handel and Cady below), the later of which we hope to implement broadly across the state to complement to the North American Breeding Bird Survey (BBS).

In 2004, we hope to continue to evaluate our monitoring programs by analyzing our data to estimate landbird population trends in Alaska. Colleen Handel and John Sauer (U.S. Geological Survey) have begun to jointly analyze survey data from Alaska collected as part of the BBS and Alaska Off-road Breeding Bird Survey for population trends from 1993-2002. These analyses will likely provide us with the first estimates of population trends for many species at either the state-wide level or the smaller Bird Conservation Regions within the state. We also hope to initiate an analysis of data from the Alaska Migration Monitoring Network that is similar to the recently completed MAPS evaluation. We hope to use the results from these analyses to refine our goals and methods for monitoring and, more importantly, to help direct research and conservation towards species suffering long-term declines.

We will also have a change in leadership for the program in 2004. I am proud to announce to you the new co-chairs for *Boreal Partners in Flight* for 2004–2005, Nancy DeWitt and Christopher Harwood. Nancy is the Executive Director of the Alaska Bird Observatory (http://www.alaskabird.org) and brings to our leadership her diverse background in public relations, conservation, and research. Among her many talents, her experience working with public, private, and industrial sectors will be instrumental in broadening our partnership base in the future.

Chris Harwood is an Avian Ecologist with U.S. Fish and Wildlife Service, Kanuti National Wildlife Refuge. Although Chris has been in this position for one year; he brings to our group many years of experience working on a broad range of avian taxa on the Yukon Delta National Wildlife Refuge. Chris helped pioneer methods for conducting Breeding Bird Survey on rivers by establishing 30 river routes on the lower Yukon and Kuskokwim rivers in western Alaska. His technical and practical expertise earned from years of experience in the field will be strong assets for the leadership of both our group and the National Wildlife Refuges in Alaska. Nancy and Chris can be reached at:

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Thank you all for the honor of serving as your Program Chair for the past 3 years and please join me in welcoming Nancy and Chris to the leadership of *Boreal Partners in Flight*!

Steve Matsuoka

Please cite this document as: 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, Anchorage, Alaska.

Current leadership for *Boreal Partners in Flight*

Nancy DeWitt and Christopher Harwood, *Program co-Chairs*
Andrea Swingley, *Outreach and Education*
John Wright, *Raptor Conservation*

BIRD CONSERVATION REGION COORDINATORS

Rob McDonald and Brian McCaffery, *Western Alaska* (BCR 1) *and Aleutian/Bering Sea Islands* (BCR 2)
Debbie Nigro, *Arctic Plain and Mountains* (BCR 3)
John Wright, *Northwestern Interior Forests* (BCR 4)
Michelle Kissling, *Northwest Pacific Rainforest* (BCR 5)

INVENTORY AND MONITORING COORDINATORS

Steve Matsuoka, *North American Breeding Bird Survey, Monitoring Avian Productivity and Survivorship*
Colleen Handel, *Alaska Landbird Monitoring Survey*, *Alaska Off-road Breeding Bird Survey*
Buddy Johnson, *Migration Monitoring*
Jack Whitman, *Owl Monitoring Working Group*

PIF UPDATES FROM OUTSIDE OF ALASKA

The North American landbird conservation plan is now on the street!

After two years in development, the *Partners in Flight* (PIF) Continental Plan is now available. The Plan provides species assessments and population estimates for all 448 native breeding species in the U.S. and Canada and population objectives for 100 species with a combination of high threats, restricted distributions, and declining or small populations (PIF Watch List species) and 92 species that are representative of avifaunal biomes in the continent (PIF Stewardship Species). Full participation by Mexico will add an additional 450 breeding species to the next iteration of the Plan.

PIF is now focusing on working with researchers, biologists, and resource and land managers to implement the Plan by i) refining the accuracy and precision of the population estimates and goals included in the Plan; and 2) developing strategies for meeting continental population objectives through on the ground conservation actions (i.e., habitat acquisition and restoration) at smaller spatial scales.

If you would like a copy of the plan please contact Steve Matsuoka (steve_matsuoka@fws.gov).

THE 2003 ANNUAL MEETING OF *BOREAL PARTNERS IN FLIGHT*

U.S. Fish and Wildlife Service, Gordon Watson Conference Room, 1011 E. Tudor Road, Anchorage, Alaska

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Introduction

On December 10-11, 2003, the members of *Boreal Partners in Flight* met to discuss the conservation of landbirds in Alaska. The focus of our annual meeting was on monitoring landbirds in Alaska as many of the following initial goals for monitoring set by our group in the early 1990s have been or will soon be met.

1. Implement the North American Breeding Bird Survey (BBS).
2. Testing methods for monitoring landbird demographics: the Monitoring Avian Productivity and Survivorship (MAPS) program.

3. Testing methods for monitoring landbirds in roadless areas: the Alaska Off-road Breeding Bird Survey (AORBBS) and Alaska Migration Monitoring Network (Migration).

During the meeting we received updates on the current status of our state-wide monitoring efforts for landbirds in Alaska (BBS, AORBBS, MAPS, Migration) and discussed what we need to do to either fully evaluate the data collected thus far (e.g., Migration) or to implement recommendations for previous analyses of data (MAPS, AORBBS). In particular, we discussed what we need to do to implement Alaska Landbird Monitoring Survey (ALMS) throughout the state based on both pilot data collecting in 2003 and previous recommendations from analyses of data collected from its the developmental program, the AORBBS.

The information that follows is a general summary of what was discussed during the meeting. Several of the presentations given during the meeting are presented on the *Boreal Partners in Flight* website (www.absc.usgs.gov/research/bpif/bpif.html) under recent meetings. Summaries of these talks are therefore not included below. If you have questions about any of the topics discussed during the meeting, please feel free to contact Steve Matsuoka (907-786-3672, steve_matsuoka@fws.gov). In attendance were 59 people.

Alaska Bird Observatory: Nancy DeWitt, Kevin Hannah
Alaska Department of Fish and Game: Matt Kirchhoff, Mary Rabe, Dave Tessler, Jack Whitman, John Wright
American Bird Observatory: Bob Altman
Audubon Society: George Matz, Stan Senner
Bureau of Land Management: Jeff Denton, Ruth Gronquist, Debbie Nigro, Karin Rogers
Canadian Wildlife Service: Craig Machtans, Wendy Nixon
U.S. Airforce: Gene Augustine, Herman Griese
National Park Service: Melanie Cook, Nikki Guldager, William Leacock
U.S. Army: Jeff Mason
U.S. Fish and Wildlife Service: Maureen deZeeuw, Chris Harwood, Mike Jacobson, Danielle Jerry, Jim Johnson, Bud Johnson, Elizabeth Jozwiak, Steve Kendall, Bob Leedy, Karin Lehmkuhl, Steve Matsuoka, Brian McCaffery, Tina Moran, John Morton, Karen Murphy, Joel Reynolds, Deborah Rudis, Lisa Saperstein, Susan Savage, Phil Schempf, Michael Swaim, Eric Taylor, Pat Walsh, Kent Wohl
U.S. Geological Survey: Melissa Cady, Colleen Handel, Karen Oakley, Dan Ruthrauff, Joel Schmutz
USDA Forest Service: Bridget Brown, Ellen Campbell, Dennis Chester, Dan Logan, Jerry Mastel, Paul Meyers, Aaron Poe, Linn Shipley

Agenda

Wednesday, December 10th

Introductions, updates, and requests for information

8:30	Welcome, introductions, and agenda. *Steve Matsuoka, USFWS-Migratory Bird Management*
8:50	Update on the national front: population objectives for landbirds and the PIF Continental Plan. *Bob Altman, American Bird Conservancy*
9:10	Examples of implementing national and regional conservation goals on the land units. *Karen Murphy, USFWS-Refuges*
9:40	Update on landbird conservation from the Yukon Territory. *Wendy Nixon, Canadian Wildlife Service*
10:00	A request for general information on the breeding chronologies of Alaskan birds. *Maureen deZeeuw, USFWS-Anchorage Fish and Wildlife Field Office*
10:10	Break
10:30	Regional updates on current and emerging issues challenging the conservation of landbirds in Alaska. *BCR Coordinators*
11:00	Update on raptor conservation in Alaska. *John Wright, Alaska Department of Fish and Game*
11:20	Update on developing protocols for monitoring owls in Alaska. *Deb Nigro, BLM-Northern Field Office and Carol McIntrye, NPS-Denali National Park and Preserve*

Monitoring bird populations using point count methods

11:30	A call for an integrated plan for monitoring landbirds in Alaska—Part I. *Steve Matsuoka, USFWS, Karen Oakley, USGS-Alaska Science, and Carol McIntyre, NPS*

11:40	Progress on the Boreal Monitoring Strategy. *Craig Machtans, Canadian Wildlife Service*
12:00	Lunch
1:10	Estimating trends in the population size of landbirds in Alaska from 1993-2002 using data from the North American Breeding Bird Survey and Off-road Point Count Program in Alaska. *Steve Matsuoka, USFWS and Colleen Handel, USGS-Alaska Science Center*
1:25	*Alaska Landbird Monitoring Survey* (ALMS)—Program Update. *Colleen Handel, USGS*
1:50	ALMS report from the field—Northwest Interior Forest. *Chris Harwood, USFWS-Kanuti National Wildlife Refuge and Carol McIntyre, NPS*
2:10	ALMS report from the field —Western Alaska. *Michael Swaim, USFWS-Yukon Delta National Wildlife Refuge*
2:30	ALMS report from the field —Northwest Pacific Rainforest. *Melissa Cady, USGS-Alaska Science Center*
2:50	Results on training observers in estimating distance to birds. *Kevin Hannah, Alaska Bird Observatory*
3:10	Break
3:30	ALMS Overview—what did we learn from our field efforts in 2003. *Melissa Cady, USGS*
3:55	Discussion: What worked and what didn't work—on refining protocols and techniques of data collection for ALMS. *Colleen Handel and Melissa Cady, USGS-Alaska Science Center*
5:00	Adjourn

Thursday, December 11th

<u>*Monitoring bird populations using point count methods (continued)*</u>

8:00	Introduction to the day's topics. *Steve Matsuoka*
8:05	A relational database for data from point counts. *Christopher Harwood, USFWS-Kanuti National Wildlife Refuge*
8:25	A call for support for a region-wide proposal submitted through the Refuge Operating Needs Support Program. *TBA*
8:40	Linking birds to management through habitat—a means of increasing the utility of data collected from the ALMS program. *John Morton, USFWS-Kenai National Wildlife Refuge*
9:00	Discussion: Linking birds to management through habitat—what variables can be collected to make our data more useful to land managers, project planners, fire ecologists, foresters. *John Morton, USFWS, and Colleen Handel USGS*
10:00	Break
10:20	Discussion: What steps need to be taken in to implement the Alaska Landbird Monitoring Survey? —Outlining goals and tasks for ALMS in 2004. *Colleen Handel*
12:00	Lunch

<u>*Monitoring bird populations through mark-recapture methods and volunteer-based approaches*</u>

1:15	Results from the evaluation of the first 10 years of the Monitoring Avian Productivity and Survivorship (MAPS) Program in Alaska and adjacent Canada. *Steve Matsuoka, USFWS, Joel Schmutz, USGS-Alaska Science Center, David DeSante and Danielle Kaschube, Institute for Bird Populations*
1:50	Discussion: The future of the MAPS program in Alaska—balancing long-term monitoring of continental populations against shorter-term regional assessment of declining species. *Steve Matsuoka and Joel Schmutz*
2:50	Break
3:10	Landbird Migration Monitoring Program in Alaska: the need to evaluate past and current efforts to direct future sampling. *Buddy Johnson, USFWS-Tetlin National Wildlife Refuge*
3:30	Monitoring of boreal wetland birds. *Kevin Hannah, Alaska Bird Observatory*

<u>*Integrating monitoring programs and closing business*</u>

3:50	Discussion: a call for an integrated plan for monitoring landbirds in Alaska—Part II. *Karen Oakley, Steve Matsuoka, Carol McIntyre, and Colleen Handel*
4:50	Wrap up and assignment of a new chair for *Boreal Partners in Flight*
5:00	Adjourn

Refining protocols for the Alaska Landbird Monitoring Survey

The topics listed below were discussed to help develop recommendations on how to improve the field protocols of the Alaska Landbird Monitoring Survey (ALMS). The session was moderated by Colleen Handel and Melissa Cady, USGS-Alaska Science Center.

Distance sampling.—Estimation of distances to birds is currently the best means of correcting counts of birds for variation in detectability relative to species, habitats, or observers. Other methods that use two observers or time-depletion models are relatively new as applied to counts of songbirds and require additional testing. However, distance estimation is not without its flaws. A lively discussion of this has recently been published (Hutton and Young 2002, and 2003; Ellingson and Lukacs 2003). The primary concerns with application of this method for landbird monitoring is whether three basic assumptions can be met in field: 1) all birds on the point (distance zero) are detected; 2) birds are detected at their initial location; and 3) recorded distances are exact (Buckland et al. 2001). These assumptions were discussed as follows.

- Kevin Hannah's (ABO) results from training show that observers tend to be good at estimating distance in open habitat but tend to underestimate distance to aural detection that are > 50 m away in forest habitats. This bias could potentially be alleviated with more training.
- Simulations of different types of errors (random, systematic) would be useful to determine how error in measuring distance introduces bias into the estimation of density. However, random error is generally acceptable, while systematic error will lead to over or underestimation of density when distances to bird are systematically under and overestimated respectively.
- Unfortunately there are no true values of density that can be readily used to verify density estimates calculated from distance sampling. Other methods are still being tested such as double observer and time depletion models. Combining distance estimation with double observer or time depletion models may hold promise in meeting assumption 1 above (Kissling 2003).
- There was some concern expressed about estimating density for birds detected primarily as flyovers (e.g., redpolls and crossbills); however, these birds are generally dealt with separately from birds detected on the ground in the analyses of the data. Therefore the important consideration is to continue to note birds detected as flyovers separately on field data forms.
- Ideally, we would have enough data to model detectability by habitat and observers; however, this requires substantial data (60-80 observations per species per habitat/observer).

