

The 10th Annual Report of *Boreal Partners in Flight*

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INTRODUCTION

This past year marked the 10th anniversary of *Boreal Partners in Flight*. We should all recognize the great strides that we have made in understanding the distribution and ecology of landbirds in Alaska over the group's first decade. The success of *Boreal Partners in Flight* can only be accredited to each of you and your dedicated participation in the program. I am continually impressed by your efforts to get out in the field and earn your expertise through long hours of careful observation and hard work. Over the past 10 years you have together conducted thousands of early morning surveys and banded tens of thousands of birds. Most of this work was done in remote locations, during the earliest of sunrises, and under the worst of bugs. You should all be applauded for your efforts. With our growing base of experience and knowledge I am confident that *Boreal Partners in Flight* will be able to address the complex conservation issues that face our landbirds both now and into the future.

Much of our focus over this first decade has been on developing an integrated monitoring program to assess the changing health of our landbird populations over time. I feel that our efforts on this front have been met with great success. With the full implementation of the *North American Breeding Bird Survey* and the pending implementation of the *Alaska Off-road Breeding Bird Survey* in 2002-2003, we will have the infrastructure in place to monitor trends in population size for a large number of our landbird species for decades to come. Also underway are assessments of our pilot efforts to monitor the demographic characteristics of landbirds in Alaska. Results from analyses of the *Monitoring Avian Productivity and Survivorship* program and the *Migration Monitoring Network* will provide us with guidelines on how best to use these programs to help understand and conserve landbirds in Alaska.

Tracking trends in population size of landbirds is important to assess the changing status of breeding populations in Alaska. However, during this next decade we need to develop a more structured and formal process for initiating intensive investigations and implementing conservation measures for our priority species. For example, species that have documented long-term population declines in Alaska, such as the Blackpoll Warbler (*Dendroica striata*; Sauer et al. 2001), need to be examined more closely to determine how breeding densities and demographic parameters vary among habitats and how inadequacies in survival or birth rates in particular habitats may be contributing to declines (Brian McCaffery, personal communication). For species that are largely restricted to Alaska for breeding, such as our lone endemic landbird the McKay's Bunting (*Plectrophenax hyperboreus*), we need to estimate population size, evaluate threats to populations, and document basic ecology and demographics (Andres 1999, Brian McCaffery, personal communication). Finally, for species that are sensitive to logging of mature conifer forests, such as the Townsend's Warbler (*Dendroica townsendi*; Wright et al. 1998), reproduction and breeding densities should be examined relative to various harvest techniques, residual stand sizes, and secondary prescriptions to determine which methods minimize or mitigate the negative long-term effects of logging (Brad Andres 1999; Ellen Lance, personal communication). Such information will be critical to formulate management strategies to reverse population declines, protect populations that are unique to Alaska, and promote land use practices that minimize the negative effects on landbirds.

Current leadership for *Boreal Partners in Flight*

Steve Matsuoka, *Program Chair*

Andrea Swingley, *Outreach and Education Chair*

John Wright, *Raptor Conservation*

BIRD CONSERVATION REGION COORDINATORS

Dave Yokel, *Arctic Plain and Mountains*

Rob McDonald and Brian McCaffery, *Western Alaska and Aleutian/Bering Sea Islands*

John Wright, *Northwestern Interior Forests*

Don Youkey, *Northwest Pacific Rainforest*

INVENTORY AND MONITORING

Colleen Handel, *Alaska Off-road Breeding Bird Survey*

Vacant, *North American Breeding Bird Survey*

Anna-Marie Benson, *Migration Monitoring*

Steve Matsuoka, *Monitoring Avian Productivity and Survivorship*

Carol McIntyre, *Owl monitoring working group*

MEETING AGENDA

10th Annual Meeting of *Boreal Partners in Flight*

7-8 November 2001, Anchorage, Alaska 99503

November 7

10:00 Introductions

10:15 Upcoming meetings and updates on the western regional front. *Steve Matsuoka, USGS*

10:30 9th Alaska Bird Conference, Fairbanks. *Anna-Marie Benson, Alaska Bird Observatory*

10:40 All Bird Workshop, March 5th Fairbanks, AK. *John Wright, ADFG*

10:50 Introduction to the session on monitoring. *Steve Matsuoka, USGS*

11:00 A double-observer method for estimating densities of birds. *Pat Heglund, USFWS*

11:20 An inventory of breeding birds in Yukon-Charley Rivers National Preserve using point transects with distance estimation. *Shelli Swanson and Deb Nigro, NPS*

11:40 Relationships between the width of post-logging beach-buffer strips and the composition of forest bird communities in southeast Alaska. *Michelle Kissling, USFWS*

12:00 Lunch

1:10 Implementing the Alaska Off-road Breeding Bird Survey. *Colleen Handel, USGS*

2:30 Summary of 2000-2001 owl call counts. *Anna-Marie Benson, Alaska Bird Observatory*

2:40 Developing strategies for monitoring populations of owls in Alaska. *Deb Nigro, NPS and others*

3:00 Break

3:15 Integrating the Raptor Working Group with *BPIF*. *John Wright, ADFG*

3:40 Recent results from analyses of migration monitoring data. *Anna-Marie Benson, Alaska Bird Observatory*

4:20 An assessment of the MAPS Program in Alaska. *Steve Matsuoka, USGS*

4:50 Developing topics for special sessions at the Alaska Bird Conference.

5:00 Adjourn.

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November 8

- 8:30 Introduction to the session on using citizen science, outreach, and education to support conservation efforts on landbirds. *Andrea Swingley, Alaska Bird Observatory*
- 8:45 A model for using community volunteers, outreach, and education in bird conservation: The Alaska Bird Observatory. *Andrea Swingley, Alaska Bird Observatory*
- 9:15 Organizing community volunteers to support local conservation of landbirds in Dillingham. *Rob MacDonald, USFWS-Togiak NWR*
- 9:35 Alaska Audubon. *Stan Senner, Audubon Society*
- 9:55 Cornell Lab of Ornithology's Citizen Science Program. *Robert Winckler, ProjectFeederWatch Volunteer Ambassador for Alaska*
- 10:15 Break
- 10:30 USDA Forest Service and Cornell Lab of Ornithology's Birds in Forested Landscapes Program. *Barbara Kott, USDA Forest Service-National Citizen Science Coordinator*
- 11:00 Status of CARA funds in Alaska. *John Wright, ADFG*
- 11:15 Urban Treaty for the Conservation of Migratory Birds between USFWS and Municipality of Anchorage: funds for conservation, outreach, and education. *Steve Kendall, USFWS*
- 11:35 Copper River International Migratory Bird Initiative: description of the conservation initiative and an example of using the initiative to develop a virtual shorebird field trip. *Paul Myers, USDA Forest Service*
- 12:00 Lunch
- 1:10 Break out session by Bird Conservation Region: Using community volunteers, outreach, and education to support on the ground efforts to conserve landbirds. Special emphasis will be placed on developing project ideas for funding through CARA and other conservation based funding sources.
- 2:40 Report to group on accomplishments
- 3:00 Break
- 3:10 American Bird Conservancy and the coordination of avian conservation in Bird Conservation Regions. *Bob Altman, American Bird Conservancy*
- 3:30 Break out session by Bird Conservation Region: Review of 2000 action items. Development of projects to address specific conservation concerns for landbirds in Alaska.
- 4:30 Report to group on accomplishments.
- 4:50 Future meetings and leadership positions. *Steve Matsuoka, USGS*
- 5:00 Adjourn.

UPCOMING MEETINGS

11th Annual Meeting of *Boreal Partners in Flight*, Fall 2002, Whitehorse, Yukon Territory.

The next meeting of *Boreal Partners in Flight* will be held in early October in conjunction with the annual meetings of the *British Columbia-Yukon Partners in Flight*, *Canadian Landbird Committee*, and the *Western Working Group of Partners in Flight*. This will be a unique opportunity to hear the latest information on monitoring, research, and conservation of landbirds in the upper reaches of North America. The tentative schedule includes a meeting by the *Western Working Group* (7-8 October), a joint meeting by *Boreal* and *BC/Yukon PIF* (9 October), a Canadian Wildlife Service sponsored workshop on monitoring boreal birds (10 October), and the annual meeting of the Canadian Landbird Committee (11 October). If you

have any questions about the meeting or have suggestions for additional sessions please contact Pam Sinclair (Pam.Sinclair@ec.gc.ca), Ilia Hartasanchez (Ilia.Hartasanchez@ec.gc.ca), Wendy Easton (Wendy.Easton@ec.gc.ca), Carol Beardmore (CBeardmore@gf.state.az.us) or Steve Matsuoka (steve_matsuoka@usgs.gov).

OUTREACH AND EDUCATION

Andrea Swingley, *Alaska Bird Observatory* and Steve Matsuoka, *USGS—Alaska Science Center*

Organizing community support for local landbird conservation in Dillingham, Alaska.