Time intervals for counting birds.—During the 2003 field season birds were recorded in separate time intervals (0-3, 3-5, 5-8, and 8-10 min) for comparison with previous methods (BBS: 0 -3 min; AORBBS: 0- 5 min; Inventories 0 – 8 min) and to evaluate the application of time-depletion models to correct counts for detection probabilities. People commented on conducting these timed counts and discussed the pros and cons of short compared to long counts.

- Not all birds were recorded in the time intervals that that were initially detected; particularly when densities were high. This is potentially problematic for the time depletion models.
- To meet the assumptions inherent in the analyses; observers need to record the distance to the bird and time interval that the bird is first detected in; not whether it is detected first by sound or sight as some have practices in the field.
- It was agreed that 8 minutes were generally needed to accurately record the distances to all birds detected. Also, additional species seem to be detected beyond 5 minutes (Swanson and Nigro 2002) that would otherwise be missed. Therefore the longer counts are clearly useful.
- Data collected beyond the initial 8 minutes; however, could be of limited use for estimating densities if most birds detected during the later time intervals are far away (therefore likely to be truncated in the analyses) or if the additional time increases the likelihood of immigration and emigration to and from counting area or double counting individuals.

Training

- Yukon Charley found similar results to ABO during the initial stages of training observers (i.e., underestimating distance); however, both confidence and precision in estimating distances increased by the end of three weeks of training.
- Confidence does not always equate to precision in estimation. Observers need to spend time throughout the season to recalibrate their precision in estimating distances; particularly when they move among vastly different habitat types (i.e., tundra vs. forest).
- We should consider having minimum standards for experience and hearing for observers.

Sampling frame

- We need to come up with objective and consistently applied criteria for discarding plots that cannot be accessed.
- It was stressed that sampling could be biased in an immeasurable manner because we discarded blocks for inconsistent reasons. Thus some questioned whether it would make more sense to sample only accessible areas (convenience)? However, sampling solely by convenience is problematic because it leaves us with an undefined sampling universe and limits are ability to extrapolate to areas outside of the immediate vicinity of sampling.
- However, if we define plots based on criteria of accessibility that could be quantified using GIS we could assign plots to strata of varying accessibility and then sample them with different intensities or frequencies.
- Can we add points to blocks where all of the initial points cannot be sampled? This was discouraged as unknown bias could be introduced into the sample.
- Helicopter access prohibits participation at this point for many conservation units.

Grid design of points within a block

- Some questioned whether sampling points in a grid introduced problems with detecting individual birds multiple times? However, for the estimation of density this is generally not a problem since distance models deal with birds detected at multiple points. However, bias will be introduced in the estimation of density if observers influence the movements of birds (i.e. bird following observers). Also, double counting birds could introduce problems with the development of habitat selection models if data are analyzed at the level of the point.
- Double counting would be reduced with 500 m intervals between points for the count conducted at Kanuti NWR in 2003.
- In general the current protocols for the ALMS plots still apply; points need to be spaced appropriately (250 m vs. 500 m) to minimize double detections and birds detected on previous point should be noted at subsequent points.

Other factors that effect detectability

- Besides observers, species, and habitats there are many other factors that effect detectability of birds such as weather, topography, noise from streams and rivers, and season. Programmatically it will be impossible control for all sources of variation; however, in some cases we will need to set conditions to define when counts are conducted (i.e. good weather, during particular times of the year) to reduce extraneous variation.

River BBS

- Many options are available to increase BBS sampling in Alaska by conducting counts along rivers. Also mini routes (< 50 stops) would help increase numbers of routes. Also riparian corridors may be under sampled with random or road-based sampling.
- Presently we are in favor of maintaining current BBS routes (non-random in location) and supplementing these with counts that are located in some random fashion (i.e., ALMS) so that we

can increase our scope of inference (i.e., to roadless areas), measure biases (detectability and sampling frame), and provide results that are more scientifically defensible.
- River BBS routes; however, are useful for assessments of the importance of riparian habitats to regional avifauna and may prove to be the best means of expanding monitoring coverage if random sampling proves to be logistically and financially unfeasible for state-wide monitoring.

Linking birds to management through habitat

This session focused on determining how the current protocol for quantifying vegetation communities at point count stations could be modified and improved. The session was moderated by John Morton, USFWS and Colleen Handel, USGS.

Background.— The original objectives set by BPIF in 1992 for the collection of habitat data at count points sampled by the Alaska Off-road Breeding Bird Survey were:
- Develop models that describe gross relationship between birds and habitats as described by Kessel (1979) and Viereck et al. (1992);
- Measure gross changes in habitat that might help explain trends detected by monitoring; and
- Extrapolate findings to the regional and state-wide level when large-scale land cover maps became available.

The only broad classification systems available for Alaska in 1992 were Kessel (1979) and Viereck et al. (1992) so assigning sampling points to classes used in these systems was the focus of the original protocol.

Objectives of the discussion.—It was felt that the original protocol could be modified to:
- Better target the variables used to classify vegetation communities by Kessel (1979) and/or Viereck et al. (1992);
- Include sampling of additional habitat parameters that would make the data more useful for describing avian use of habitats of management concern (e.g., wetlands);
- Better ensure that sampling of habitat variables uses non-subjective methods that have high repeatability among observers (particularly for monitoring purposes); and
- Allow a second standardized method to better quantify vegetation structure & composition (variable plot?).

Short-comings to current approach.— Specific landscape and vegetation features that the group felt were not adequately described by the current protocol included:
- wetlands
- land formation or position
- disturbance
- successional stage
- soil moisture

Also it was desirable for our data to crosswalk effectively to landscape level maps of vegetation cover for broader classification. Therefore it might be useful to develop partnerships with other groups such as the National Wetland Inventory.

Recommendations from Steve Talbot.—Steve Talbot a botanist with the U.S. Fish and Wildlife Service, shared with us some of his experience documenting plant communities in Alaska.
- Steve stressed that Viereck et al. (1992) is not a mapping tool but a systems for reducing data on plant communities to a manageable level that can be communicated to a broad range of users.
- For pure description of plant communities, Steve felt it is best to start by measuring plant community composition, structure, and abundance and then using the data to define communities

using clustering analyses. This is preferable to arbitrarily trying to force a vegetation community into an existing system of classification.

In particular Steve described a protocol that he uses for describing plant communities in Alaska.

- Topographic position, landform, and underlying substrates. These should be considered because they do not change much over time, are not affected by factors such as climate change, and have large influence on the distribution of plant communities. These can be divided into two different scales:
  - Macrotopography: Large scale topography describing mountain tops to main valley floors, and includes such designations as mountain, upper slope, lower slope, middle slope…
  - Mesotopography: Smaller scale topographic features, describing the relative position of the sample site within a catchment area, and includes such designations as crest, toe, depression.
- Soil Moisture: simple measurement described on a three to four point scale.
- Structure independent of species (e.g., height, percent cover) which is very important in Viereck level 2. Review Kuchler's book "Vegetation Mapping".
- Plant community composition and cover should be described in detail. Cover estimated using a "cheat sheet" that shows what the covers classes look like in different types of distributions (clumped, dispersed, etc.) and percentages of cover is useful. Ocular estimation of cover using the Braun-Blanquet technique is an option.
- 1-2 hours to do a full species composition; however this could be simplified considerably if you simply focus on cover of dominant species.

Action item.—A working group was formed to evaluate and refine the habitat data collected as part of ALMS by spring 2004. Members of the group include David Tessler, Deb Rudis, Maureen DeZeeuw, Lisa Saperstein, Deb Nigro, Michael Swaim, Steve Matsuoka, Dennis Chester, Aaron Poe, Colleen Handel. Leader: Melissa Cady

Outlining goals and tasks for ALMS in 2004

During this session we discussed what issues we need to address in order to implement the refined ALMS program broadly in Alaska. The Session was chaired by Colleen Handel (USGS).

ACCESS

Stratifying sampling by accessibility.— Overall the issue of access must be addressed in the sampling design of ALMS because of safety issues (bears, hazardous terrain), scarcity of funds to visit plots accessibly only by helicopter, and wilderness designations restricting access. Therefore we will need to redefine our sampling universe based on considerations of access. Already in 2003, many selected blocks were discarded because they occurred on water, obvious cliffs (plot by plot), and icefields. Furthermore state and private lands have not been considered for sampling due to perceived lack of funds; however, this leads to geographic bias. Options for addressing access problems that we discussed included:

- keeping all areas regardless of access;
- stratifying sampling such that difficult to sample areas are sampled less intensively (lower proportion of sampling, lower frequency of resampling);
- weighting the probability of sampling by accessibility s they have done in Olympic National Park;
- restrict sampling to accessible areas.

Thoughts on stratifying.— Stratification could be based on terrain, time or distance traveling, costs, mode of travel, etc. If we are to stratify sampling by accessibility we must come up with objective and consistent criteria for defining areas as accessible, difficult to access, and inaccessible. If discretionary, we will likely only survey those areas that are easiest to get to and thus not improve upon what we already gather from the BBS.

Another consideration is whether we start by first sampling accessible blocks and then include more difficult to sample block as experience in conducting the counts and additional funds are gained.

Short comings of sampling based on accessibility.—One major shortcoming of restricting sampling to accessible areas or stratifying by access is that the universe of inference will quickly become unknown as proportions of accessible, difficult to access areas, and inaccessible areas changes over time due to changes in road networks or transportation technology. Restricting sampling solely to accessible areas also leads to unknown biases in sampling related to levels of human disturbance and non-random sampling of habitats. Bias could be measured and accounted for if difficult to access areas are included in the sampling but simply sampled less intensively (lower proportional sampling, sampled less frequently). However, this still does not address how changes in the proportion of accessible and inaccessible areas over time will affect both inference and bias.

Action item for access.—Develop consistent and objective criteria for defining blocks as accessible, difficult to access, or inaccessible. Biologist on conservation units throughout the state need to provide information on what issues restrict their ability to survey the selected ALMS blocks on their units. Melissa Cady (USGS) will compile information on accessibility and work with Colleen Handel (USGS) to develop recommendations for refining the sampling design of ALMS which will then be peer-reviewed.

FUNDING

Seeking other sources of funding for ALMS.—BPIF should consider trying to recruit DOT, private, industry, and tribal partners again. Industry may be willing to contribute support if they can realize benefits (e.g., fulfilling monitoring responsibilities, helping to identify wetland habitats, or good public relations). DOT in particular may be able to contribute since so many new roads are planned. Conservation grant money available to tribes and Alaska Natives is growing providing great opportunities for partnerships. State non-game biologists support the program but no clear source of funding yet. Unlike Canada there does not seem to be much potential for the timber industry to contribute.

Gaining support within agencies.—It was recommended that an interagency memorandum of understanding (MOU) be developed to serve as a mechanism to garner agency support for ALMS. This would not include any obligation to fund the program, but could be an important vehicle to help secure monetary support in the future. Some questioned how effective an MOU might be; however, other pointed to how the MOU established by the noxious weed group in Alaska carried a lot of weight in the rapid development of their program.

It was also recommended that we develop a brochure describing the program to help market the ALMS program to administrators and potential partners. Ducks Unlimited took this approach to ask for money from both industries and agencies to support their program. They met with potential partners and had everyone agree on the objectives. All agreed that we definitely need more pizzazz in the marketing end of things.

Action items for funding.— Develop an MOU that signatures agency support for the Alaska Landbird Monitoring Survey. Participants include Steve Kendall, Jeff Mason, Ruth Gronquist, Bob Leedy, Ellen Campbell, Dave Tessler, John Wright, and Jeff Denton. Leader - Steve Matsuoka.

REGIONAL DIFFERENCES IN SAMPLING

Fewer points per block in BCR 5 (PWS and SE Alaska)?—Currently the number of points sampled per block is based on an early assessment sample size needs. The greatest source of variability is by block, so sampling more blocks is better than more points per block. We may have the some flexibility to add or subtract points based on logistical constraints.

Action Item on sampling.— Melissa Cady and Colleen Handel (USGS) will assess data from 2003 to determine the appropriate number of points to collect per block by region. It seems clear that number of points will need to be reduced for BCR 5.

TRAINING

Many suggested and agreed that we need a formal training program for ALMS once the objectives and protocols for habitat sampling are established. Some suggested that ABO should be contracted to develop and deliver the program which would ideally be regional in context (BCR?) to provide regional specific training on birds, plants, and logistical challenges. Also suggested was that we structure the program to not only maintain a formal training session (e.g., ABO), but also make available manuals and materials that could be used by graduates of the formal training sessions to continue preparing themselves and their crews for field seasons in subsequent years.

Also some recommended that we repeat Kevin Hannah's evaluation of distance estimation by using larger band width, and use his data to test repeatability/observer variability. We should not despair over that analysis, because distance band widths and accuracy will vary for each species and situation.

Action item for training.—Seek funding to develop a comprehensive training program once all of the protocols are established.

The future of the MAPS program in Alaska

During this session we discussed how to implement a more effective MAPS program in Alaska. The discussion was moderated by Joel Schmutz (USGS) and Steve Matsuoka (FWS)

Summary of results from the MAPS evaluation and current state of affairs

- The program is effective in monitoring geographic and temporal variation in productivity, sometimes to spatial scales as small as the mist-netting station. However, area sampled for productivity is not well defined and the index does not clearly translated to numbers of young produced per breeding pair which could then be compared directly to results from nesting studies or included in population matrix models. Also, capture probability likely varies by habitat but is not accounted for.
- Large numbers of birds must be captured to detect geographic and temporal variation in survival. Thus monitoring of survival will be best accomplished at large-spatial scales (i.e. groups of states) and for common species that are easy to captured. However, if recapture probabilities could be increased by changes to the protocol (i.e., increasing number of nets and frequency of capture session) power to detect trends could be greatly increased.
- The collective sampling effort in Alaska produced good baseline information on survival and productivity for many species for which we previously lacked this information. Sites could be resampled in the future to monitor longer-term trends.

Currently, almost all of the MAPS stations in Alaska are no longer run. Thus to develop a viable program again we will need to use the results from the evaluation as a basis for developing a totally new program. BPIF needs to carefully consider the allocation of limited resources for monitoring and must develop a practical means of reaching a balance between population trend and demographic monitoring. To be successful, any new effort by the MAPS program in Alaska will need to clearly articulate its goals with sampling intensity adequate to meet the stated goals.

Two potential directions for the MAPS program were discussed; addressing the conservation of declining species and obtaining baseline information on demographics for species without such data.

Addressing the conservation of declining species.—We might consider using negative trends detected by AORBBS and BBS to trigger the establishment of MAPS stations to help elucidate the causes of declines (low survival or productivity). Specific regions and habitats with high densities of species of concern could be targeted to achieve the sampling require to meet the study objectives. We have already detected declines for many species for which we do not currently understand the mechanisms behind the declines (i.e., Olive-sided Flycatcher, Blackpoll Warbler, Rusty Blackbirds). Thus this approach warrants further consideration.

Although this may work for some species with declines (i.e., Blackpoll Warblers breeding in western Alaska) not all will be sampled effectively using the MAPS protocol (i.e., Olive-sided Flycatcher and Rusty Blackbird). Furthermore, this approach has limitations as survival or productivity may already have been lowered prior to the establishment of new stations thus masking the important trend.

Advances in the analysis of mark-recapture data to estimate both survival and recruitment rates could hold great promise for modeling population trajectories which could be compared among habitats or regions, thus making data from MAPS much more valuable. Also any changes to protocols that would increase recapture probability could greatly increase power to detect differences and trends in survival and productivity.

Inventory of demographic rates for other species and habitats.—There are a lot of other species that warrant the collection of baseline information on demographics. We might consider targeting different groups of species in different areas to fill key information deficits.

Outcome of MAPS discussion.— No clear outcome was decided during our discussion on the MAPS program in Alaska. Clearly, BPIF needs to carefully consider the allocation of limited resources for monitoring and must develop a practical means of reaching a balance between population trend and demographic monitoring. The later is needed particularly for species in decline or of species concern.

Monitoring and research, where do we go from here?

During this session we discussed our goals for long-term monitoring, whether we should modify our current goals, and how we should use information from our monitoring programs to enact meaningful conservation for declining and other priority species. The discussion was moderated by Karen Oakley (USGS) and Steve Matsuoka (FWS).

Need for a monitoring plan.—There was some discussion concerning the need to develop new goals for monitoring and to clearly articulate these goals in a stand along BPIF monitoring plan or a revision of the BPIF conservation plan (BPIF 1999). It was recommended that such a document should clearly address the following areas.

- Why we should monitor landbirds, including where landbird monitoring fits in relation to the monitoring of other taxa.
- Descriptions of each broad-scale monitoring program, their strengths and weaknesses, which species are covered, and how different programs are important in providing insight into different attributes of population ecology.

- Clearly describe the objectives of each program and how we propose to implement the programs in Alaska.
- Acknowledge that not all species are covered by these broad-scale programs and that we may need to target particular species or groups of species with special surveys (i.e., owls and raptors) or may be unable to cover some species well because of their rarity or the extreme costs of surveys.

Outcome of discussion on a monitoring plan.—Although most agreed that we need such a document to articulate our goals and needs, no consensus was reached as to when this should be undertaken and completed. A committee was to be formed to meet during the Alaska Bird Conference in March 2004 to discuss this issue further.

Addressing the conservation of declining species and species of concern.—One important issue raised was how to implement meaningful research and conservation once we detect population declines for species. Some suggested that if we cannot provide meaningful conservation for our species in greatest need, then our efforts to monitor populations lack any practical value. For example, Kevin Hannah (ABO) presented information on the severe population decline of 90% that was documented for Rusty Blackbird in a 1999 article by Russell Greenberg and Sam Droege in Conservation Biology. Kevin highlighted that this species has the dubious distinction of having the steepest decline of any species monitored by the BBS. Clearly we need to move beyond monitoring to research and conservation for this species, yet Kevin commented that no studies are currently addressing this issue.

The group felt that this exposed a general weakness of the BPIF group; our inability to address the needs of our species of highest concern. Inherent has been our failure to attract a diversity of researchers to tackle the big questions. It was suggested that for the species of highest concern we should compile information to clearly state our concern, identify potential threat to populations, and make recommendations for research. It was also suggested that we need to step beyond our boarders in Alaska and begin working more closely with researchers and conservation on the appropriate inter-regional and international scales that include the geographic ranges of the species we are have concerns for.

Action items for species of highest concern.—Conduct literature reviews of a short list of species of highest concern and produce a poster series for the Alaska Bird Conference on Species at Risk! The principal goal of the poster series was to

- inform the scientific and conservation communities of our concerns for these species,
- solicit assistance from the scientific and conservation communities to address the conservation of these species, and
- highlight data coming from our monitoring efforts in Alaska.

Species and assignments were:

- Solitary Sandpiper, Brian McCaffery and Christopher Harwood
- Olive-sided Flycatcher, John Wright
- Blackpoll Warblers, Jim Johnson and Steve Matsuoka
- Smith's Longspur, Deb Nigro and Melanie Cook

This group also agreed to meet at the Alaska Bird Conference in March 2004 to begin discussing how to more directly address this issue.

Table 1. Raptor surveys in Alaska, 2003.

Location	BCR	Northern Goshawk	Osprey	Bald Eagle	Rough-legged Hawk	Golden Eagle	Gyrfalcon	Peregrine Falcon	Merlin	Comments	Source
Kodiak NWR	2			268 sites; 134 active; 89 successful						Population may be plateauing	Denny Zwiefelhofer
Togiak NWR	2			50 sites; 31 active; 16 successful						1 Steller's Sea Eagle, 3rd yr in row	Rob McDonald
Seward Peninsula	2	0	0	0	57 sites; 11 singles; 46 pairs w/ eggs or yng	27 sites; 5 fresh nests; 2 singles; 20 pairs w/ yng	52 sites; 10 singles; 42 pairs w/ eggs or yng	3 sites; 3 pairs	2 sites; 1 single; 1 active nest	R-44 survey during 20-26 Jun	Peter Bente
NE Denali NP	4					77 territories; 66 occupied; 29 w/ eggs; 13 successful	14 territories; 10 occupied; 7 w/ eggs 3 successful	4 territories; 3 occupied; 3 w/ eggs 1 successful			Carol McIntyre
Central Alaska Range	4					17 territories; 10 occupied; 7 w/eggs; 6 successful	1 territory; 1 occupied; 1 w/ eggs; 0 successful				Carol McIntyre
Tanana River (Tok to Nenana)	4		2					38 pairs; 26 successful			Bob Ritchie
Tanana (Delta to Fairbanks)	4			18 active sites						similar to last survey in 2000	Bob Ritchie
Tetlin NWR (Upper Tanana River)	4		31sites; 25 active; 18 successful	67 sites; 48 active; 34 successful				16 sites; 15 active; 14 successful			Hank Timm
Upper Yukon River	4							48 pairs; 27 successful			Skip Ambrose
Yukon/Tanana Uplands	4							67 sites; 47 pairs; 28 successful;			B.Ritchie
Porcupine River	4					0		25 pairs; 21 successful			Dave Payer
Kongakut River	3			1 pair, no nest	2 pairs active	2 pairs active	1 pair active	2 pairs active			Dave Payer
Colville River	3				63 pairs; 57nest		13 pairs; 12 nests	56 pairs; 41nests			Deb Nigro
Southeast Alaska	5	72 known territories; 47checked; 11active nests; 5 occupied with no nest									Steve Lewis

RAPTORS

Summary of Raptor surveys in Alaska, 2003

John Wright, *Alaska Department of Fish and Game*

A variety of raptor surveys were conducted in 2003 including all BCRs within the state. Results are summarized in Table 1. To share information quickly and informally among those working with raptors, an email group was initiated in 2003. This group may be contacted at <alaska_raptors@fishgame.state.ak.us>. If you would like to add your name to the email group list, contact John Wright (john_wright@fishgame.state.ak.us).

Owl monitoring group update

Deb Nigro, *Bureau of Land Management*

At the December 2003 BPIF meeting the Owl Monitoring Group reported that little progress had been made in the last year due to many group member's heavy workloads. Carol McIntyre resigned as chairperson due to her many other commitments and an appeal was made for new group members and for renewed commitment from current members. Jack Whitman (ADF&G) and Phil Schempf (USFWS) agreed to co-chair the group and may people responded positively to an e-mail message soliciting new group members. An Owl Monitoring Group meeting has been set up for March 15, 2004 at the Gordon Watson conference room in conjunction with the Alaska Bird Conference (FWS, 1011 Tudor Road, Anchorage) between 1 and 5 PM and anyone interested in owl monitoring is welcome to attend.

INVENTORY AND MONITORING

Evaluating the first ten years of the Monitoring Avian Productivity and Survivorship (MAPS) program in Alaska and adjacent Canada

An extensive analysis of the first 10 years of data collected as part of the MAPS program in Alaska and adjacent Canada was completed in November 2003. The final report is presented in two separate parts. Abstracts from presentations given at the Alaska Bird Conference from each part of the report are presented below. If you would like a copy of the final report, please contact Steve Matsuoka (907-786-3672; steve_matsuoka@fws.gov).

Part 1: General Results

David F. DeSante[1], Danielle R. Kaschube[1], T. Scott Sillett[1, 2], Steven M. Matsuoka[3]*, and Joel A. Schmutz[4]
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The Monitoring Avian Productivity and Survivorship (MAPS) Program was created by The Institute for Bird Populations to monitor spatial and temporal patterns in adult survival rates and productivity for populations of landbirds in North America. Forty MAPS stations in Alaska and western boreal Canada were operated using a standardized mark-recapture protocol for various lengths of time between 1992 and 2001 by biologists from a number of federal agencies and private organizations. Prior to this large effort, virtually no data were available on survival or productivity for any passerine bird species in the region. We examined this large data set for evidence of spatial, temporal, and habitat-based variation in survival and productivity for the 10 most commonly captured passerine species in the region and two other species of concern. We found strong evidence for spatial and temporal variation in apparent survival rate for one species, Wilson's Warbler [*Wilsonia pusilla*; QAIC*c* weight (*wi*) > 0.8], with survival 33% lower in southcoastal Alaska than other regions and increasing over time across all regions. We also found moderate support for sex-based differences in survival for four species, Gray-cheeked Thrush (*Catharus minimus*; *wi* = 0.50), Orange-crowned (*Vermivora celata*; *wi* = 0.49) and Wilson's warblers (*wi* = 0.44), and Dark-eyed Junco (*Junco hyemalis*; *wi* = 0.73) with survival lower in females than males in all species. We found only weak evidence for habitat-based differences in survival for one species, White-crowned Sparrow (*Zonotrichia leucophrys; wi* = 0.39). We found strong evidence for spatial and temporal variation in breeding productivity for all 12 species with productivity generally high in interior vs. maritime regions, high in 2001, and low in 1999. Six species showed strong evidence for habitat-based differences in productivity with shrub habitats generally more productive than forest habitats. The low rates of Wilson's Warbler survival and productivity we detected in the southcoastal Alaska region compared to other regions indicates that the status of this species in southcoastal Alaska should be further evaluated.

Part 2: Statistical power to detect temporal and spatial differences in survival of landbirds breeding in Alaska

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DeSante et al. (presentation by Matsuoka) documented patterns in survival and productivity among landbirds in Alaska, based upon 10 years of MAPS data. Because we found little evidence for geographic or temporal variation in survival for most species, we assessed the statistical power of our data to detect biologically relevant amounts of survival rate variation. We identified 3 patterns of survival rate variation we wished to detect (a linear decline within a population, a one-time drop within a population, and a difference between 2 populations) and 2 effect sizes (a decline, drop, or difference that resulted in halving of the population in 10 years or 20 years), thus 3x2 = 6 scenarios per species. We examined this for 3 species that presented a diversity of survival and recapture rates—Wilson's Warbler, Hermit Thrush, and Fox Sparrow. Across all scenarios, for Wilson's Warbler, we did not have good power to detect the simulated amounts of survival rate variation (we needed 1.5–4.3 times more data than actually collected to achieve 80% power). This result occurred, despite finding geographic and temporal variation in the real data, because we simulated smaller survival differences than those detected with the real data. Power was substantially less for the other two species. Overall, the MAPS program has thus far provided survivorship data that are unprecedented for some species, could be compared to similar data from other regions, and can be usefully integrated into the continental data-set for large-scale monitoring. However, within Alaska, the existing sampling regime has not resulted in data that are able to detect many of the magnitudes of survival rate variation that we deemed biologically relevant. We offer some sampling ideas for how collection of MAPS type data can continue but in a more statistically powerful way.