Rob MacDonald, *U.S. Fish and Wildlife Service—Togiak NWR*

The Togiak National Wildlife Refuge supports several outreach and education efforts on birds in the small community of Dillingham. The overall outreach program has found great success primarily through the active participation of concerned citizens, school classes, community groups, and community service organizations. Through the encouragement of the Refuge and the community, I have been able to take an “It’s Fun – Not Work” approach to our outreach program even though most of this work takes place outside of the administrative boundaries of the Refuge. We have been able to recruit new birders from the community by organizing several public bird counts including the Christmas Bird Count, North American Migration Count, World Bird Count, and an annual Bird Walk for 4th Grade students. I have also had success in educating school kids about the conservation of birds by giving talks on bird biology, donating Great Horned Owl feathers to the local school’s traditional native dancing club, helping with the Audubon Bird Academy, and assisting Scouts with earning their merit badges through education projects on birds. Radio station support has also been essential in our public outreach program. I have been able to produce a weekly short radio spot similar to “The Nature of Things”. I have produced 71 shows, with 36 on the life histories of birds. The editor of the local newspaper is also an avid birder and has always included our articles in the paper to help spread the word about current information on birds, exciting observations, or promoting and summarizing public bird counts. Collectively, our outreach program has allowed us to work with a wide cross section of people in the community.

Our efforts to spread an awareness of birds are continually rewarded by people’s growing interest and concern for birds in the Dillingham area. People in the community regularly call the Refuge to report their sightings. Some of these observations have expanded our knowledge of the distribution of birds in the state, such as new records Steller’s Sea Eagle and a Brambling. Other citizens have shown their concern by helping rescue injured birds such as two Bald Eagles with broken wings and even a Common Goldeneye stuck in a public toilet. Sometimes this community interest in birds has resulted in new insight into the natural histories of birds such as when a local resident alerted me to a Northern Hawk Owl that they spotted dead on a road. Upon collecting the bird, I discovered it was banded and later found that it had been originally captured in Alberta, Canada. This recovery documented the longest known movement by the species. These positive experiences have made working on the conservation of birds in the area exciting for everyone involved.

Showing a commitment to the community has been crucial in capturing their concern and enthusiasm for birds in the area. A common complaint we hear at the Refuge is that many

biologists don't stay around long enough to get to know the people in the community. Because I have been a resident for 11 years, everyone now knows to contact me with any bird-related topics. This commitment to the community sometimes involves running out late in the evening or on weekends to help a caller identify a bird they have observed or to help rescue an injured bird. Fortunately for me, my wife and three-year old daughter also enjoy helping me and fully support my work. Of course this commitment requires lots of hard work; however, the overwhelming local support for conservation of birds from the community of Dillingham has instilled an "It's Fun – Not Work" attitude that characterizes the Refuge's outreach program.

Cornell Lab of Ornithology and the USDA Forest Service Citizen Science Partnership

Barb Kott, *USDA Forest Service—National Citizen Science and Region 6 Landbird Coordinator*

The *Birds In Forested Landscapes, Recreation Study* was developed by the Cornell Lab of Ornithology for the Forest Service to census thrushes in high use recreation sites. The data collected will help answer important scientific questions about birds and recreation impacts that can only be addressed through collective efforts of volunteers across the nation.

The protocol is very similar to the Birds in Forested Landscapes study that looked at the effects of fragmentation of forest birds. Recreation study sites will be in high use recreation sites on the national forests across the country. The project entails visiting selected sites in recreation areas to census forest dwelling thrushes. Three visits per site are required to gather the needed data. Volunteers will be trained in identifying thrushes by their calls and visually. Participants will also search for indications of successful breeding and record landscape and habitat characteristics associated with each site.

This program is a great opportunity for local residents to get involved in a bird conservation program on the National Forests. The Forest Service is looking for interested volunteers who want to learn more about birds in the local area, and help collect important data to be used in reversing declining population trends. For more information check out Cornell's web site at www.forest_birds@cornell.edu/bfl. You can also contact Barb Kott at 503-622-3191 x687 or bkott@fs.fed.

***Project FeederWatch* and other Citizen Science programs with the Cornell Laboratory of Ornithology**

Robert Winckler, *Project FeederWatch Volunteer Ambassador for Alaska*

The Cornell Laboratory of Ornithology organizes several programs in Citizen Science that empower the public as scientists to help conserve birds and their habitats. They view citizen science as a process that involves the public in professional research that seeks to answer large-scale questions about birds. Through this process concerned citizens help conduct research while learning about environmental awareness, developing a higher degree of scientific literacy, and helping protect the Earth's biological diversity.

One of the Lab's primary Citizen Science programs is Project FeederWatch. This is a winter-long survey of birds that visit feeders at backyards, nature centers, community areas, and other locations in North America. The program began in 1976 in Canada and now includes over

15,000 people throughout North America. Currently 86 people participate in Alaska, the majority in Anchorage, Fairbanks, and the Matanuska-Susitna Valley. Data from the program are used to understand changes in the distribution and abundance of birds across the continent over time. What sets Project FeederWatch apart from other monitoring projects is the detailed information it gathers about the weekly changes in bird distribution and abundance across North America. Because FeederWatchers report every bird species that they see at their site throughout the winter, scientists can determine where birds are, as well as where they are not! This crucial information enables scientists to compile the most accurate population maps for each species and document gradual changes in the wintering ranges of many species. In short, FeederWatch data are important in providing information about bird populations that are difficult to detect by any other available method.

Anyone with an interest in birds can participate. People of all skill levels and backgrounds—including children, families, classrooms, youth groups, nature centers and bird clubs—conduct project FeederWatch. Participants select their own count days and count for all or part of two consecutive days out of every two-week period from November to April. On-line counters have the option of counting two days every week. Birds that visit a given feeder or water sources are counted as well as other birds such as hawks, owls, and shrikes that prey on birds visiting feeders. For each species a counter reports the highest number of individuals seen at one time during the reporting period. This is essentially the same procedure used by feeder counters during the Christmas Bird Count.

The Cornell Lab also organizes five additional citizen science programs. These include Classroom FeederWatch, Project PigeonWatch, The Birdhouse Network, House Finch Disease Survey, and Birds in Forested Landscapes. Information on Project FeederWatch and each of the Lab's other Citizen Science projects can be obtained by visiting their website (<http://birds.cornell.edu>), calling the Lab (800-843-BIRD), or reading their newsletter, *Birdscope*.

WORKING GROUP TASKS FOR 2002

Expanding Cornell Laboratory of Ornithology's *Project FeederWatch* in Alaska

State Coordinators: Robert Winckler, Maureen deZeeuw, and Colleen Handel

Area Coordinators:

Colleen Handel	<i>Anchorage</i>	Michelle Kissling	<i>Juneau</i>
Donna Hanley	<i>Bethel</i>	Susan Savage	<i>King Salmon</i>
Paul Meyers	<i>Cordova</i>	Robert Winckler	<i>Mat-Su Valley</i>
Steve Dubois, Jeff Mason	<i>Delta</i>	Peter Bente	<i>Nome</i>
Rob MacDonald	<i>Dillingham</i>	Mary Ann Benoit	<i>Seward</i>
John Wright	<i>Fairbanks</i>	Todd Esklin	<i>Soldotna</i>

Action items:

- 1) Contact Cornell for guidelines on when information is collected from feeders.

- 2) Area coordinators will help recruit local citizens to help out with this effort. There is concern about doing this in the Juneau area given their problems with urban bears.
- 3) Use media such as public radio, local cable TV, newspapers, and websites. We should use Cornell's press releases to help with these efforts.
- 4) Possibly link with the Deformed Black-capped Chickadees Project (USGS) to give the program an Alaska conservation issue to rally around (Colleen Handel, USGS).
- 5) Develop a one page flyer about the program to be made available to the public at feed and pet stores, veterinarian clinics, animal workshops, etc. (Maureen deZeeuw, USFWS)
 - This might also include information about good feeding etiquette such as cleaning feeders to prevent the spread of diseases and taking down feeders to avoid attracting bears between April and November.
- 6) Area coordinators will need to provide state coordinators with mailing lists and numbers of flyers need for their communities.
- 7) Rural communities may need to be able to receive results from media other than the World Wide Web.

Alaska Field Notes: using radio as an outreach tool

Coordinators: Rob MacDonald, Beverly Skinner, Ellen Campbell, Donna Hanley, and Mike Spindler

Action items:

- 1) Compile existing natural history radio spots (both text and audio) on a CD and serve the digital information over the *BPIF* website. The goal is to complete this by March.
- 2) Work with Karen Boylen (USFWS), Ned Rozell (Fairbanks Daily Miner), and Kathy Turco on broadcasting existing shows in other communities or potentially nationally.

Backyard Wildlife Program: wildlife friendly landscaping

Coordinators: Maureen deZeeuw, Karen Laing, and Mary Ann Benoit

Action items:

- 1) Use the National Wildlife Federation program as a model for educating the public in landscaping techniques that are friendly for birds.
- 2) Possibly develop a demonstration garden as an example.
- 3) Develop partnerships with nurseries, native plant societies, and botanical gardens.
- 4) Find ways to educate the public on conservation problems facing birds in urban areas (e.g., free-roaming cats, unleashed dogs, and habitat destruction).
- 5) Develop signage for bird trails (i.e., Tony Knowles Coastal Trail), city parks, or conservation related problems (i.e., ATV). Perhaps work toward a statewide network of birding trails.