Migration monitoring activities in Alaska, 2003

Bud Johnson, *Tetlin National Wildlife Refuge*

Over the last decade as many as fourteen migration monitoring stations have been operated in Alaska. That number has dwindled in recent years and in 2003 four stations were in operation at Creamers Field in Fairbanks (Alaska Bird Observatory - ABO), near Tok (Tetlin National Wildlife Refuge), Denali National Park and Preserve (Denali National Park Wilderness Centers Ltd), and Campbell Tract Anchorage (Bureau of Land Management). At this point a very large data set has accumulated and efforts are underway by several cooperators to obtain funding for a large scale analysis and evaluation of the migration monitoring program. This project would: (1) identify important stopover locations and habitats for landbirds in Alaska; (2) examine spatial patterns in the timing of migration among stations to identify important migratory pathways; (3) estimate trends in population size and productivity for migrant landbirds and; (4) evaluate statistical power to detect trends in order to make recommendations on how to best allocate future sampling efforts in Alaska. Other cooperative efforts are underway by Tetlin NWR and ABO to develop a joint database using MS Access and to standardize methodology between the two stations.

Bird Banding Activities, 2003

Jim A. Johnson, *U.S. Fish and Wildlife Service*

Banding activities have substantially decreased since the mid to late 1990's when many stations were run as part of the Monitoring Avian Productivity and Survivorship (MAPS) Program and substantial efforts to capture birds during fall migration were undertaken on the Alaska Peninsula and Yakutat. In 2003, only one MAPS station was run in Juneau, Alaska; however, migration stations have been maintained in Fairbanks, Denali, Tok, and Anchorage. Below we have summarized the species banded in 2003 by age class.

Table 2. Summary of MAPS banding in Alaska, 2003.

BIOREGION:	Southeastern			
SITE NAME:	MEND			
CONTACT/AFFILIATION:	Gwen Baluss, USFS			
No. days banding:	7			
Range of dates:	6/4/2002--8/6/2002			
No. net-hours:	360			
SPECIES	HY	AHY	UNK	TOT
Rufous Hummingbird	2	2		4
Alder Flycatcher		1		1
Brown Creeper	1			1
Winter Wren	1			1
Golden-crowned Kinglet	5			5
Ruby-crowned Kinglet	20	9		29
Swainson's Thrush		1		1
Hermit Thrush	5	7		12
American Robin	1	3		4
Varied Thrush	2			2
Orange-crowned Warbler	8	2		10
Myrtle Warbler				0
Townsend's Warbler	1			1
Northern Waterthrush		1		1
Common Yellowthroat		1		1
Wilson's Warbler	3	2		5
Song Sparrow	2			2
Lincoln's Sparrow	1			1
Oregon Junco	8	4		12
Pine Siskin		1		1
Unknown Yellow-rumped Warb.		1		1
TOTAL OF ALL SPECIES	60	35	0	95
CAPTURE RATE (#/100nh)	16.7	9.7		26.4

Table 3. Summary of migration banding in 2003, Alaska.

BIOREGION:	Southcentral				Central				Central			
SITE NAME:	Campbell Tract				Creamer's Field				Denali Institute			
CONTACT/AFFILIATION:	Bruce Seppi, BLM				Kevin Hannah, ABO				Kevin Hannah, ABO			
Range of dates:	08/14 - 09-13				4/25-9/29				8/1-9/8			
Number of days:	20				61				32			
No. net-hours:	862				10,514				1,717			
SPECIES	HY	AHY	UNK	TOT	HY	AHY	UNK	TOT	HY	AHY	UKN	TOT
Sharp-shinned Hawk					2	6		8				
Solitary Sandpiper						6	2	8				
Wilson's Snipe							2	2				
Downy Woodpecker	2		1	3	2			2				
Hairy Woodpecker					1	1		2				
Three-toed Woodpecker												
Yellow-shafted Woodpecker						4		4				
Western Wood-Pewee						1		1				
Alder Flycatcher	10	2		12	16	20		36	3	5		8
Hammond's Flycatcher												
Gray Jay					2			2	1	1		2
Black-capped Chickadee	56	13		69	53	5		58	20	1		21
Boreal Chickadee	10			10	7	3		10	1	1		2
Red-breasted Nuthatch		1		1								
Brown Creeper	1			1								
Arctic Warbler	1			1					10			1
Golden-crowned Kinglet	13			13					1			1
Ruby-crowned Kinglet	88	3		91	35	10		45	37	2		39
Gray-cheeked Thrush					32	14		46	8	2		1
Swainson's Thrush	6	1		7	101	41	1	143	21	5		26
Hermit Thrush	80	2		82	19	3		22	4			4
American Robin		1		1	18	43		61				
Varied Thrush	2			2	1			1	2	1		3
Orange-crowned Warbler	81	2	1	84	189	48	1	238	34	5	2	41
Yellow Warbler	80	11		91	56	15	2	73	1	1		2
Myrtle Warbler	101	4		105	263	81		344	13	3		16
Townsend's Warbler	15			15	5			5				
Blackpoll Warbler	9		1	10	20	8		28	7	1		8
Northern Waterthrush	2			2	78	34		112	17	5		22
Wilson's Warbler	63			63	61	16		77	149	14	2	165
American Tree Sparrow					174	39	1	214	25	10		35
Savannah Sparrow					103	10		113	5			5
Fox Sparrow	13			13	20	5		25	3	1		4
Lincoln's Sparrow	8	1		9	196	27	1	224	6	1		7
Golden-crowned Sparrow	8			8		1		1				
White-crowned Sparrow	15			15	30	9		39	53	13		66
Slate-colored Junco	442	11	2	455	297	75		372	34	13	1	48
Rusty Blackbird						4		4				
Common Redpoll					53	100	1	154				
Pine Siskin		4		4	5	5		10				
TOTAL OF ALL SPECIES	1,106	56	5	1,167	1,839	634	11	2,484	455	85	5	527
CAPTURE RATE (#/100nh)	128.3	6.5	0.6	135.4	17.5	6.0	0.1	23.6	26.5	5.0	0.3	30.7

Table 3 (continued). Summary of migration banding 2003, Alaska.

BIOREGION:	Central				Total			
SITE NAME:	Pump Station, Tetlin NWR							
CONTACT/AFFILIATION:	Bud Johnson, USFWS							
Range of dates:	07/30 - 09/24							
Number of days:	55				168			
No. net-hours:	6,568				19,661			
SPECIES	HY	AHY	UNK	TOT	HY	AHY	UNK	TOT
Sharp-shinned Hawk	3			3	5	6		11
Solitary Sandpiper						6	2	8
Wilson's Snipe							2	2
Downy Woodpecker					4		1	5
Hairy Woodpecker					1	1		2
Three-toed Woodpecker		1		1		1		1
Yellow-shafted Woodpecker						4		4
Western Wood-Pewee						1		1
Alder Flycatcher	28	4		32	57	31		88
Hammond's Flycatcher	6			6	6			6
Gray Jay	1	1		2	4	2		6
Black-capped Chickadee	52			52	181	19		200
Boreal Chickadee	45	6		51	63	10		73
Red-breasted Nuthatch						1		1
Brown Creeper					1			1
Arctic Warbler	1			1	12			12
Golden-crowned Kinglet					14			14
Ruby-crowned Kinglet	110	41		151	270	56		326
Gray-cheeked Thrush	27	7		34	67	23		90
Swainson's Thrush	161	11		172	289	58	1	348
Hermit Thrush	27	1		28	130	6		136
American Robin	10	3	1	14	28	47	1	76
Varied Thrush	22	10		32	27	11		38
Orange-crowned Warbler	39	20		59	343	75	4	422
Yellow Warbler	3	12		15	140	39	2	181
Myrtle Warbler	26	15		41	403	103		506
Townsend's Warbler	4			4	24			24
Blackpoll Warbler	4	1		5	40	10	1	51
Northern Waterthrush	7	6		13	104	45		149
Wilson's Warbler	69	46	1	116	342	76	3	421
American Tree Sparrow	30	33		63	229	82	1	312
Savannah Sparrow	12	2		14	120	12		132
Fox Sparrow	53	19		72	89	25		114
Lincoln's Sparrow	4	1		5	214	30	1	245
Golden-crowned Sparrow					8	1		9
White-crowned Sparrow	4	4		8	102	26		128
Slate-colored Junco	508	65	1	574	1,281	164	4	1,449
Rusty Blackbird						4		4
Common Redpoll	10				63	100	1	164
Pine Siskin					5	9		14
TOTAL OF ALL SPECIES	1,266	309	3	1,578	4,666	1,084	24	5,774
CAPTURE RATE (#/100nh)	19.3	4.7	0.1	24.0	23.7	5.5	0.1	29.4

Table 4. Summary of research, training, and demonstration banding in Alaska 2003.

BIOREGION:	Southeast		Southeast		Southeast		Southcoastal				
SITE NAME:	WARD		HOME		AUKE		Cook Inlet				
CONTACT:	Gwen Baluss		Gwen Baluss		Gwen Baluss		Colleen Handel				
Affiliation:	USFS		USFS		USFS		USGS				
Type of Banding:	Education		Training		Education		Reseach, education, rehab				
No. days banding:	2						78				
Range of dates:	4/18 to 4/20/02		3/18 to 4/5/02		5/14/2003		1/25 to 12/16/03				
No. net-hours:	8		8		1						
SPECIES	AHY	TOT	AHY	TOT	AHY	TOT	L	HY	AHY	UNK	TOT
Spotted Sandpiper									1		1
Alder Flycatcher											
Gray Jay											
Bank Swallow											
Black-capped Chickadee							305	102	288	25	720
Boreal Chickadee							41	4	22	3	70
Red-breasted Nuthatch							31	11	17	2	61
Ruby-crowned Kinglet											
Swainson's Thrush											
American Robin											
Varied Thrush	2	2									
Orange-crowned Warbler					1	1					
Yellow Warbler											
Myrtle Warbler											
Blackpoll Warbler											
Northern Waterthrush											
Wilson's Warbler									1		1
Fox Sparrow	2	2									
Lincoln's Sparrow											
White-crowned Sparrow											
Slate-colored Junco											
Oregon Junco					1	1					
Red Crossbill			16	16							
Pine Siskin			26	26					1		1
TOTAL OF ALL SPECIES		4		42		2	377	117	330	30	854
CAPTURE RATE (#/100nh)		50.0		525.0		200.0					

Table 4 (continued). Summary of research, training, and demonstration banding in Alaska 2003.

BIOREGION:	Western			**Total**			
SITE NAME:	Old Woman/Anvik/Bonasila Rivers						
CONTACT:	Bruce Seppi						
Affiliation:	BLM						
Type of Banding:	Research						
No. days banding:	5						
Range of dates:	6/4 to 6/21/03						
No. net-hours:	283						
SPECIES	HY	AHY	TOT	HY	AHY	UNK	TOT
Spotted Sandpiper		6	6		7		7
Alder Flycatcher		6	6		6		6
Gray Jay	1	1	2	1	1		2
Bank Swallow		1	1		1		1
Black-capped Chickadee				407	288	25	720
Boreal Chickadee				45	22	3	70
Red-breasted Nuthatch				42	17	2	61
Ruby-crowned Kinglet		1	1		1		1
Swainson's Thrush		7	7		7		7
American Robin		1	1		1		1
Varied Thrush		3	3		5		5
Orange-crowned Warbler					1		1
Yellow Warbler		2	2		2		2
Myrtle Warbler		5	5		5		5
Blackpoll Warbler		3	3		3		3
Northern Waterthrush		19	19		19		19
Wilson's Warbler		4	4		5		5
Fox Sparrow	1	4	5	1	6		7
Lincoln's Sparrow		2	2		2		2
White-crowned Sparrow		4	4		4		4
Slate-colored Junco		6	6		6		6
Oregon Junco					1		1
Red Crossbill		5	5		21		21
Pine Siskin					27		27
TOTAL OF ALL SPECIES	2	80	82	496	458	30	984
CAPTURE RATE (#/100nh)	0.7	28.3	29.0				

North American Breeding Bird Survey, 2003

Steve Matsuoka, *U.S. Fish and Wildlife Service, Migratory Bird Management*

The past year was a success for the North American Breeding Bird Survey (BBS) in Alaska thanks to the many agency biologist and volunteer observers that continue to be the foundation of the program in the state. Overall, 28,193 individuals of 162 species were counted on 58 routes with Swainson's Thrush topping the list with 1,798 individuals counted followed closely by Dark-eyed Junco (1,646), Orange-crowned Warbler (1,328), Common Redpoll (1319), and White-crowned Sparrow (1,315, Table 4). New species encountered by the BBS in Alaska in 2003 were Surfbird and Northern Saw-whet Owl. The 58 routes reporting data as of October, 2003 were down from the 72 routes reporting 2002 (Figure 1); however, some routes were likely run but the data have not been submitted. **If you have not submitted your data from 2003, please do so, preferably over the internet** (http://www.mp2-pwrc.usgs.gov/bbs). **Thanks!**

As the number of routes run has been increased and observer turnover reduced since 1993 we are entering an exciting time for the program. As we have reached a decade of consistent efforts, results on population trend are now becoming available for a wide range of species. As we continue to maintain the BBS program in Alaska we will increase our statistical power to detect trends each year that data are collected. Thus we encourage you all to continue your valuable contributions to this program as this is currently the most viable monitoring program that we currently have for many species of land and shorebirds in Alaska.

Sauer et al. (2003) present information on the trends of 100 species in Alaska. Of these birds encountered on more than 15 routes, 24 have significant trends ($P \leq 0.15$) with equal numbers of species increasing and decreasing (Table 6). Several of the declining species such as Lesser Yellowlegs, Solitary Sandpiper, Blackpoll Warbler, and Rusty Blackbird are associated with wetland or riparian habitats in Alaska. Furthermore 5 of the top 11 steepest survey-wide declines for birds sampled by the BBS are for boreal-breeding species that use wetland or riparian habitats in Alaska (Table 7). This information coupled with precipitous population declines among many species of boreal-nesting sea ducks suggests that wetlands in the boreal forest may be losing their capacity to maintain viable breeding populations of a diverse assemblage of birds.

Finally, in 2004, Colleen Handel and John Sauer (USGS) will be jointly analyzing data on population trends from the BBS in Alaska and the Alaska Off-road Breeding Bird Survey. Results from these analyses will likely produce more precise estimates of trends for state-wide populations and potentially provide some of the first estimates of trend by BCR for many species.

Figure 1. Number of routes run by year from 1968 – 2003.

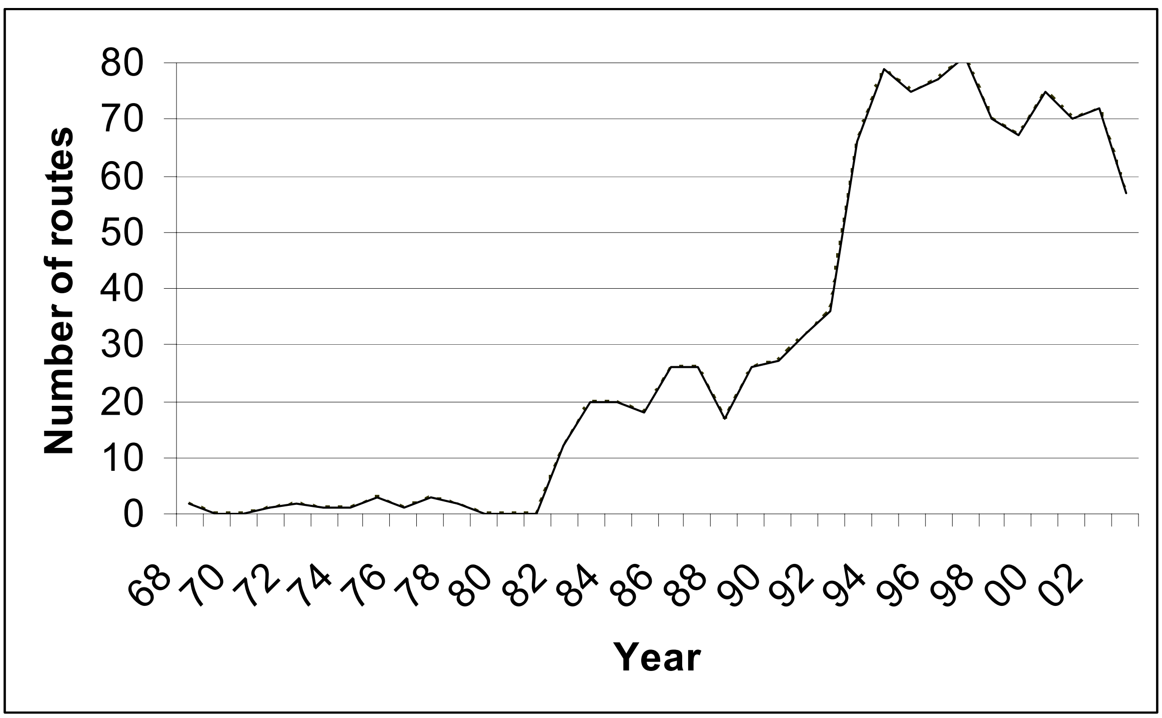

Table 5. Numbers of individuals encountered by species on the BBS in Alaska, 2003.

Species	No. birds	Species	No. birds	Species	No. birds	Species	No. birds
Red-throated Loon	22	Merlin	3	Belted Kingfisher	42	Swainson's Thrush	1798
Pacific Loon	5	Ring-necked Pheasant	6	Red-breasted Sapsucker	122	Hermit Thrush	873
Common Loon	11	Ruffed Grouse	13	Downy Woodpecker	2	American Robin	1182
Horned Grebe	8	Spruce Grouse	2	Hairy Woodpecker	12	Varied Thrush	1131
Red-necked Grebe	38	Willow Ptarmigan	33	unid. Woodpecker	2	Yellow Wagtail	39
Double-crested Cormorant	3	Blue Grouse	21	American Three-toed Woodpecker	10	American Pipit	45
Great Blue Heron	11	Sandhill Crane	57	Black-backed Woodpecker	1	Bohemian Waxwing	45
Greater White-fronted Goose	55	American Golden-Plover	5	Red-shafted Flicker	4	Cedar Waxwing	22
Canada Goose	271	Pacific Golden-Plover	1	Yellow-shafted Flicker	19	Orange-crowned Warbler	1328
Trumpeter Swan	10	Semipalmated Plover	26	Olive-sided Flycatcher	103	Yellow Warbler	444
Tundra Swan	34	Greater Yellowlegs	41	Western Wood-Pewee	12	Yellow-rumped Warbler	930
Gadwall	2	Lesser Yellowlegs	112	Yellow-bellied Flycatcher	1	Townsend's Warbler	326
American Wigeon	172	Solitary Sandpiper	22	Alder Flycatcher	1100	Blackpoll Warbler	243
Mallard	92	Spotted Sandpiper	150	Hammond's Flycatcher	71	Northern Waterthrush	636
Northern Shoveler	8	Upland Sandpiper	3	Pacific-slope Flycatcher	203	MacGillivray's Warbler	6
Northern Pintail	31	Whimbrel	18	Say's Phoebe	3	Common Yellowthroat	66
Green-winged Teal	59	Surfbird	1	Northern Shrike	2	Wilson's Warbler	873
Canvasback	15	Semipalmated Sandpiper	28	Warbling Vireo	1	American Tree Sparrow	546
Ring-necked Duck	13	Least Sandpiper	11	Gray Jay	287	Chipping Sparrow	8
Greater Scaup	151	Rock Sandpiper	74	Steller's Jay	111	Savannah Sparrow	668
Lesser Scaup	19	Dunlin	5	Black-billed Magpie	77	Fox Sparrow	972
unid. Scaup	12	Short-billed Dowitcher	2	Northwestern Crow	373	Song Sparrow	57
Harlequin Duck	5	Wilson's Snipe	421	Common Raven	323	Lincoln's Sparrow	312
Surf Scoter	400	Red-necked Phalarope	30	Horned Lark	8	White-crowned Sparrow	1315
White-winged Scoter	102	Parasitic Jaeger	5	Tree Swallow	120	Golden-crowned Sparrow	225
Black Scoter	35	Long-tailed Jaeger	31	Violet-green Swallow	89	Dark-eyed Junco	1,646
Long-tailed Duck	16	Bonaparte's Gull	7	Bank Swallow	338	Lapland Longspur	193
Bufflehead	22	Mew Gull	223	Cliff Swallow	119	Smith's Longspur	2
Common Goldeneye	13	Herring Gull	18	Barn Swallow	10	Red-winged Blackbird	7
Barrow's Goldeneye	17	Glaucous-winged Gull	166	Black-capped Chickadee	83	Rusty Blackbird	22
unid. Goldeneye	2	Glaucous Gull	165	Chestnut-backed Chickadee	187	Pine Grosbeak	18
Common Merganser	98	Black-legged Kittiwake	8	Boreal Chickadee	57	Red Crossbill	98
Red-breasted Merganser	91	unid. Gull	15	Red-breasted Nuthatch	6	White-winged Crossbill	204
Osprey	3	Arctic Tern	33	Brown Creeper	21	Common Redpoll	1319
Bald Eagle	136	Aleutian Tern	1	Winter Wren	439	unid. Redpoll	159
Northern Harrier	4	Marbled Murrelet	51	American Dipper	1	Pine Siskin	806
Sharp-shinned Hawk	1	Rock Pigeon	2	Golden-crowned Kinglet	194		
Northern Goshawk	1	Great Horned Owl	3	Ruby-crowned Kinglet	793		
Red-tailed Hawk	4	Great Gray Owl	1	Arctic Warbler	140		
Rough-legged Hawk	1	Short-eared Owl	1	Bluethroat	1		
Golden Eagle	2	Northern Saw-whet Owl	4	Townsend's Solitaire	9		
American Kestrel	2	Rufous Hummingbird	49	Gray-cheeked Thrush	268		

Table 6. Species with significant ($P \leq 0.15$) trends in avian abundance from 1980 – 2002 calculated from the North American Breeding Bird Survey (BBS) in Alaska. For more information on these and other population trends see Sauer et al. 2003 (http://www.mbr-pwrc.usgs.gov/bbs).

Species	Bird/route†	Trend‡	*P*-value	*n*§
Red-tailed Hawk**	0.11	-6.5	0.14	17
Rusty Blackbird**	0.81	-5.3	0.09	21
Violet-green Swallow*	1.30	-4.4	0.08	35
Solitary Sandpiper*	0.60	-4.1	0.02	20
Fox Sparrow*	1.00	-3.8	0.06	29
Blackpoll Warbler**	5.11	-3.5	0.01	46
Olive-sided Flycatcher**	1.48	-3.3	0.09	49
Golden-crowned Kinglet**	4.59	-3.2	0.15	29
Lesser Yellowlegs*	2.60	-2.8	0.06	37
White-crowned Sparrow***	28.22	-2.0	0.00	68
Hermit Thrush**	5.68	-1.9	0.12	62
Winter Wren*	16.67	-1.8	0.08	20
American Robin***	19.34	1.9	0.04	87
Wilson's Snipe*	9.28	2.1	0.03	76
Gray Jay**	5.27	2.2	0.04	52
Northern Waterthrush*	11.44	3.0	0.03	59
Yellow-rumped Warbler*	13.92	3.1	0.01	71
Black-billed Magpie*	0.86	3.5	0.08	24
Chestnut-backed Chickadee*	7.30	4.3	0.01	18
Bald Eagle*	1.07	4.3	0.02	41
Northwestern Crow*	14.03	4.3	0.11	20
Greater Yellowlegs*	1.17	4.8	0.05	35
Red Crossbill**	6.49	7.1	0.01	15
Hairy Woodpecker*	0.45	9.2	0.04	25

† This number is an approximate measure of how many birds are seen on a route in Alaska.

‡ Categories for the credibility of trend estimate are as follows:

* 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).

** 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).

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

§ *n* = number of routes from which the trend is estimated.

Table 7. Top 11 steepest survey-wide declines of all bird species detected on the North American Breeding Bird Survey, 1980-2003. The adjusted estimates take into account the relative precision of the estimated trends, and provide a better ranking of change for the species relative to other species in the group. Species in bold breed regularly in Alaska. From Sauer et al. (2003).

Species	Adjusted trend (% / year)	Number of routes	Unadjusted trend	P-value
Lesser Yellowlegs	**-9.0**	**28**	**-19.5**	**0.0001**
Blackpoll Warbler	**-8.3**	**54**	**-10.1**	**0.0000**
King Rail	-8.0	29	-8.7	0.0000
Rusty Blackbird	**-7.5**	**58**	**-9.9**	**0.0000**
Evening Grosbeak	-4.9	589	-5.3	0.0000
Purple Gallinule	-4.5	16	-8.2	0.0356
Red-headed Woodpecker	-4.4	1122	-4.5	0.0000
Great Black-backed Gull	-4.3	79	-4.8	0.0003
Northern Bobwhite	-4.1	1411	-4.1	0.0000
Horned Grebe	**-4.0**	**68**	**-4.8**	**0.0063**
Short-eared Owl	**-3.9**	**116**	**-4.9**	**0.0109**

Alaska Landbird Monitoring Survey and Alaska Off-road Breeding Bird Survey, 2003

Melissa Cady and Colleen Handel, *USGS – Alaska Science Center*

Boreal Partners in Flight (BPIF) established the Alaska Off-road Breeding Bird Survey (AORBBS) in 1992 to develop protocols 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 (http://www.absc.usgs.gov/research/bpif/meetings.html). The revised program, ALMS, developed from these discussions was adopted by BPIF. The recommended protocols for ALMS were tested in summer of 2003 on a pilot basis. Details of the initial study design of ALMS can be found in the 2002 BPIF annual report on the same website.

Summary of ALMS activities in 2003.—The first year of testing the sampling protocols for ALMS was a great success, given the pilot nature of the efforts. Five land management agencies used the protocols in 2003: Yukon Delta National Wildlife Refuge, Kanuti National Wildlife Refuge, Kenai National Wildlife Refuge, Chugach National Forest, and Tongass National Forest. The 2003 goal for initial pilot program was to sample at least 5 blocks for each Bird Conservation Region (BCR) using the new sampling design. BPIF cooperators sampled eight blocks in BCR 5, four blocks in BCR 4, and three blocks in BCR 2. In total, cooperators surveyed 15 blocks; they conducted bird surveys at 289 points within these blocks and collected vegetation data collection at 209 of these points. One hundred three species were detected, totaling 4252 individual birds. Preliminary analyses of the data collected in 2003 are underway by USGS Alaska Science Center.

BPIF participants discussed challenges and potential improvements to the ALMS program at the annual meeting in Anchorage (10–11 Dec 2003). The biggest challenge to field implementation of the program was site access. Many sites selected for sampling in 2003 were not accessible and had to be discarded. For some, lack of accessibility was impossible to determine prior to a site visit. Participants also experienced difficulty in the following:

1) Navigating to prescribed points within a block;
2) Determining whether points within a block should be spaced at 250-m vs. 500-m intervals;
3) Estimating distance to detected birds; and
4) Recording all birds in correct time interval, especially within the first time interval at busy sites.

Funding and costs were also identified as potential barriers to implementation of the program. Initial estimates of implementing the program were $3000/block ($120/point) for field expenses. Cost estimates provided by pilot year participants ranged from $1000 to > $3000 per block including preparation time, field costs, and data manipulation (Table 8), but not all participants recorded expenses in a consistent manner. In general, pilot-year participants agreed that costs for running ALMS will be greater than those of the using the previous protocols for the AORBBS due to the expense of accessing random sites.

Table 8. Summary of estimated ALMS expenses accrued in 2003.