Developing new PIF outreach opportunities

Coordinators: Andrea Swingley, Maureen deZeeuw, Robin Dublin, Lisa Pajot, and Kent Wohl

Action items:

- 1) Possibly procure funds to develop education materials for classrooms. Some materials are currently available through the American Bird Conservancy (<http://abcbirds.org>).

- 2) Procure funds for workshops to make teachers aware of existing materials and information available for educators. These programs could target existing workshops and conferences (i.e., Alaska Science Teachers' Conference, Bilingual/Multicultural Educators' Conference). Develop a proposal for funds through CARA or other matching fund sources.
- 3) Develop a position for working with teachers in Alaska.

RAPTORS

Monitoring owls in Alaska: a progress report

Carol McIntyre, *Chairperson, Owl Monitoring Working Group; National Park Service—Denali National Park and Preserve*

Working Group Members: Anna-Marie Benson (Alaska Bird Observatory), Carol McIntyre, chairperson, (National Park Service, Denali), Debbie Nigro (National Park Service, Yukon-Charley Rivers), Julie Petersen (ABR, Inc.), Bob Ritchie (ABR, Inc.), John Shook (Boise State University), Ted Swem (US Fish and Wildlife Service), Todd Trapp (US Fish and Wildlife Service), and John Wright (Alaska Department of Fish and Game).

The summaries and recommendations provided below are preliminary and should be taken as such.

INTRODUCTION

At the annual meeting of the *Boreal Partners in Flight* in January 2001, a working group was established to address several issues concerning monitoring nocturnal and diurnal owls in Alaska. This group was formed due to concerns raised by several members of *Boreal Partners in Flight* about the validity of using surveys of singing owls to monitor changes in population size of vocal owls such as great horned owls or using nest boxes to monitor population size and demographics of cavity-nesting owls such as boreal and saw-whet owls.

Owls are difficult to monitor for numerous reasons. Many species are hard to detect and detections of many species are low. Additionally, there are many questions about interpreting data from singing owl surveys for species such as boreal owls. In particular, what does a singing boreal owl represent? The goal of the *Boreal Partners in Flight* owl-monitoring group is to review current methodologies used as monitoring tools for owls and develop recommendations for future owl monitoring work in Alaska.

CONTENTS OF PROGRESS REPORT

This report summarizes the activities of this working group as of 31 January 2002. Although progress has been slow, we are making some steps toward a better understanding of monitoring owls in Alaska.

Our immediate work focused on two issues pertaining to monitoring breeding owls:

1. What do singing owls represent in different species? For instance, do singing boreal owls represent breeding pairs?

2. Can nest boxes be used to monitor populations of cavity nesting owls? In particular, do nest box populations represent non-box populations?

The working group held one meeting in late August 2001 to exchange ideas and to review and set goals and objectives. There was discussion about why different agencies and nongovernmental organizations (NGO) were interested in owl monitoring and if these monitoring questions pertained to resources extraction activities. We found that the focus of monitoring varied among agencies, parks, refuges, and NGO's. Therefore our goal was to provide insight into the strengths and limitations of different techniques used for monitoring, not to determine what monitoring should actually occur. Therefore, we took the approach of providing information on different techniques used for collecting data on owl populations and did not focus on developing study plans to address different management concerns. We agreed that there had been a good start at learning about monitoring certain owl species in Alaska and that it would be best to first review existing protocols to assess their applicability for future monitoring purposes. For instance, we discussed the use of aerial surveys conducted for waterfowl as a way to collect data on diurnal owls that nest in open tundra such as short-eared and snowy owls (A. Brackney and B. McCaffery, pers. comm.).

As a first step, the group decided to develop a table that summarized all the different techniques used to collect population-scale data on different species of owls in Alaska. Each member was given a species to review. In addition, each member was asked to provide a short narrative summary of the strengths and limitations of existing monitoring techniques for different species of owls. Several members completed this assignment and their summaries follow this introduction. Additionally, John Shook and Mark Fuller (USGS) provided information on monitoring northern hawk owls, a project they are working on for the North American Raptor Monitoring Strategy. The table is in the development stage and is not currently ready for review. Several summaries were completed and they are included in this progress report.

Finally, the working group chairperson compiled a list of other resources that are available to those wishing to dig into the literature and learn more about the challenging world of owl monitoring. This list follows the summaries.

We hope to continue our work by completing the summary table and species summaries. We hope that this work provides both insight into monitoring owl populations and a forum for future discussions on developing a monitoring program for owls in Alaska.

SPECIES REVIEW AND PRELIMINARY RECOMMENDATIONS FOR INDIVIDUAL SPECIES

1. MONITORING BOREAL OWLS (*Aegolius funereus*), Anna-Marie Benson, *Alaska Bird Observatory*

Using auditory count to survey boreal owls is common in Alaska. Boreal owls are also monitored using nest boxes. Anna Marie Benson provides an overview of these two monitoring tools for boreal owls.

Can auditory surveys be used to monitor relative abundance of boreal owls?—Singing owl surveys may not be appropriate for monitoring some owl species (Benson 2001). Singing owl surveys have been proposed as a method for monitoring boreal owls, however, there is ample evidence showing that songs are primarily dependent on pairing status (Konig 1968 *in* Mikkola 1983; Lundberg 1978) and may be inversely related to breeding success (Lundberg 1978). Weather variables such as wind, low temperature, and cloud cover also likely affect singing activity (Konig 1968 *in* Mikkola 1983). Large-scale auditory surveys have been used in Canada to monitor regional owl populations; yet, Canadian biologists have not determined how these surveys relate to relative abundance of owls (pers. comm. Kurt Mazur, Avian Ecologist, Manitoba Conservation, Wildlife Branch). I found no evidence to suggest that abundance estimates from auditory surveys reflect actual relative abundance of boreal owls.

Can nest boxes be used to monitor boreal owl populations?—Boreal owls have been well studied in northern Eurasian coniferous forests where the abundance of microtines fluctuates in a predictable 3-4 year cycle (Hörnfeldt et al. 1990, Korpimäki and Hakkarainen 1991). Boreal owls track these predictable changes in vole densities without time lags (Korpimäki and Norrdahl 1989) such that clutch initiation and clutch size are related to winter and spring vole densities respectively (Korpimäki and Hakkarainen 1991). In interior Alaska, however, vole densities are not cyclic but fluctuate by an order of magnitude in an unpredictable manner (Rexstad and Debevec 2001). This leaves a burning question: how do noncyclic vole populations influence abundance and productivity of boreal owls in interior Alaska? Further confounding our understanding of life histories of boreal owls in interior Alaska is that the harsh, long winters and brief summers in Alaska likely impose greater time constraints on breeding than the much milder climate in Fennoscandia.

Does the use of nest-box occupancy accurately reflect the natural population?—Nest-box monitoring has also been proposed as a tool for monitoring long-term changes in abundance and productivity of boreal owls (Hayward et al. 1992). Abundance and productivity estimates obtained from nest-box studies are confounded because these demographic characteristics are influenced by vole densities (Korpimäki and Hakkarainen 1991). Clutches are significantly larger in nest boxes than in natural cavities likely because boxes are larger than natural cavities (Korpimäki 1984). Korpimäki (1984) suggested more studies are needed before factors regulating population dynamics and influencing breeding strategies in box-nesting birds can be related to hole-nesting birds. I found no current studies addressing this issue.

Preliminary recommendations for monitoring boreal owls:

- i. Assess the number of surveys needed to estimate long-term trends in the number of singing birds by assessing coefficients of variation of counts across years.
- ii. Determine if singing owls represent breeding pairs.
- iii. Initiate studies to determine if owls using nest-boxes mirror patterns in occupancy and nesting ecology of owl breeding in natural cavities.
- iv. Determine how vole populations influence nesting success and nesting ecology of boreal owls in interior Alaska.

2. MONITORING BOREAL OWLS: CONSIDERATIONS AND LIMITATIONS

Greg Hayward, *USDA Forest Service*

Steve Matsuoka spoke with Greg Hayward about monitoring boreal owls. Greg Hayward gave Steve the impression that inference on population trends gained from aural counts is tentative at best. Some of the higher counts done by Hayward on boreal owls in northern Idaho were during years when few birds were paired. Such an inverse relationship would be trouble for a long-term monitoring scheme since only during years of poor reproduction might you expect to get a reasonable population count. There is a potential to examine the trend across years with “high” counts. However, if reproduction is largely a function of microtine population size, singing rates may simply be an inverse function of microtine population size and not the true population size of owls. To further complicate matters these owls are somewhat irruptive, possibly moving out of areas as microtine populations crash.

Hayward mentioned that it is not well established how box populations reference the greater non-box population. Nest boxes may still be the way to go; aural counts may only be useful for inventory purposes. All in all it may take much more work to develop a feasible program to monitor boreal owls. Greg indicated that the Canadians have done much recent work in developing protocols for monitoring owls.

3. MONITORING NORTHERN PYGMY OWLS (*Glaucidium gnoma*)

J.L. Petersen and R.J. Ritchie, *ABR, Inc. – Environmental Research and Services*
(Working draft, 15 November 2001)

A review of the literature revealed that few systematic Northern Pygmy-Owl (*Glaucidium gnoma*) surveys, particularly research establishing census procedures, have been conducted. However, our review is incomplete and there are some studies not yet reviewed, which might include additional details on census techniques and protocols (e.g., Giese 1999).