BCR	Land Unit	Cost/Block	Cost/Point	Blocks Completed	Total # of Points
2	Yukon Delta NWR	$3001	$123	3	71
4	Kenai NWR	$7000	$280	1	25
	Kanuti NWR	$3350	$138	3	73
5[1]	Chugach NF	$6635	$450	3	46
	Tongass NF	$6635	$450	5	74

[1] Cost estimates for BCR 5 based on 3 sites, 1 from Chugach National Forest, 2 from Tongass National Forest.

Participants from the National Forests, Refuges, USGS, USFWS, and State of Alaska formed an interagency Habitat Committee at the 2003 BPIF annual meeting in Anchorage. Program goals and methods are currently being reviewed by the Committee, which will make recommendations regarding the revision and implementation of the habitat data protocols. Preliminary objectives for the use of such habitat data are to:

1) Determine if population trends are related to changes in habitat;
2) Develop habitat models so that we can predict bird distribution based on what habitat occurs in different areas of the state; and
3) Guide land managers in decisions that may affect landbird populations.

Other suggestions at recent BPIF meetings for the improvement of the ALMS program include the following:

1) Developing an interagency steering committee to guide implementation of the program;
2) Securing funding for training and field work;
3) Developing a standard program to train observers in field methods and data collection; and
4) Determining logistical and financial constraints to site access and adjusting sampling accordingly.

If you are interested in participating in the ALMS program please contact Colleen Handel at 786-3418, colleen_handel@usgs.gov, or Melissa Cady at 786-3981, mcady@usgs.gov.

Summary of AORBBS Activities in 2003; routes run using the old protocols.—Four cooperators conducted AORBBS routes in 2003 using the previous field sampling protocols (Table 9). They detected 92 species on 17 routes, with a total of 3024 birds detected. Preliminary analyses of count data and habitat variables are currently underway. Results of these analyses will be used to revise habitat protocols for the ALMS program.

Table 9. Summary of ORBBS routes conducted in 2003.

Land Unit	Route Name	Route Number	Date	Number of Points
Izembek NWR	Grant Point	359	6/19/2003	12
Izembek NWR	Outer Marker	358	6/22/2003	12
Izembek NWR	Frosty	361	6/24/2003	12
Alaska Maritime NWR	Kasatochi Island	331	6/7/2003	12
Alaska Maritime NWR	Buldir Island	315	6/14/2003	12
Alaska Maritime NWR	St. George Island	312	6/11/2003	12
Alaska Maritime NWR	St. Paul Island	313	6/18/2003	12
Tetlin NWR	Chisana River	435	6/10/2003	12
Tetlin NWR	Ten Mile Hill	430	6/11/2003	14
Tetlin NWR	Hidden Lake	434	6/11/2003	12
Tetlin NWR	Mt. Fairplay	518	6/17/2003	12
Tetlin NWR	Deeper Lake	429	6/18/2003	12
Tetlin NWR	Fish Camp Lake	433	6/19/2003	14
Tetlin NWR	Northway Road	431	6/30/2003	28
Innoko NWR	Cabin Bog	405	6/16/2003	12
Innoko NWR	Half-Way Hill	406	6/17/2003	12
Innoko NWR	River Lowland	451	6/14/2003	12

Recommendations for 2004.—We encourage all collaborators to participate in the ALMS program if you can, but recommend you continue to run established AORBBS routes if logistical costs prevent participation in ALMS at this time. Colleen Handel and John Sauer are conducting a joint analysis of off-road and roadside BBS data collected in Alaska during the past decade to determine (1) if similar population trends occur in off-road and roadside areas and (2) how much power is increased to determine population trends by analyzing datasets jointly. Routes that will be included in this joint analysis will only be those that have been run for a minimum of three years by a single observer. If you have surveyed an AORBBS route for at least two years, we strongly encourage you to replicate the route during summer 2004 so that we can increase the sample sizes for this analysis.

Effects of forested buffer width on breeding bird communities in coastal forests of southeast Alaska with a comparison of avian sampling techniques

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The following is a thesis abstract (Kissling 2003).

Forested buffer strips are used to mitigate fragmentation and habitat loss, which can strongly influence bird communities and distribution. In forested landscapes, buffers are used to reduce the impacts of timber harvesting on forest-dwelling species by not only minimizing the effects of fragmentation, but also providing habitat. However, the characteristics of the buffer must be biologically meaningful to the forest-dwelling species that are intended to use them; otherwise, they might offer unsuitable habitat, and therefore further habitat loss. I evaluated bird composition and abundance in four buffer widths of coastal temperate rainforest in Southeast Alaska during 2001 and 2002 breeding seasons. The primary objective of my study was to compare bird composition and density among forested buffer strips of differing widths ($\leq$152 m, 153-304 m, 305-550 m, and control [continuous old-growth forest]) (n=38). My secondary objective was to compare and refine survey techniques typically used to estimate densities of landbirds.

Standard point counts are the most common method used for estimating abundance of birds, but typical analysis methods fail to account for detection probability differences between observers and other factors influencing detectability. I adapted a technique that combines distance sampling and double sampling to allow for estimation of detection probabilities. I applied this method to point count surveys conducted in Southeast Alaska. I compare results from four analysis methods: Single Observer fixed radius plots, Single Observer variable circular plots (SOVCP), Double Observer fixed radius plots, and Paired Observer variable circular plots (POVCP). Prior to adjustment for detectability bias, detection probabilities at the plot center for single observers varied among observers (n=7) for all species: 0.83 – 0.99 for Winter Wren (*Troglodytes troglodytes*), 0.71 – 1.00 for Townsend's Warbler (*Dendroica townsendi*), 0.80 – 0.98 for Pacific-slope Flycatcher (*Empidonax difficilis*), 0.61 – 1.00 for Hermit Thrush (*Catharus guttatus*), and 0.67 – 1.00 for Golden-crowned Kinglet (*Regulus satrapa*). Average detection probabilities for paired observers increased approximately 11% for all species. Standard deviation estimates using POVCP for all five species were less than 0.13 males per hectare. Failure to account for differences in detection probabilities results in biased population estimates which can be substantially below true densities.

After calculating the least biased density estimates for landbirds using the POVCP method, I evaluated buffer effect with hypothesis-based and model-based analyses. I classified 8 species as forest-dwelling birds, 6 species as ubiquitous birds, and 3 species as open-canopy birds. Densities of Red-breasted Sapsuckers (*Sphyrapicus ruber*; P=0.02), Pacific-slope Flycatchers (P=0.05), and Ruby-crowned Kinglets (*Regulus calendula*; P<0.01) differed significantly among treatment levels (n=4) using hypothesis-based testing. Multiple comparison results suggested buffers ≥304 m in width to maximize densities of Red-breasted Sapsuckers and Pacific-slope Flycatchers. Ruby-crowned Kinglet density was highest in buffers ≤152 m and decreased as buffer width increased, suggesting that this species benefits from increased edge to interior ratio. Model-based methods suggested that densities of three species (Red-breasted Sapsucker, Pacific-slope Flycatcher, and Hermit Thrush) were positively related to buffer width and density of one species (Ruby-crowned Kinglet) was negatively associated with buffer width. Buffer width effects were consistent at the stand and landscape level for all species. Densities of Red-breasted Sapsucker and Hermit Thrush likely reach a fragmentation threshold at the landscape level when densities begin to decline and wide forested buffers become increasingly important features on the landscape. Buffer width was the single best predictor of Pacific-slope Flycatcher density at the stand and landscape level. I recommend retaining forested beach buffers >305 m to support composition and abundance of forest-dwelling birds, particularly for those species that rely on interior forest conditions.

Developing a long-term ecological monitoring program to detect changes in the distribution and abundance of passerines in Denali National Park and Preserve, Alaska

Carol McIntyre , *Denali National Park and Preserve*; Karen Oakley, *USGS-Alaska Science Center*; Ed Debevec, *Institute of Arctic Biology, University of Alaska, Fairbanks*; and Kevin Hannah, *Alaska Bird Observatory*

At least 119 species of birds breed in Denali National Park and Preserve, Alaska (Denali) (McIntyre 2002). Many bird monitoring programs in Denali have focused on monitoring the population trends of individual species across time (McIntyre 2002). While this approach is important for species designated as species of conservation concern, we do not yet have systematic information about the abundance and distribution of birds throughout Denali. Like many federal land units in Alaska, Denali contains millions of acres of relatively pristine habitat for many species of birds. Yet, like many federal land units in Alaska, we know little about the distribution and abundance of birds in these landscapes. Further, Denali's managers continually need information on wildlife and wildlife habitat in response to increasing pressures to develop more visitor services or to protect existing wilderness areas from future impacts. To ensure that Denali's managers have the information they need to protect birds and their habitats, we are currently developing an Avian Conservation Plan for Denali (McIntyre 2002).

Of all the species of birds that breed in Denali, passerines (or perching birds) are the most numerous. However, much of what we know about passerines in Denali is limited to areas within 4 km of the Denali park road. One component of the Denali Avian Conservation Plan is to assess the changes in the spatial and temporal distribution of passerines in Denali. The passerine monitoring effort is being developed as part of a larger effort to monitor ecological change in Denali at the landscape scale. This larger effort includes measurement of vegetative and soils characteristics. The passerine monitoring effort is the first faunal component in the landscape scale ecological monitoring program.

Introduction to Denali Minigrid Pilot Project.—Our goal is to describe, and detect changes, in the spatial and temporal abundance and distribution of passerines in Denali, in conjunction with changes in general ecological conditions. To make inferences at a parkwide scale, we developed a multistage, cluster sampling design termed the "minigrid sampling design" (Roland et al. 2003) following recommendations made by McDonald et al. (1998). The minigrid sampling design consists of a macro-grid of points spaced at 20-km apart across Denali and 10-km apart in the Toklat Basin. A cluster of 25 sampling points spaced 500-m apart and arranged in a square minigrid panel is anchored to each of the macro-grids points. The minigrid design allows us to sample the range of variation in physical and biological parameters that exists along ecological gradients in Denali.

In 2001 we began a pilot study to assess the feasibility of monitoring the abundance and distribution of passerines in Denali using the minigrid sampling design. The study area for the pilot project was the northeastern portion of Denali. Each year, we visited the same minigrids and sampling points as the vegetation crews, thus providing us with a wealth of information on the environmental attributes of each sampling point (Roland et al. 2003). The primary objectives of our pilot project are:

1. Assess the feasibility of sampling passerines at a parkwide scale using the minigrid sampling design.
2. Determine the sampling interval for detecting changes in the spatial and temporal distribution and relative abundance of passerines; and,
3. Assess the variation surrounding estimates of abundance and diversity.

Because the minigrid design is based on a landscape approach, it provides us with opportunities to develop distribution maps for many species of passerines in Denali. Perhaps one of the most exciting aspects of integrating the passerine monitoring with the vegetation monitoring using the minigrid sampling design is the opportunity to develop and test hypotheses regarding the distribution and abundance of passerines in relation to vegetation structure and composition and other environmental attributes. For instance, different species exhibit affinities for specific habitats, while others are more general in the habitat associations. Examining changes in the structure of bird communities in relation to changes in vegetation structure and composition provides us with a unique opportunity to examine ecological patterns and processes in Denali.

Overview of Field Methods.—Training. In 2002 and 2003, all field crew members, regardless of their experience, completed a two-week training course on identifying birds by sight and sound, and distance sampling in late May immediately before the field season. The training was developed and implemented by the Alaska Bird Observatory. Field crew members also completed the following training before the field season: (1) using map, compass, and handheld Global Position System (GPS) units for navigating and marking sampling points, (2) using handheld laser range finders to check distance estimates, (3) backcountry first aid techniques, (4) leave-no-trace camping techniques, (5) bear safety, and (6) US Department of Interior aircraft safety.

Field Procedures. Before starting field work, we studied the topography of each minigrid and distribution of sampling points using maps and aerial photographs to decide where to place a spike camp and identify routes to each sampling point. When we traveled to remote minigrids by helicopter, we usually scoped out the area from the air before landing and establishing a camp. We usually established camps outside the minigrids, often near (but > 200m from) a water source. We used leave-no-trace camping techniques when establishing each spike camp. We usually set up camp on gravel bars and in areas away from fragile vegetation.

Sampling Birds. We used variable circle plots with unlimited distance estimation to sample birds on minigrids. Each minigrid consists of 25 sampling points, spaced 500-m apart. The 500-m spacing is advantageous for minimizing the probability of detecting the same individual bird at multiple points. We surveyed as many points as possible during the seven-hour survey period, 0230 to 0930, each day from about 4 June through 28 June.

In 2001 and 2002, we used 8-min point counts (with 0-5 and 5-8 min intervals) at each sampling point. In 2003, we used 10-min point counts (with 0-3, 3-5, 5-8, and 8-10 min intervals) at each sampling point to correspond with the protocols for the Alaska Landbird Monitoring Survey (ALMS) currently being developed by the USGS. At each sample point, we recorded distances to all birds seen or heard during the count period. Distances were recorded in 10-m intervals out to 100-m, in 25-m intervals from 100 to 150 m, and as >150 m. We also recorded all birds observed (heard and seen) while traveling between sampling points. We used a series of standardized codes to record each detection and recorded all data on standardized data sheets. We regularly rotated surveyors on minigrids to minimize observer bias. The surveyor used binoculars to aid with finding birds and a laser range finder to estimate distance to individual birds.

At each sampling point, we also recorded a series of environmental data including: background noise, temperature, wind speed, sky conditions (cloud cover), precipitation, insect harassment level, aspect, and slope. Elevation and other environmental data including vegetation structure and composition were obtained from the vegetation monitoring database.

Data Management. Doug Wilder, the database manager for the National Park Service's Central Alaska Monitoring Network, designed a relational database for our point count data in Microsoft Access. The database structure is modeled after the database developed for the bird inventory conducted in Yukon-Charley Rivers National Preserve. The database is linked to the Denali vegetation monitoring database.