Non-elicited and elicited call-counts may be used to determine the presence of Pygmy Owls. Non-elicited call-counts are conducted by listening for owls that are spontaneously calling. Although Pygmy-Owls may call year round, this type of survey may be most practical during the breeding season when vocal activity peaks (Holt and Petersen 2000, Walsh 1990). Little information exists regarding daily patterns of vocalization. Pygmy-Owls and relatives within *Glaucidium* are diurnal, but they may be more active and call more often during the hours surrounding sunrise and sunset (Holt and Petersen 2000, Proudfoot and Beasom 1996, Kullberg 1995). Calling during the night has not been observed for Northern Pygmy-Owls (Holt and Norton 1986).

Eliciting responses by broadcasting a Northern Pygmy-Owl call may be most useful in determining the presence of Pygmy-Owls. In Oregon, broadcasting during early morning and evening was used successfully to survey Northern Pygmy-Owls (Lundsten 1993). Although the method has not been widely tested in this species, studies with the Ferruginous Pygmy-Owl (*Glaucidium brasilianum cactorum*) showed a clear increase in detection rates using an elicited versus non-elicited call-count (Proudfoot and Beasom 1996). Broadcasting may also be used

effectively outside of the breeding season based on these surveys with the Ferruginous Pygmy-Owl (Proudfoot and Beasom 1996). Male territorial calls of the European Pygmy-Owl (*Glaucidium passerinum*) differ uniquely among individuals (Galeotti et al. 1993), so the same may be true for Northern Pygmy-Owls. With further study, calls may be used to monitor site fidelity and territory size.

Habitat preferences in Northern Pygmy-Owls are not well defined, with most data supported only by incidental nest records. Northern Pygmy-Owls are considered habitat generalists (Hayward and Garton 1988). Individuals and nests have been found in a variety of habitats including multiple tree species in homogenous, mixed age, and mixed species stands (Norton and Holt 1982, Hayward and Garton 1988, Walsh 1990, Bull et al. 1987, Holt and Petersen 2000). Analysis of singing locations showed that Northern Pygmy-Owls prefer open, large-diameter conifer stands (Hayward and Garton 1988). However, Pygmy-Owl nests also have been found near sites previously logged (Lundsten 1993, Bull et al. 1987, Walsh 1990). Until more detailed studies have been conducted, survey areas for Northern Pygmy-Owls may need to be broadly defined.

4. NORTHERN HAWK OWL: PART I: A VIEW AT USING BROADCAST SURVEYS

John Shook, *Boise State University*

John Shook, a student at Boise State University, is studying hawk owls for his master's project. He provided some insight into using broadcast surveys.

Shook had great success using broadcasts to locate nesting and non-nesting northern hawk owls for the last 3 seasons. He located 13 of 21 hawk owl nests and dozens of non-breeders directly as a result of using broadcasts (others were located by incidental sightings). Of the 13 nests he suggests that the response of males to the broadcasts was very strong (up to 1 km from the nest), followed by vigorous vocalizations, frequent perch changes, and an immediate return to the nest site. The broadcasts seemed to induce the male into returning to the nest to check on his mate and potentially to strengthen the pair bond by inducing behaviors such as mate feeding, calling, billing, and copulations. Non-breeders respond less strongly to the broadcast calls typically giving few reply calls, staying in the area instead of flying directly to the nest site, or showing no apparent response besides simply turning their head.

Shook suggests that if other owls of interest respond similarly there is great potential for the use of broadcasts in some study areas, given that the appropriate tests are conducted for each species. Although this is labor-intensive work, it does not require expensive equipment (megaphone \$40, tape player \$30) and transportation costs would be similar to aural counts. Broadcast routes could be conducted along traditional breeding bird routes, from previously used point-count stations or new transects. Also, one call could potentially elicit responses from several species (see below). Since many northern owl populations fluctuate greatly year-to-year and are often tied to cyclic or fluctuating prey (microtines and hares), populations should be monitored on as large of a scale as possible and inferences about a population's status should be a collaboration of region-wide data. This requires that any population monitoring effort be done on as big of a scale as possible, and this is where boxes may prove difficult to use unless one can rally hundreds of owl-box "maken-n-hangen" volunteers (as in Scandinavia).

While broadcasting hawk-owl calls Shook also noticed responses by many other species of raptors and non-raptors. Northern hawk owls are diurnal and Shook conducted surveys during daylight. During these surveys, Shook recorded responses from sharp-shinned hawks, American kestrels, merlins, northern harriers, northern shrike, common raven, and gray jays. Broadcast calls resulted in locating 3 merlin nests, 2 American kestrel nests and 1 pair of northern shrikes. These results lead Shook to suggest that there is potential for the use of broadcast calls for several other species; however, he is aware that it is much less effective for some species.

Shook suggests that broadcasts warrant some degree of discussion whenever trying to locate nesting raptors, particularly owls. There has been extensive research on the effectiveness of broadcasts for locating northern goshawks and the subsequent use of broadcasts to estimate population size. Shook suggests that many owl populations can be monitored in similar fashion, but that research needs to be carried out (potentially starting with the established northern goshawk or spotted owl protocol). He also thinks that because of owl's vocal predisposition the response to broadcasts may be stronger and therefore our ability to assess populations may be more accurate than for northern goshawks.

5. NORTHERN HAWK OWL: PART II: SUMMARY OF NORTH AMERICAN RAPTOR MONITORING STRATEGY ACCOUNT

John Shook and Mark Fuller

John Shook and Mark Fuller are working on the northern hawk owl species account for the North American Raptor Monitoring Strategy. They provided a draft of their species account for this progress report.

Northern hawk owls breed across the North American continent in the northern forests of Canada and Alaska. They generally winter within their breeding range, but irrupt southwards into the northern United States in some years (Duncan and Duncan 1998). Northern hawk owls, hereafter, hawk owls, are diurnal and hunt from conspicuous perches during daylight along the edges of open habitat including fields, bogs and road corridors. Winter movements and spring selection of breeding territories is likely based upon snow coverage and the corresponding availability of prey. Estimating hawk owl populations is difficult because of their unpredictable, irruptive behavior and nomadic movements outside of the breeding seasons. These movements likely are related to the prey cycles and population fluctuations of small mammals and possibly larger prey including ptarmigan and snowshoe hares, but their relationship to these cycles and fluctuations needs investigation. Currently there are no standardized methods being used to monitor hawk owl populations. Christmas bird counts, Breeding Bird Surveys and migration counts yield such low detections that they are not practical methods for monitoring this diurnal raptors' population.

Preliminary recommendations

1. The use of broadcast surveys might increase detection rates.
2. Experiments should be done to determine the extent that surveys from transects detect birds in different habitats and terrain.

3. Considering that Hawk Owl counts can fluctuate up to 100% from year to year and that they move nomadically, have very low detection rates, display irruptive behaviors, and probably increase and decrease in population size with prey numbers, their population should only be analyzed over the long term (>10 years).

FROM THE LITERATURE

There is a multitude of literature on “monitoring owls”. A recent literature search using the USGS Raptor Information System and the keywords “owl monitoring” resulted in over 291 citations of published papers and unpublished reports. It is beyond the scope of this working group to review each paper. In this section, however, we present a preliminary review of several papers and a proceeding that apply directly to using singing owl surveys and nest boxes as tools for monitoring breeding owls. This literature provides some insight into the factors that need to be considered when designing studies for monitoring populations of both diurnal and nocturnal owls. While information from the literature is useful, we recommend that readers use caution when applying results of these studies to Alaska.

1. USING NEST BOXES TO STUDY OWL POPULATIONS: SUMMARY OF A SYMPOSIUM HELD BY THE RAPTOR RESEARCH FOUNDATION 1993

A symposium was held at the joint meetings of the Hawk and Owl Trust and the Raptor Research Foundation in September 1993. The symposium was designed to answer questions about the validity of nest-box versus natural-cavity information in studying owls and kestrels. A series of 5 papers was published in the *Journal of Raptor Research* 28: 125-157 (see literature citations below for Gehlback 1994a, Bortolotti 1994, Petty et al. 1994, Møller 1994, Johnson 1994, Gehlback 1994b). We caution readers that nest boxes have been used in many areas that have been manipulated heavily by human activity. In Alaska, where human activity is relatively limited, we should use caution when assessing the use of nest boxes to study population dynamics. We need to address issues such as the effect of nest boxes on density, survival, and behavior before initiating any nest box studies.

2. GUIDELINES FOR NOCTURNAL OWL MONITORING IN NORTH AMERICA (Takats et al. 2001).

This document is the result of a National Owl Monitoring Workshop held in Winnipeg, Manitoba, in September 1999. In February 1997, participants in a workshop on nocturnal owl monitoring discussed the problems of current owl surveys (Holroyd and Takats 1997). In September 1999, representatives from the main volunteer surveys in Canada met in Winnipeg, Manitoba to develop a set of standards for owl monitoring that would allow data to be integrated across surveys, while recognizing geographic variation in target species and survey objectives. The outcome of that meeting was agreement on a set of standard components that should be incorporated into roadside surveys for breeding owls. These meetings, with subsequent discussions, have led to development of guidelines for survey protocols that Takats et al. (2001) hope will be adopted by all organizations running nocturnal roadside surveys.

These guidelines were developed to achieve the following objectives:

1. Obtaining information on distribution of owls.
2. Estimating relative abundance of owls within regions and across North America.

3. Estimating trends in populations of nocturnal owls at scales ranging from regional (i.e., ecoregion, province, state) to continental.
4. Determining habitat associations of owls.

The basic survey method proposed involves listening for calling owls along a predetermined route consisting of a minimum number of evenly spaced stations (Bibby *et al.* 1992).

Preliminary Recommendations to Boreal Partners in Flight.—The protocols described in this document rely almost exclusively on the use of singing owls for monitoring populations. The *Boreal Partners in Flight* owl monitoring working group suggests that more research is needed to understand what singing owls represent before initiating surveys (see Benson above). These protocols also rely heavily on roadside surveys. We need to examine the applicability of this methodology in Alaska's roadless landscapes.

4. FACTORS AFFECTING THE DETECTION OF ELF OWLS AND WESTERN SCREECH OWLS (Hardy and Morrison 2000)

This paper provides insight into the use of broadcast surveys for elf and western screech owls. The authors provide insight into whether using broadcast calls during point counts increased detection rates of small owls relative to not using broadcasts. They also examined how factors influenced detection rates including temporal (date, time of night), lunar (moon phase, moon visibility), and biological factors (other nocturnal species). This is required reading for any one planning on using singing owls for monitoring populations.

5. MONITORING BOREAL OWL POPULATIONS WITH NEST BOXES: SAMPLE SIZE AND COST (Hayward *et al.* 1992).

This paper is required reading for anyone planning to study owls using nest boxes. Hayward *et al.* (1992) envision nest boxes as a management tool to assess the demographic response (abundance and productivity) of boreal owl populations to forest change. Hayward *et al.* (1992) also explore the idea of using clutch size as a measure of productivity to be used for population productivity monitoring. Most importantly, Hayward *et al.* (1992) recommend that before nest box systems are adopted to monitor boreal owl populations, researchers must examine the relationship between trends observed for owls nesting in boxes and trends experienced by owls in the larger target population (non-box population).

In their proposed monitoring scheme, trends in nest box occupancy are used as an index to trends in the breeding population abundance. An important aspect of this paper is the treatment of assumptions when using nest boxes in population studies and the discussion of sampling design. For example, to apply this system in a habitat-monitoring framework, you must meet the assumption that the trend in occupancy rate of the nest boxes reflects the trend in the breeding segment of the target population and that this trend reflects habitat conditions. Therefore, you must meet the assumptions that: 1) field methods accurately measure occupancy, 2) occupancy of a nest box does not influence the probability of other boxes being occupied, 3) status of a box in 1 year does not influence occupancy in subsequent years, 4) degradation of owl habitat will be reflected in a reduction of nest box use, and 5) the population sampled by a nest box system is representative of the target populations. These are all important assumptions to address when using nest boxes for monitoring owls.

6. NORTHERN SPOTTED OWL EFFECTIVENESS MONITORING PLAN FOR THE NORTHWEST FOREST PLAN (Lint et al. 1999).

The purpose of the northern spotted owl effectiveness-monitoring plan is to assess trends in spotted owl populations and their habitat relative to meeting the goals of the Northwest Forest Plan. This is a detailed plan that involves intensive field studies. However, this plan is a good example of developing a monitoring plan for a species in relation to land management decisions. It provides a clear description of sampling frame, study design, and measurable objectives. It also provides clearly stated protocol for gathering data on occupancy and reproduction in spotted owl demographic studies.

DISCUSSION AND PRELIMINARY RECOMMENDATIONS

Clearly, there is still much to be learned about monitoring owls in Alaska. Research is necessary to determine the best techniques and monitoring strategies. If you plan on implementing any fieldwork on owl monitoring in the near future we suggest that you take into consideration the following:

1. In any study designed to monitor owls, clearly state the goals and objectives of the study. Make sure to use a rigorous sampling design developed to meet your objectives. Take into consideration spatial and temporal aspect of your study and spatial and temporal variation in the parameters you'll be estimating. Understand and address issues concerning sample size and power of your study to meet your objectives. Clearly state your methodology for not only survey techniques but also data management and data analysis.
2. Use caution when using singing owl surveys to obtain data to monitor some species of owls (see boreal owl summary above). Singing owl surveys may be valuable for inventory purposes, but one should use caution when using them for monitoring purposes. Singing owl surveys are likely to be valuable for detecting irruptions of owls, rather than long-term trends in owl abundance (Benson 2001). More studies are needed to determine how singing owl surveys might be used to meeting objectives of the *Boreal Partners in Flight* working group. Studies are also needed to assess whether singing boreal owls provide an index to the breeding population.
3. Seek sampling protocols that maximize detection rates. As detection rates increase, estimates of population size are likely to become more precise and less survey effort is required for monitoring.
4. Understand the factors that influence detection rates in singing owls. For instance, understanding the relationship between vole and owl populations may be a crucial part of interpreting singing rates of common owl species, such as the boreal owl (Benson 2001).

PLANS FOR 2002 AND 2003

As time allows we hope to complete the summary table and provide recommendations for future owl monitoring research and monitoring. A species summary on several other owls including great horned owl should be completed in 2002. Progress depends on the availability of team members to continue to participate in this process.

Owl surveys conducted in Alaska during 2001: a summary report

Anna-Marie Benson, *Alaska Bird Observatory*

Members of *Boreal Partners in Flight* conducted owl surveys during spring of 2001. These surveys were conducted as part of a preliminary investigation into the effort required to develop a long-term owl monitoring protocol in Alaska. The following report summarizes owl survey data collected in Alaska during 2001.

METHODS

Owl surveys were conducted in Alaska from 20 February to 23 April 2001. Survey locations were selected based on several criteria: accessibility, low levels of human disturbance, and expectations of high numbers of owl detections. Point-count stations were spaced 0.5 mile to 1.0 mile apart and observers drove between stops. Visual and auditory cues of owls were recorded during eight-minute periods. Weather variables were recorded and surveys were not conducted in adverse weather conditions. Surveyors also recorded distance (and usually direction) to the owl. Duplicate counts of individuals were removed from this compilation.

I conducted power calculations for routes that had estimates of between-year variation in singing rates of owls: Aleknagik Rd (near Dillingham), Fort Greely (near Delta Junction), Swan Lake Rd (Kenai National Wildlife Refuge), and the Tetlin National Wildlife Refuge. These analyses were conducted to determine whether long-term trends in detections of singing owls could be determined for these four surveys. We grouped surveys throughout Alaska for this compilation because low sample sizes prevented a more refined grouping of biogeographic regions. Results presented here may therefore be confounded by geographic variation among owl populations within Alaska.

I examined within-year variation in detections of singing owls for the Aleknagik Rd route, because there were high owl detections and the route was surveyed several times.

RESULTS

Twenty-seven routes were surveyed 43 times during 2001, compared with 25 routes surveyed 68 times during 2000 (Table 1). We detected 79 Great-horned Owls, 116 Boreal Owls, and 21 Saw-whet Owls (Table 1). There were several detections of other owl species: Great Grey Owls were detected on the Tetlin and Hope Routes, one to three Barred Owls were detected on the Hatchery Route, Snowy Owls were detected on the Hope Route, and there was a possible detection of a Long-eared Owl on the Wrangell Island Route.

Several routes (17 of 26) had less than two owl detections per route. The most active route was the Cummings Rd route, near Delta Junction, where 27 owls were recorded. The Aleknagik Road route also had high numbers of owl detected. During the 6 times this 13-point route was surveyed, 86 detections of owls were recorded. Analyses of the within-year timing of owl detections indicate that there was no difference in the timing of Boreal Owl detections on the Aleknagik Road route ($X^2 = 6.14$, $df = 5$, $P = 0.30$).

There was high between-year variation in the proportion of count stations with detections of Boreal Owls (mean = 0.25, CV = 0.64) and Great-horned Owls (mean = 0.13, CV = 0.51) for the four routes that were surveyed in both years. Power calculations using data from these four

routes indicate that there is low power to detect long-term trends in the number of singing owls detected unless more surveys were included in the analysis.

DISCUSSION

Several owl surveys were conducted throughout Alaska during 2001, but less than two owls were detected on 17 of 26 routes. The high variation in detections between years indicates that a much greater effort is needed to detect trends in abundance in common owl species. In areas that have consistently high detections of owls, this would not be a problem; however, it is likely that there is high annual variation in owl population size. For example, Boreal Owls track predictable fluctuations in vole densities in Eurasian coniferous forests (Korpimäki and Norrdahl 1989). In some parts of Alaska, however, vole densities are not cyclic but fluctuate across an order of magnitude in an unpredictable manner (Rexstad and Debevec 2001). Understanding the relationship between vole and owl populations may be a crucial part of interpreting singing rates of common owl species, such as the Boreal Owl.