A Few Insights on Field Procedures.—One of the objectives of our pilot study was to determine the logistical feasibility of using point counts on the minigrid sampling design. Basically, we needed to know if we could access all the sampling points on the minigrids within a reasonable period. We accessed and sampled at 314 of the possible 350 (89.7%) points on 14 minigrids. We sampled all 25 points on 10 minigrids. The primary factor affecting accessibility was steep terrain; some points are simply not accessible on foot. Injury of one field member also cut-short the sampling period at one minigrid.

Because the period for sampling passerines in interior Alaska is confined to a relatively narrow window, we are experimenting with different schemes to sample a minigrid. In 2002, we deployed a single two-person crew to sample a minigrid, with three teams simultaneously sampling different minigrids across the sampling season. In 2003, we deployed two two-person crews to sample a minigrid, with each crew sampling different points until all the points were sampled. Our results suggest that, given our financial constraints, the latter was apparently the most efficient way to sample an entire minigrid because it reduced the number of days spent at each grid, ensured that all accessible points on each grid were sampled, and provided safety-in-numbers in the backcountry. It also simplified logistics when using aircraft to deploy crews to remote minigrids.

Sampling 25 points on a grid required a minimum of two days, even with two-sampling crews on the grid. The number of points that a crew can sample in a day depends on topography, weather, and other factors including presence of grizzly bears and river/stream crossings. For helicopter-accessible grids, we usually scheduled in enough time to account for at least one day of bad weather – moving crews every four days. However, during periods of good sampling weather, this resulted in the loss of sampling days when crews were stranded at completed minigrids.

Based on these preliminary results, we believe that it is logistically feasible to use the minigrid sampling design for conducting point counts. However, we are still assessing the overall feasibility of using such an approach for detecting change in the distribution and abundance of passerines in Denali (see final section of this report).

An Emerging Picture of Landbirds in the Denali Landscape.—We have sampled 14 minigrids in the northeastern section of Denali and are getting our first picture of overall patterns of passerine distribution and abundance based on this systematic sampling approach. In just a three-year sampling window, we considerably expanded our knowledge about the distribution of passerines in Denali.

The number of individuals detected on a minigrid ranged from 43 to 389 (mean = 229, 95% CI = 182-276). Most of our detections (79.1%) were of singing birds and were made within the first 5 minutes of the count (79.4%). We detected 52 species of birds and species richness ranged from 11 to 25 species per minigrid (mean = 18, 95% CI = 16.1-20.2). Minigrids with the highest species richness usually encompassed the greatest diversity of elevation, vegetation communities, and vegetation structure. Three species, Wilson's Warbler, White-crowned Sparrow, and Redpoll sp. were detected on all minigrids. Fifteen species were detected on only one grid.

The frequency of occurrence of individual species varied across minigrids. Seventeen species had an average frequency of occurrence >0.10 including Gray Jay, American Robin, Varied Thrush, Swainson's Thrush, Gray-checked Thrush, Hermit Thrush, American Pipit, Orange-crowned Warbler, Yellow-rumped Warbler, Wilson's Warbler, American Tree Sparrow, Savannah Sparrow, White-crowned Sparrow, Fox Sparrow, Lincoln's Sparrow, Dark-eyed Junco, and Redpoll spp.

Overall, White-crowned Sparrow was the most commonly detected species on our point counts. White-crowned Sparrow had a frequency of occurrence >0.80 on 10 minigrids, including a frequency of occurrence of 1.00 on three grids. These grids were dominated by low-shrubs. The frequency of occurrence of White-crowned Sparrows was noticeably lower on the four minigrids that were dominated by either dwarf shrub alpine vegetation or closed-canopy black spruce forests. American Pipit was the dominant species, by frequency of occurrence, for minigrids dominated by dwarf shrub alpine vegetation. Yellow-rumped Warbler was the dominant species, by frequency of occurrence, for the single minigrid dominated by closed-canopy black spruce forest.

We've also gained informative data on the distribution of several species of conservation concern including Olive-sided Flycatcher, Arctic Warbler, and Blackpoll Warbler. Although these surveys are not targeted for non-passerines, we are also gaining information about the presence and distribution of other birds in Denali including nesting shorebirds such as Baird's Sandpiper, Surfbird, and Upland Sandpiper.

Plans for 2004 and 2005.—Our field activities in 2004 will focus on collecting data to address several questions as we develop the monitoring protocol for this project including:

1. We expect that bird species diversity and abundance measured using point counts will vary from year to year. What are the sources and what is the magnitude of interannual variation?

2. How does detectibility vary within the daily sampling period (0230 – 0930) and across the yearly sampling period (June)?
3. What are the sources of measurement error and how can we minimize measurement error?
4. Will replicating counts within years minimize standard errors of our abundance estimates?
5. How many sampling points must we survey each year or each sampling interval to detect change in abundance, distribution, and species composition?
6. Are we conducting surveys at the right time of the breeding season to maximize detectibility for most species of passerines? Should we conduct surveys for alpine nesting birds earlier in the season?
7. We need to better understand the role of the detection probabilities if we are to draw inferences from the point counts about the abundance and distribution of passerines in Denali. How much do detection probabilities vary across habitats and among years?
8. What are the sources of variation in distance estimation and how do they affect detection functions and estimates of abundance? How does topography influence estimating distances? How can we minimize variation associated with distance estimation?

We plan to conduct field work on several minigrids in 2004 and 2005 to address these questions. We will continue to work with historic datasets to address issues of power to detect trends and changes in detection rates across the sampling period. Questions about this project should be addressed to Carol McIntyre (Carol_McIntyre@nps.gov).

Distribution, abundance, and habitat associations of birds along major mainland rivers of southeastern Alaska

Jim Johnson, *U.S. Fish and Wildlife Service, Migratory Bird Management*

The following is an abstract from a manuscript currently in review. Johnson, J.A., B.A. Andres, J.A. Bissonette *In review.* Distribution, abundance, and habitat associations of birds along major mainland rivers of southeastern Alaska. U.S. Dept. of Agriculture, Forest Service, Gen. Tech. Rep. #.

Riparian areas throughout North America support diverse assemblages of breeding birds. We synthesized information on the composition, structure, and habitat relationships of bird communities recorded during the breeding season at 11 major mainland rivers in southeastern Alaska. These major mainland rivers are classified as two types: 1) those that transect the coastal mountains to connect the ecologically distinct regions of southeastern Alaska and the Canadian interior (trans-mountain), and 2) those rivers with watersheds limited to the coastal mountains (coastal). Both types of rivers contain a heterogeneous mixture of highly diverse and productive avian habitats; deciduous plant communities in riparian zones that are the most structurally and floristically complex deciduous habitats in Alaska.

A total of 184 bird species were recorded at these rivers. Of these, 134 species were known or suspected breeders, which constituted 50% of the total breeding avifauna for Alaska and 80% of the total breeding avifauna of southeastern Alaska. Bird use of the major mainland rivers is highly seasonal. Major mainland rivers not only support a diverse breeding avifauna but are also migratory corridors and staging areas for large numbers of landbirds, waterfowl, seabirds, and shorebirds. The complex mosaic of habitat types at the major mainland rivers support a unique avifauna not found elsewhere in Alaska.

Although the major mainland rivers of southeastern Alaska are among the most intact riparian zones in the U. S., road-building, mining, hydroelectric power development, and timber harvest threaten these systems. To successfully maintain the integrity of these riverine landscapes, careful monitoring of land use and periodic assessment of bird populations are needed.

Waterbird and breeding landbird inventories at Klondike Gold Rush National Historical Park

Meg Hahr, *National Park Service—Klondike Gold Rush National Historical Park*

Funding from the National Park Service Inventory & Monitoring Initiative was used to carry out park-wide waterbird and breeding landbird inventories in 2003. USGS-BRD Alaska Science Center research ecologist Colleen Handel assisted the NPS by designing the breeding landbird inventory survey protocol. Two established Off-Road Breeding Birds Survey routes consisting of 24 survey points were incorporated into the inventory (conducted by USF&WS biologist Deb Rudis). An additional 36 points were added so that the survey points would be distributed across the park's strong elevational and ecological gradient. All 7 of the park's primary plant associations were sampled, and survey points ranged from sea level to 4000 feet elevation. Waterbird surveys were conducted intensively in the spring and at approximately 2-3 week intervals in the summer and fall. Results from both inventories are still being analyzed, but preliminary findings indicate that at least 107 species of birds were observed. The status of some expected species has been confirmed, and one new species has been added to the park list – dunlin (Calidris alpine). Considerable numbers of waterbirds were observed in spring, indicating the importance of the Taiya River estuary as a stop-over and/or staging area for these migratory birds. A revised bird checklist and atlas database are being developed for the Taiya and Skagway River watersheds in collaboration with the Skagway Bird Club. Results of this study will also be used to develop a strategy for long-term monitoring of landbird and waterbird population trends in the Upper Taiya Inlet as part of the NPS Vital Signs Monitoring program.

BIRD CONSERVATION

Species at Risk! A Poster Series for the 10th Alaska Bird Conference

To present our concerns for our highest priority species, members of Boreal Partners in Flight developed a series of posters for the Alaska Bird Conference that summarized information on the species in urgent need of research to identify threats to populations, determine causes for long-term declines, and develop conservation actions to reverse these trends. The abstracts from these posters are included below.

Species at Risk! – Solitary Sandpiper (*Tringa solitaria*)

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Among North American shorebirds, the Solitary Sandpiper (*Tringa solitaria*) is the only tree-nesting species, laying its eggs in the old nests of boreal forest songbirds. Beyond anecdotal accounts of this unique behavior, however, the breeding biology of this species is virtually unknown. Despite having one of the largest breeding ranges of any North American sandpiper, the current continental population is estimated to be only 25,000 individuals. The estimated population size of the Alaska-breeding race, *T. s. cinnamomea*, is only 4,000 individuals. The quality of these estimates, however, is quite poor. Breeding Bird Survey (BBS) data from Alaska since 1980 reveal a population decline of 4.1%/year (P = 0.02, N = 20 routes), suggesting that the Alaskan population today is only a third as large as it was a quarter century ago. Although not statistically significant, a comparable rate of decline has been estimated from Canadian BBS data since 1966. Because of the rapid rate of decline in Alaska (and perhaps Canada), comparable declines in co-occurring species, the extremely small population estimate for *T. s. cinnamomea* , and uncertainty about the accuracy of these estimates, the Solitary Sandpiper has been identified by Boreal

Partners in Flight as a species of high conservation concern. High priority conservation actions include: a) generating a more detailed synthesis of survey results to date, b) developing an adequate survey methodology for generating accurate and precise population estimates, c) identifying and protecting those sites and habitats where the species does congregate during migration, d) determining the regions and habitats preferred by this species in its Neotropical wintering grounds, and e) identifying and, if possible, reversing the factors contributing to the species' decline in Alaska.

Species at Risk! – Olive-sided Flycatcher (*Contopus cooperi*)

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Throughout its broad breeding range extending across North America's boreal forest and the west's montane forests, the Olive-sided Flycatcher is listed by state, provincial and federal agencies as a species of conservation concern. Widely recognized as a characteristic bird of the coniferous forest, this conspicuous species has exhibited significant and consistent declines in abundance over time and space. North American Breeding Bird Survey trend results range from –3.42 to –3.80% per year ($p<0.00002$) for Survey-wide, Canada, and USA areas, for both 1966-2002 and 1980-2002 periods. In Alaska, BBS trends (-3.3% per year, $p=0.09$, 49 routes, 1980-2002) are very similar. Declines of 3.5% per year equate to a 54% decline over 22 years (1980-2002) and 72% since the start of the BBS in 1966. Alaska is a very important part of its breeding range, supporting close to 25% of the estimated global population of 4,700,000. Like most passerines, few studies have been conducted during the breeding season; and like most Neotropical-wintering migrants, even less work has been done in winter or migration. In light of the consistently high level of decline throughout its breeding range, including pristine as well as heavily logged forests, initial concern -- though no research -- has focused on its wintering range. Its primary wintering habitat in mature evergreen forests of low-mid elevation in the Northern and Central Andes is one of the most heavily altered habitats in South America. Andean valleys are almost completely deforested, and 85% or more of montane forests have been cut. Contaminants are also a potential threat to this insectivore that preys on large flying insects. In Alaska, more information needs to be gathered in the Northern Pacific Rainforest BCR and in riparian forests within the NW Interior Forest BCR.

Species at Risk! – Blackpoll Warbler (*Dendroica striata*)

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Although widespread across the Boreal region of Canada, ne. U.S., and Alaska, the Blackpoll Warbler (*Dendroica striata*) has been listed as a species of high conservation concern by Boreal Partners in Flight and the Canadian Wildlife Service as a result of persistent population declines throughout its breeding range. Data from the North American Breeding Bird Survey indicate this species has suffered the steepest long-term decline of any Neotropical-Nearctic migrant landbird with populations diminished since 1980 by 54% and 90% across breeding ranges in Alaska and Canada respectively. Effective conservation of any species requires an understanding of population dynamics, habitat requirements, and threats throughout its annual cycle. The Blackpoll Warbler has been poorly studied throughout its range thus much of this basic information is not readily available, particularly in Alaska. As a first step towards addressing the conservation of Alaska's species of highest conservation concern, this poster summarizes information on the ecology, abundance, threats, and short- and long-term population trends of the Blackpoll Warbler. In addition, the key research priorities for this species that must be addressed by Alaska's scientific and academic communities are identified.