Singing owl surveys may not be appropriate for monitoring some owl species. For Boreal Owls, there is evidence that songs are primarily dependent on pairing status (Konig 1968 *in* Mikkola 1983; Lundberg 1978) and may be inversely related to breeding success (Lundberg 1978). Weather variables such as wind, low temperature, and cloud cover also likely affect singing activity (Konig 1968 *in* Mikkola 1983). Large-scale auditory surveys have been used in Canada to monitor regional owl populations; yet, Canadian biologists have not determined how these surveys relate to relative abundance of owls (pers. comm. Kurt Mazur, Avian Ecologist, Manitoba Conservation, Wildlife Branch). I found no evidence to suggest that abundance estimates from auditory surveys reflect actual relative abundance of Boreal Owls. This may not be the case for other owl species such as Great-horned Owls (Ted Swem, pers. comm.).

Singing owl surveys are likely valuable for detecting irruptions of owls, rather than long-term trends in owl abundance. More study is needed to determine how these surveys might be used to meet the objectives of the *Boreal Partners in Flight* working group.

Integrating conservation of raptors into *Boreal Partners In Flight*

John Wright, *Alaska Department of Fish and Game*

As a group, raptors require special survey techniques to monitor changes in the size of their populations. They are generally found at low densities, are widely distributed, and are often secretive. Therefore, survey procedures used to monitor passerines, such as BBS and ORPC, are not practical for most raptors.

Our recommendation at this time is that a statewide-raptor specialist is needed to address the issue of developing monitoring programs for raptors in Alaska. Biologists currently working with raptors do not have the time to devote to this task. There is a new program devoted to raptors, the North American Raptor Monitoring Strategy (<http://srfs.wr.usgs.gov/NARMS.htm>), but it is in its infancy and Alaskans have not participated significantly. We recommend that if a new statewide-raptor specialist is established, that they actively participate in the NARMS program.

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Table 1. Summary of owl surveys in Alaska during 2001.

Route	Agency	Contact	Location Notes	Stops		Owls/route		Date Range	Number of Detections		
				(mean)	#	(mean)	#		BOOW	GHOW	NSOW
Tanana Loop	ADFG	Steve DuBois	Delta Junction	12	1	7	4	4-Apr	3	3	7
Cummings Rd	ADFG	Steve DuBois	Delta Junction	12	1	27	8	7-Apr	19	8	27
Richardson Hwy	ADFG	Steve DuBois	Delta Junction	3	1	0		12-Apr			0
Marion Creek N	BLM	Tim Craig	Near Coldfoot	12	1	8		28-Feb	8		8
Marion Creek S	BLM	Tim Craig	Near Coldfoot	12	1	2		6-Feb	2		2
Old Woman Cabin 1	BLM	Bruce Seppi	Idatarod Trail (near Kaltag)	20	1	5		26-Mar	4	1	5
Tripod Flats	BLM	Bruce Seppi	Idatarod Trail (near Kaltag)	22	1	0		27-Mar			0
Old Woman Cabin 2	BLM	Bruce Seppi	Idatarod Trail (Unalakleet)	20	1	2		28-Mar	2		2
Fort Greely	CSU	Jeff Mason	Delta Junction	13	3	0		30-Mar--22 Apr *	1		1
Yukon, V-Charley	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	14	1	0		21-Mar			0
Kandik	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	12	1	0		22-Mar			0
Yukon IV	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	16	1	1		22-Mar	1		1
Montiak Bluff	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	16	1	1		25-Mar	1		1
Yukon III	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	16	1	1	1	25-Mar			1
Hard Luck	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	16	1	0		26-Mar			0
Nation River	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	15	1	0		26-Mar			0
Coal Creek	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	14	1	0		29-Mar			0
Upper Road	NPS	Debbie Nigro	Yukon-Charlie National Park and Preserve	14	1	0		29-Mar			0
Hatchery Creek	USFS	Ellen Lance	Tongass National Forest (Thorn Bay RD)	10	2	4		20-Feb, 20-Apr		7	7
Heeeta Island	USFS	Ellen Lance	Tongass National Forest (Thorn Bay RD)	11	1	2	1	2-Apr		1	2
Sandy Beach	USFS	Ellen Lance	Tongass National Forest (Thorn Bay RD)	17	1	0		14-Apr			0
Wrangel Island	USFS	Peg Robertson	Tongass National Forest (Wrangel RD)	10	1	1		1-Apr		1	1
Resurrection Creek Road	USFS		Chugach National Forest (Seward RD)	22	6	6	13	25-Mar-17 Apr	10	10	33
Swan Lake Rd	USFWS	Liz Jozwiak	Kenai National Wildlife Refuge	10	1	2		24-Apr *	1	1	2
Aleknagik Rd	USFWS	Rob MacDonald	Togiak National Wildlife Refuge	13	6	14	84	12 Mar-13 May *	2	84	86
Tetlin	USFWS	Buddy Johnson	Tetlin National Wildlife Refuge	16	1	6	5	3-Apr *	1	5	6
Galena	USFWS	Karin Lehmkuhl	Koyukuk/Nowitna NWR	10	4	6		13-Mar--13 Apr	24		24
<i>Total</i>				<i>378</i>	<i>43</i>	<i>89</i>	<i>116</i>		<i>79</i>	<i>21</i>	<i>216</i>

= number of times the route was surveyed, * indicate routes surveyed in 2000 and 2001

Barred Owls (1-3 individuals were detected on the Hatchery Route on 2/20)

Great Gray Owl Detected on the Tetlin Route and Hope Route

Possible Long-eared Owl heard on Wrangel Island Route

BOOW Boreal Owl

GHOW Great Horned Owl

NSOW Northern Saw-whet Owl

INVENTORY AND MONITORING

Double-observer approach for estimating detection probability and abundance from point counts

Patricia Heglund, *U.S. Fish and Wildlife Service*

Abstract from Nichols et al. 2000. Auk 117(2)393-408

Although point counts are frequently used in ornithological studies, basic assumptions about detection probabilities often are untested. We apply a double-observer approach developed to estimate detection probabilities for aerial surveys (Cook and Jacobson 1979) to avian point counts. At each point count, a designated “primary” observer indicates to another (“secondary”) observer all birds detected. The secondary observer records all detections of the primary observer as well as any birds not detected by the primary observer. Observers alternate primary and secondary roles during the course of the survey. The approach permits estimation of observer-specific detection probabilities and bird abundance. We developed a set of models that incorporate different assumptions about sources of variation (e.g. observer, bird species) in detection probability. Seventeen field trials were conducted, and models were fit to the resulting data using program SURVIV.

Single-observer point counts generally miss varying proportions of the birds actually present, and observer and bird species were found to be relevant sources of variation in detection probabilities. Overall detection probabilities (probability of being detected by at least one of the two observers) estimated using the double-observer approach were very high (>0.95), yielding precise estimates of avian abundance. We consider problems with the approach and recommend possible solutions, including restriction of the approach to fixed-radius counts to reduce the effect of variation in the effective radius of detection among various observers and to provide a basis for using spatial sampling to estimate bird abundance on large areas of interest. We believe that most questions meriting the effort required to carry out point counts also merit serious attempts to estimate detection probabilities associated with the counts. The double-observer approach is a method that can be used for this purpose.

Effects of beach buffer width on avian communities in Southeast Alaska

Michelle Kissling, *U.S. Fish and Wildlife Service*

A two-year study was initiated to evaluate and monitor current forest beach buffer guidelines for landbirds in the Tongass National Forest, Southeast Alaska. Point counts, using the variable circular plot method, and vegetation sampling are being conducted during the breeding season in the northern part of the region. In addition, the double-observer approach has been employed to increase detection probabilities and ensure safety of observers. Using a stratified, random sampling design, point count stations are located in forested beach buffers ranging from 5 m – 500 m in width. Additional variables include distance from beach and clearcut, type of habitat, and vegetation characteristics. A simulation model will be developed to predict population trends of landbirds associated with the beach fringe. Future goals include collecting demographic data (i.e. productivity, survival) to contribute to a more thorough evaluation of current forest guidelines.

An inventory of landbirds in Yukon-Charley Rivers National Preserve

Debbi Nigro and Shelli Swanson, *National Park Service-Yukon Charley Rivers National Preserve*

In 1998 Yukon-Charley Rivers National Preserve received funding to conduct an inventory of birds in the Preserve. We used a stratified random sampling scheme based on ecological subsections to select forty 10-km x 10-km sampling blocks in the Preserve. Breeding birds were surveyed on 20 blocks each in June 1999 and 2000 using variable-circular plots. Vegetation was also measured at each of the count points. A total of 12,267 birds of 85 species were detected at 1415 count stations over the 2 years. We detected another 30 species while traveling between points. In total, 86% of the species thought to breed in the Preserve were detected during this effort.

We estimated breeding density and population size for 36 species (Table 2) based on the number of birds counted and detection probabilities calculated in program DISTANCE 3.5 (Buckland et al. 2001). Stratification of the counts by detailed ecological units improved the precision of the estimates of breeding density for 34 of the 36 species (average improvement in precision = $8.0 \pm 6.9\%$) and marginally decreased precision for only 2 species (average decrease in precision = $-1.3 \pm 0.6\%$). Therefore, we advocate stratifying counts by attributes of geography when deriving density and population estimates for birds across large heterogeneous landscapes. Interestingly, species with the highest densities were not necessarily those that were counted most often. For example, the Boreal Chickadee (*Poecile hudsonica*) was only the 23rd most abundant bird based on counts alone ($n = 87$ birds). However, it was ranked the 5th most abundant species after we adjusted the counts for the low detection probability of this quite calling species. Conversely, the loud singing Swainson’s Thrush (*Catharus ustulatus*) was the 4th most abundant bird based on counts ($n = 543$ birds) but only the 11th most abundant based on counts adjusted by its high detection probability (Table 2). Thus, valid conclusions on the diversity and composition of songbird communities cannot be made without adjusting counts for species-specific detection probabilities.