Species at Risk! – Smith's Longspur (*Calcarius pictus*)

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As one of the least known North American birds with a restricted range and population size, Smith's Longspur (*Calcarius pictus*) has been listed as a species of high conservation concern by Boreal Partners in Flight and the Canadian Wildlife Service. Data from the North American Breeding Bird Survey are to scarce to produce any population trend information for this species. Effective conservation of any species requires an understanding of population dynamics, habitat requirements, and threats throughout its annual cycle. The Smith's Longspur has been poorly studied throughout its range thus much of this basic information is not readily available, particularly in Alaska. As a first step towards addressing the conservation of Alaska's species of highest conservation concern, this poster summarizes information on the ecology, abundance, threats, and population trends of the Smith's Longspur. In addition, the key research priorities for this species that must be addressed by Alaska's scientific and academic communities are identified.

Species at Risk! – Rusty Blackbird (*Euphagus carolinus*)

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The Rusty Blackbird is the least well known of the North American blackbirds, as no definitive studies have been conducted on this species to date. Breeding north to treeline, this species is uncommon and local in wet forests, bogs, and swamps in Alaska, Canada, and the northeastern United States. Recent estimates suggest that Rusty Blackbird populations have declined by as much as 90% in recent decades. Survey-wide Breeding Bird Survey (BBS) data suggest annual declines of approximately -10.7%/yr between 1966–2002, showing one of the steepest population declines among species surveyed by the BBS. In Alaska, the BBS is clearly insufficient for monitoring this species, largely due to the inaccessibility of much of this species' breeding range in the state. The Rusty Blackbird was selected by Boreal Partners in Flight as a candidate for future research in Alaska, and is currently a candidate for Partners in Flight Watch List status across the continent. As a first step towards addressing the conservation of Alaska's priority bird species, this poster summarizes information on the ecology, distribution, abundance, and limiting factors for the Rusty Blackbird. In addition, the key research priorities for this species in Alaska are identified.

Aleutian and Bering Sea Islands (BCR 1) and Western Alaska (BCR 2)

Rob MacDonald, *U.S. Fish and Wildlife Service, Togiak National Wildlife Refuge*

Update from Togiak National Wildlife Refuge.—Bird monitoring that occurred on the Togiak National Wildlife Refuge and the Dillingham area during 2003 were: Christmas Bird Count; Great Backyard Bird Count; Owl Surveys; 2 North American Migration Counts; World Bird Count; 4 Breeding Bird Surveys; a Checklist from a seasonal field camp; Togiak Refuge staff and Dillingham residents recorded spring migrants in the Dillingham area; Project Feeder Watch; and other birds of interest observed in the Dillingham area were recorded. Three other bird monitoring projects conducted in 2003 on the Togiak Refuge are: 1) the annual population and productivity of cliff-nesting seabirds at Cape Peirce; 2) occupancy and productivity of nesting bald eagles; and 3) harlequin duck breeding pair surveys.

On the Environmental Education front, the Bristol Bay Field Notes show I produce continued for another year. The show has been running non-stop since March 2000. Each individual show runs three times a week and a new show airs each week. Between March 2000 and March 2004, I produced 188 Bristol Bay Field Notes shows, with 74 separate shows about bird topics. All shows are archived on CD. The

Dillingham AM radio station, KDLG, serves 45 Alaskan villages, approximately 16,000 residents, and a listening area of 64,200 square miles, roughly the size of Ohio. This is accomplished by their use of repeaters and translators. The popularity of Bristol Bay Field Notes is shown by the radio station's listeners' surveys. For the 2000 survey, the show ranked as the third overall favorite feature, while in the 2001 and 2002 surveys, Bristol Bay Field Notes ranked as the first overall favorite feature. The survey for 2003 was different and we were not able to determine a formal ranking. However, it is still strongly received by the listening public out here. Bristol Bay Field Notes has been a success in southwest Alaska and I look forward to keeping the show airing for a long time. I have always been impressed by similar nationwide radio shows such as The Nature of Things and The 90-Second Naturalist and am honored to be producing Bristol Bay Field Notes for KDLG.

St. Matthew and Hall islands.—The USGS, Alaska Science Center and U.S. Fish and Wildlife (Alaska Maritime Refuge and Migratory Bird Management) conducted a study to determine habitat use and population size of McKay's Bunting (*Plectrophenax hyperboreus*) and Pribilof Rock Sandpipers (*Calidris ptilocnemis ptilocnemis*) breeding on St. Matthew and Hall islands. The entire world's breeding population of McKay's Buntings breeds on the islands while the Pribilof Rock Sandpiper also breeds on the Pribilof Islands. A preliminary population estimate for McKay's Buntings, the lone endemic landbird in Alaska, suggested that 36,039 individuals bred on the islands in 2003 (95% confidence interval 30,186 to 43,027 birds). This first estimate of population size for the species is substantially more than the 2,800 to 6,000 previously speculated to make up the world's population (Lyon and Montgomerie 1995). Further analysis of the data on McKay's Bunting will provide both a more reliable and precise population estimate as well a description of habitats used during breeding.

Arctic Plain and Mountains (BCR 3)

Debbie Nigro, *Bureau of Land Mangement* and Steve Kendall, *U.S. Fish and Wildlife Service—Arctic National Wildlife Refuge*

<u>Work completed in 2003</u>

- 2 BBS routes conducted along Dalton Highway by BLM.
- Raptor surveys conducted along Colville and Kongakut Rivers
- Shorebird camp at Canning River continuing—FWS
- Nikki Guldager initiated an inventory of birds breeding along the Killik River riparian cooridor
  - This was a pilot inventory in 2003 where 9 point transects (72 points) were surveyed along Killik River in Gates of Arctic National Park and Preserve.
  - Point transects were perpendicular to river and used 8-minute point counts with unlimited distance.
  - Plan on surveying 4 more areas in Summer 2004 along Noatak, Alatna, John, and N. Fork of Koyukuk rivers.

<u>Current issues in National Petroleum Reserve-Alaska</u>

Northwest NPR-A
- IAP/EIS Final out in November 2003
- Record of Decision in January 2004
- Lease sale first half 2004

Alpine Satellite
- Development plan Final EIS due June 2004

Northeast NPR-A
- Amendment Scoping complete. Record of Decision expected December 2004

South NPR-A
- Delayed until Northeast Amendment complete.

<u>Current issues in Arctic Refuge</u>

- New airport at Kaktovik. One alternative is to build on the mainland. The bridge may increase access to the Refuge by 4 wheelers.
- Proposed exploratory oil well in state waters off Camden Bay.
- Potential oil development at Pt. Thomson near the western boundary of the Refuge.

Northwestern Interior Forests (BCR 4)

John Wright, *Alaska Department of Fish and Game*

Distribution and abundance of landbirds in the Tanana Valley State Forest, Alaska.—The Alaska Bird Observatory completed a 2-year study (2002-2003) of birds in white spruce forest and treated and undisturbed aspen forests in the Tanana Valley in a project funded by the Alaska Department of Fish and Game, the Ruffed Grouse Society, and Endangered Species program of U.S. Fish and Wildlife Service. The following is taken from the Executive Summary (Hannah, KC, AR Ajmi and TR Walker. 2003. Distribution and abundance of landbirds in the Tanana Valley State Forest, Alaska 2002-2003. Report prepared by the Alaska Bird Observatory. 37+v pp.)

The goals of the study were 1) to compare the abundance and distribution of breeding passerine birds between a mature undisturbed aspen forest and one treated to enhance habitat for Ruffed Grouse; and 2) to quantify abundance and distribution, and identify habitat preferences of breeding passerines in mature white spruce forests. Points were randomly selected within 3 spruce sites and 2 aspen sites between Fairbanks and Nenana. 426 variable circle points were surveyed in 2002, and 421 points were surveyed in 2003.

5976 individual birds of 57 species were detected at unlimited distance during the 2 years; 4130 in spruce sites and 1846 in aspen sites. In the control aspen site, Dark-eyed Junco (27%), Yellow-rumped Warbler (24%), Swainson's Thrush (9%), Hammond's Flycatcher (8%), and Hermit Thrush (6%) were most frequently detected. In treated aspen, Dark-eyed Junco (21%), Yellow-rumped Warbler (18%), Alder Flycatcher (8%), Swainson's Thrush (8%), and Hammond's Flycatcher (6%) were most frequently detected. In the spruce sites, Swainson's Thrush (18%), Townsend's Warbler (13%), Yellwo-rumped Warbler (12%), and Dark-eyed Junco (12%) were the most frequently detected species. Mean abundance (# individuals per point) was 4.6 in the control aspen site, 5.8 in the treated aspen, 9.9 in the Bonanza Creek white spruce site, 7.8 in the Rosie Creek white spruce site, and 7.2 at the West Site white spruce site.

Differences in species abundance and diversity between the aspen control and treatment sites were not markedly different when comparing data for both years combined. However, in 2002 mean abundance per point was significantly higher in the treatment (6.5) than in the control (3.7), as was diversity (4.1 vs 2.6). In 2003, abundance and diversity were essentially identical in aspen control (5.2;3.3) and treatment (5.2; 3.3) sites.

The bird community in spruce forests had more individuals and greater species diversity than those in aspen sites. Within the spruce forests, both abundance and diversity were highest in older and mature mixed spruce and in mature spruce-dominated forests. Using logistic regression, higher amounts of bare ground, lower forb cover, taller white spruce trees, and steeper slopes characterized points where Townsend's Warblers were present. For the Varied Thrush, taller birch trees, greater moss cover, and steeper slopes characterized points where VATH were present.

Developing an International All-bird Conservation Plan for the Northwestern Interior Forest Bird Conservation Region.—Kevin Hannah (Alaska Bird Observatory), Steve Matsuoka (U.S. Fish and Wildlife Service), Wendy Easton, Wendy Nixon, and Pam Sinclair (Canadian Wildlife Service) developed a proposal to create a conservation plan for BCR 4.

The plan would:

1) assess conservation status of all recognized avian taxa that regularly occur in BCR 4,

2) identify priority species and subspecies for the region,

3) describe habitats used by identified priority species,

4) identify threats to priority species and habitats both within the BCR and in important, areas used outside of the BCR during migration and winter residency,

5) identify specific needs for inventory, monitoring, research, and conservation for birds in the region, and

6) identify best options for implementation.

The proposal was submitted for funding through the State Wildlife Grant program administered by the Nongame Wildlife Program of the Alaska Department of Fish and Game. Decisions on funding should be made in April 2004.

Northwest Pacific Rainforest (BCR 5)

Michelle Kissling, *U.S. Fish and Wildlife Service, Juneau Field Office*

Several personnel changes occurred in 2003 in the Alaska portion of BCR-5. Melissa Cady, formerly of the USFS in Wrangell, accepted a job with USGS in Anchorage. Gene DeGayner, USFS in Petersburg, left Southeast Alaska for another job with USFS in the Midwest. Jim Johnson graduated with a M.S. from Utah State University, and accepted a job with USFWS, Migratory Birds, in Anchorage. I (Michelle Kissling) also graduated with a M.S. from University of Idaho, and am converting into a full-time position with USFWS in Juneau. Matt Kirchhoff, formerly a deer biologist with ADFG, was hired as the Southeast Alaska Non-game Coordinator with ADFG.

<u>2003 Activities</u>
BBS routes –BBS routes were conducted throughout Southeast Alaska.

Alaska Landbird Monitoring Survey.—Three 25-point plots were located and surveyed in 2003. Juneau Ranger District led efforts, locating two plots on the district, and assisting with one plot near Yakutat.

MAPS.—The Juneau MAPS station was operated in 2003. In conjunction with the banding, feather samples were obtained and sent to the Neotropical Migrant Conservation Genetics Project at the University of California Los Angeles, where DNA will be extracted and populations will be compared between geographic regions. Due to changed priorities for forest-wide songbird monitoring, the Hoonah and Yakutat stations were not run this year.

Beach Buffer Study.—In 2000, a study was initiated to evaluate the current beach buffer prescription for landbirds in the Tongass National Forest. A final report is now available for 2001-2002. In 2003, Dave Sperry (Humboldt State University) began a similar study on Prince of Wales Island. The principle objective of Dave's research is to examine the effects of forest management guidelines on breeding bird populations. More specifically, this study is examining the relationships between avian nesting success, forest edge, and forested buffer width for beach fringe forest on the Tongass National Forest.
Primary investigator: Michelle Kissling, USFWS, Juneau.

Trans-boundary River Inventory.—In 1999, the U.S. Fish and Wildlife Service entered into agreement with Utah State University to collect landbird information along the trans-boundary rivers of Southeast Alaska and Canada. A final report is now available (Johnson 2003).
Primary investigator: Jim Johnson, USFWS, Anchorage.

Distribution and seasonal habitat use of American Dippers in the Juneau area.—In 2003, Mary Willson began a pilot study of dippers in the Juneau area. The principal goals were to map the nests and characterize the streams (watershed area, invertebrate densities, etc.) used for nesting and overwintering, document nest success, assess prey-capture rates (summer vs winter). She intends to examine possible factors limiting the breeding population (nest sites vs stream characteristics vs mortality etc.). Additional data collection is planned for 2004.
Primary investigator: Mary Willson.

Educational programs.—USFS, ADFG, Juneau Raptor Center, and USFWS held an International Migratory Bird Day event at the Mendenhall Glacier Visitor Center. In 2003, a children's program was added to the annual celebration. ADFG hired a education coordinators (Kristen Romanoff / Karla Hart) and organized several educational programs throughout Southeast Alaska. USFS continued to hold banding demonstrations in Juneau and Ketchikan.

Black Swift Inventory.—USFS launched efforts to inventory for black swifts, a priority species for Southeast Alaska. A database was developed to collate all known swift observations. Surveys were conducted in July and August on the Petersburg, Wrangell, and Ketchikan/Misty Fjords districts. Black swifts were observed in the Stikine and Hyder areas, but no known nesting locations were documented.
Primary investigator: Gwen Baluss, USFS.

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