Table 2. Estimates of average density (D_{st} , pairs/ha), total abundance (N_{st} , pairs), and associated 95% confidence intervals for 36 common species of breeding birds in Yukon Charley Rivers National Preserve, Alaska, 1999-2000. Average breeding density for the preserve was calculated by taking the average of the stratum estimates weighted by area. Note that those species that were most abundant based on total number of birds counted (n) were not always the most abundant based on density estimates.

Species	n	D_{st}	$cv(D_{st})$	95% CI(D_{st})		N_{st}	95% CI(N_{st})	
				Lower	Upper		Lower	Upper
Rock Ptarmigan	16	0.0199	0.485	0.0056	0.0706	19,031	5,379	67,333
Willow Ptarmigan	13	0.0041	0.408	0.0013	0.0132	3,883	1,201	12,553
Common Snipe	41	0.0037	0.165	0.0017	0.0082	3,539	1,605	7,804
Olive-sided Flycatcher	66	0.0122	0.188	0.0053	0.0282	11,685	5,076	26,899
Yellow-bellied Flycatcher	23	0.0187	0.291	0.0068	0.0515	17,885	6,511	49,124
Alder Flycatcher	137	0.0392	0.143	0.0188	0.0814	37,370	17,975	77,691

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Species	<i>n</i>	<i>D_{st}</i>	<i>cv(D_{st})</i>	95% CI(<i>D_{st}</i>)		<i>N_{st}</i>	95% CI(<i>N_{st}</i>)	
				Lower	Upper		Lower	Upper
Hammond's Flycatcher	85	0.0763	0.195	0.0328	0.1776	72,817	31,289	169,463
Gray Jay	255	0.1974	0.189	0.0868	0.4488	188,333	82,850	428,116
Horned Lark	68	0.0447	0.200	0.0190	0.1052	42,687	18,151	100,391
Boreal Chickadee	87	0.2176	0.211	0.0915	0.5175	207,618	87,312	493,693
Ruby-crowned Kinglet	257	0.0920	0.116	0.0475	0.1781	87,752	45,318	169,921
Northern Wheatear	26	0.0078	0.306	0.0028	0.0219	7,431	2,640	20,918
Townsend's Solitaire	19	0.0099	0.326	0.0034	0.0286	9,415	3,252	27,260
Gray-cheeked Thrush	277	0.1468	0.126	0.0737	0.2921	140,020	70,354	278,671
Swainson's Thrush	543	0.1179	0.095	0.0650	0.2138	112,476	62,034	203,933
Hermit Thrush	69	0.0037	0.288	0.0014	0.0100	3,513	1,295	9,534
Varied Thrush	497	0.1589	0.101	0.0852	0.2965	151,630	81,276	282,885
American Robin	356	0.0993	0.087	0.0557	0.1770	94,716	53,134	168,839
American Pipit	123	0.0861	0.209	0.0360	0.2063	82,156	34,300	196,784
Bohemian Waxwing	16	0.0122	0.351	0.0040	0.0368	11,630	3,850	35,132
Orange-crowned Warbler	255	0.1155	0.121	0.0585	0.2281	110,191	55,797	217,610
Yellow-rumped Warbler	803	0.6837	0.079	0.3945	1.1850	652,257	376,329	1,130,495
Townsend's Warbler	97	0.0304	0.258	0.0116	0.0796	28,977	11,051	75,984
Yellow Warbler	20	0.0049	0.201	0.0020	0.0115	4,633	1,952	10,994
Wilson's Warbler	247	0.0965	0.117	0.0496	0.1881	92,101	47,274	179,437
Northern Waterthrush	41	0.0113	0.300	0.0041	0.0314	10,771	3,871	29,973
American Tree Sparrow	415	0.1419	0.138	0.0692	0.2909	135,344	66,004	277,527
Fox Sparrow	262	0.0749	0.101	0.0403	0.1393	71,457	38,426	132,881
Savannah Sparrow	259	0.1343	0.125	0.0676	0.2665	128,087	64,523	254,271
Lincoln's Sparrow	115	0.0289	0.217	0.0118	0.0703	27,531	11,302	67,062
White-crowned Sparrow	800	0.2482	0.081	0.1427	0.4317	236,775	136,138	411,804
Dark-eyed Junco	1175	0.6661	0.074	0.3906	1.1359	635,460	372,631	1,083,672
Lapland Longspur	44	0.0673	0.393	0.0214	0.2117	64,247	20,434	202,000
White-winged Crossbill	183	0.2605	0.286	0.0962	0.7054	248,521	91,780	672,944
Pine Grosbeak	60	0.0322	0.228	0.0130	0.0801	30,750	12,366	76,463
Common Redpoll	96	0.0792	0.138	0.0386	0.1625	75,583	36,846	155,046

Implementing the Alaska Off-road Breeding Bird Survey in Western Alaska and the Aleutian and Bering Sea Islands

Brian McCaffery, *U.S. Fish and Wildlife Service—Yukon Delta National Wildlife Refuge*
 Colleen Handel and Steve Matsuoka, *U.S. Geological Survey—Alaska Science Center*

On January 17th, we held a meeting to discuss implementing the Alaska Off-road Breeding Bird Survey in Western Alaska and the Aleutian and Bering Sea Islands Bird Conservation Regions (BCR). In attendance were Alan Bennett (NPS-Southwest Area Parks), Fred Broerman (Yukon Delta NWR), Colleen Handel (USGS), Chris Harwood (Yukon Delta NWR), Pat Heglund (USFWS-Refuges), Steve Matsuoka (USGS), Brian McCaffery (Yukon Delta NWR) - *Chair*, Heather Moore (Alaska Maritime NWR), Tina Moran (Selawik NWR), Karen Oakley (USGS), Susan Savage (Alaska Peninsula NWR), Kristine Sowl (Izembek NWR), John Terenzi (USGS), and Pat Walsh (Togiak NWR). The overall goal of the meeting was to discuss how conservation units in the Western Alaska and the Aleutian and Bering Sea Island BCRs could contribute to a well-designed and statistically robust statewide monitoring program for landbirds in Alaska. The group discussed several topics including 1) random vs. stratified random sampling, 2) targeting priority species, 3) technical aspects of counting birds, 4) what agencies, parks, and refuges would be involved in the sampling, 3) logistical constraints of conducting surveys in roadless areas, and 4) the need for long-term technical and financial support to make this a lasting program. The following are some of the results of our discussions.

RECOMMENDATIONS

- 1) The sampling universe will initially include federal lands (i.e. USFWS, NPS, BLM, and DoD). State Parks and Refuges could also be included in the future if funds from the Conservation and Reenactment Act (CARA) become available to support additional surveys.
- 2) Stratifying sampling by habitat or to target priority species was not recommended because both habitats and priorities may change over time. Also, a subset of the *Partners in Flight* priority species already have documented population declines, thus additional long-term surveys may not bring further insight into the status of this subset of species.
- 3) Within the two BCRs, a sample of 10-km x 10-km survey blocks will be randomly assigned to federal land units in proportion to their size such that a total of approximately 45 blocks are sampled each year. Blocks located in areas with high elevations, steep slopes (> 25 degrees), snow and ice, and large lakes will be excluded from sampling.
- 4) We are recommending that the previous non-random routes be dropped to free up the resources necessary to establish and survey the randomly assigned blocks. These non-random routes were part of the design phase of the program and were critical in developing an efficient survey that will provide us with broad inference on the status of landbird population both within the individual BCRs and across the state. However, the early routes were sited opportunistically and will not provide us with inference on birds outside of the immediate areas that they sampled.
- 5) Previous analyses by Colleen Handel suggested that little statistical power to detect trends is lost when going from annual to biennial surveys. Therefore, we proposed to vary the frequency that blocks are surveyed (some annual, some biennial) to increase the overall sample size. Under this scheme, blocks will be assigned to one of three panels such that 1/5 of the blocks (panel 1) are surveyed every year, 2/5 of the blocks (panel 2) are surveyed during even years (i.e., years 2, 4, 6, 8, 10, etc.), and 2/5 of the blocks (panel 3) are surveyed during odd years (i.e., years 1, 3, 5, 7, 9, etc.). Thus, 3/5 of the blocks will be surveyed on any given year. Blocks will ideally be

randomly assigned to each of the three panels; however, the group discussed the possibility of allocating samples to panels based on logistical constraints.

6) Each selected 10-km x 10-km block will include two 12-point routes except for most blocks in the Alaska Maritime NWR, which will include a single route due to high rates of detection of birds, small island land areas, and high daily costs of running a research vessel. The routes in other areas will be clustered within blocks to increase the number of detections recorded per block, which will increase the power to detect declining trends. For blocks in areas with navigable rivers, we also discussed pairing routes such that one boat-based route is established to sample riparian habitats and one land-based route oriented perpendicular to the river is established to sample adjacent upland habitats.

7) We will survey birds using the point-transect method with distance estimation (Buckland et al. 2001). Distance methods are preferred to standard counts because they control for changes in detection rates of birds over time that may result from changes in observers, habitats, or other measurable factors. We discussed the pros and cons of using different count durations (i.e. 5 or 8 minutes) and distance intervals but did not come to a formal conclusion on what we should adopt. We are considering following the protocol used to survey birds in Yukon Charley Rivers National Preserve where each count point was surveyed for 8 minutes with the distance to each bird recorded in 10-m intervals to 100 m and 25-m intervals thereafter.

8) We also recommend that observers should be maintained for a minimum of 3 consecutive years when possible. This is similar to the requirements of the North American Breeding Bird Survey. With distance estimation, we can use analytical methods to control for changes in observers over time. However, we should always first strive to minimize observer effects by having surveys run by personnel with long-term commitments to their refuge, park, or conservation unit.

TOPICS FOR FURTHER DISCUSSION

1) Securing the long-term funding and bureaucratic support necessary to sustain the collection, management, and analysis of the data over time will be critical and challenging. This will require commitments from all contributing agencies. Much more work will need to be accomplished on this front to make this an enduring program.

2) Several members of the group felt that participation by the USFWS—Division of Migratory Bird Management will be central to the program and therefore needs to be defined in the near future. Some suggested that the new Landbird Coordinator could help the U.S Geological Survey lead the coordination of the collection, management, and analysis of data.

3) As a statewide group we must develop training programs and standardized methods for testing observers in both bird identification and distance estimation. We should consider using existing protocols such as the training program developed for monitoring landbirds on National Forests in the Northern Rockies (Jock Young and Richard Hutto, University of Montana).

4) We discussed the importance of locating routes in areas accessible by boat, plane, or helicopter and orienting routes across gradients in elevation or habitat to reduce biases in

sampling. However, we need to establish formal guidelines for setting up routes within selected blocks.

5) The details of the Alaska Off-road Breeding Bird Survey need to be worked out in the other Bird Conservation Regions in the Alaska to make sure the survey design and methods employed are consistent throughout the state.

Evaluating the Monitoring Avian Productivity and Survivorship (MAPS) program in Alaska and adjacent Canada

Steve Matsuoka, Joel Schmutz, and Karen Oakley, *U.S. Geological Survey*

Patricia Heglund, *U.S. Fish and Wildlife Service*

David DeSante, *Institute of Bird Populations*

The Monitoring Avian Productivity and Survivorship (MAPS) Program was founded by the Institute of Bird Populations in 1989 to monitor patterns in demography for populations of landbirds in North America. The program was an outgrowth of the widespread concern over the long-term population declines that had been observed for many species of landbirds in North America (Robbins et al. 1989). The MAPS program examines spatial and temporal patterns in adult survival and annual productivity of birds using a network of constant effort mist-net stations where individual birds are banded and recaptured over time. By monitoring spatial and temporal patterns in avian birth and death rates and relating them to landscape-level habitat and weather (DeSante et al. 2001a), the program aims to help identify the causes of population declines (Nott 2000).

To date, 36 MAPS stations in Alaska and five in western boreal Canada have been operated for various lengths of time since 1991 by biologists from the Alaska Bird Observatory, Canadian Wildlife Service, Institute of Bird Populations, National Park Service, USDA Forest Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, and private organizations. Decisions to establish and run MAPS stations have been made independently by the various collaborators and agencies involved, thus the stations are sited opportunistically and are meant to contribute to a national-scale program. Data from these 41 MAPS stations (hereafter referred to as “in Alaska”) are also analyzed and reported upon separately (e.g. DeSante et al. 2001b), although annual differences in productivity indices and time-constant estimates of annual adult survival rates have been reported for Alaska and boreal Canada as a whole in the MAPS annual reports published in *Bird Populations* (e.g. DeSante and O’Grady 2000). As a result, spatial and temporal patterns in adult survival and annual productivity have not been examined for any bird species throughout Alaska. We are currently evaluating the MAPS Program in Alaska by examining the data collected to date to examine variation in the vital rates of landbird populations in Alaska across habitats, bird conservation regions, and time. We will determine whether the current deployment of effort should be continued, or whether modifications could improve the program from the viewpoint of land and natural resource managers in Alaska. We are addressing the following objectives with our analyses.

1. Determine if capture rates of adults and juveniles are reliable indices of breeding abundance and breeding success.

2. Determine how adult survival and annual productivity vary with habitat, geographic location, and time.
3. Identify which species are being sampled adequately to detect differences in productivity and survival between geographic areas or habitats over time.
4. Identify which species are being sampled adequately to estimate precise temporal trends in survival and productivity.
5. Identify those species whose productivity, survival, and associated trends in demographics could be estimated adequately with a modest increase in the number of stations.

The Institute of Bird Populations and the USGS-Patuxent Wildlife Research Center will conduct the analyses. Products will include a final peer-reviewed report to the contributors of the MAPS program in Alaska and western Canada (January 2003) and a final manuscript submitted for publication (March 2003).

Migration monitoring activities in Alaska, 2001

Anna-Marie Benson, *Alaska Bird Observatory*

This past year, several BPIF members collaborated on two studies examining data on monitoring landbirds during migration. These collaborations were funded by USFWS (Tetlin National Wildlife Refuge, Division of Nongame Migratory Bird Management, and the Division of Natural Resources). First we examined spatial variation in the timing of Wilson's Warbler (*Wilsonia pusilla pileolata*) migration at four locations in Alaska: Fairbanks (64°50' N, 147°50'W), Tok (63°22'N, 143°12'W), Mother Goose Lake (57°11'N, 157°15'W) and Yakutat (59°30'N, 139°40'W). This species was selected for analyses because it was relatively abundant at migration stations in Alaska and was the focus of a species-specific workshop in Sitka in 2000. Our objective was to determine whether the timing of migration was similar among stations across Alaska. Spring arrival of males on their breeding grounds was significantly earlier than females in Tok and Fairbanks stations indicated that. During autumn, immature warblers migrated earlier than adults across all stations, but no station showed between-sex variation in the timing of fall migration.

We also examined whether abundance indices from data collected at Tok and Fairbanks migration stations had a positive relationship from 1992-2000 for 10 species. We calculated the power to detect trends in abundance indices from these data. Preliminary analyses suggested that daily weather variables are important factors affecting the number of birds captured. Weather variables can be controlled statistically, but we did not find positive relationships between abundance indices from these two sites for many species. Power to detect trends in abundance was weak for many species. Additional sites may be required for migration counts to be a valuable population monitoring technique in Alaska. Final results will be presented in the next *BPIF* report.

A summary of bird banding activities in Alaska, 2001

Tim Walker, *Alaska Bird Observatory*

The following tables summarize the number of birds banded in 2001 by area, species and age as part of the Monitoring Avian Productivity and Survivorship (MAPS) program, migration monitoring, and miscellaneous inventory, education, and research efforts.

Table 3. Monitoring Avian Productivity and Survivorship activities in Alaska, 2001.

BIOREGION:	Southeast Hoonah				Southeast Mendenhall				Southeast Yakutat			
SITE NAME:	Hoonah				Mendenhall				Yakutat			
CONTACT/AFFILIATION:	Don Youkey, USFS				Don Youkey, USFS				Don Youkey, USFS			
Number of Stations	1				1				1			
No. days banding:	11				8				7			
Range of dates:	2 June - 2 Aug				6 June - 5 Aug				8 June - 6 Aug			
No. net-hours:	394				415				415			
SPECIES	HY	AHY	UKN	TOT	HY	AHY	UKN	TOT	HY	AHY	UKN	TOT
Sharp-shinned Hawk	1			1								
Solitary Sandpiper												
Rufous Hummingbird	6	7		13	1	1		2	1	5		6
Red-breasted Sapsucker	3	1		4								
Downy Woodpecker												
Three-toed Woodpecker		1		1								
Olive-sided Flycatcher												
Western Wood-Pewee												
Alder Flycatcher						2		2				
Pacific-slope Flycatcher	1	4		5		1		1				
Tree Swallow												
Gray Jay												
Steller's Jay										1		1
Black-capped Chickadee												
Boreal Chickadee												
Chestnut-backed Chickadee	2	2		4		3		3				
Red-breasted Nuthatch									3			3
Brown Creeper	3			3	1		1	2				
Winter Wren		2	1	3		1		1				
Arctic Warbler												
Golden-crowned Kinglet					6			6				
Ruby-crowned Kinglet	14	20		34	21	10	2	33	6	3		9
Gray-cheeked Thrush												
Swainson's Thrush		10		10		3		3	14	16		30
Hermit Thrush	9	11		20	2	10		12	1	3		4
American Robin		3		3					6	3		9
Varied Thrush	2	5		7	11	5	2	18				
Bohemian Waxwing												
Northern Shrike												
Warbling Vireo						1		1				
Orange-crowned Warbler	3	15		18	10	7	1	18	6	16	1	23
Yellow Warbler						1		1		4		4
Myrtle Warbler						3		3				
Townsend's Warbler	2	9		11	1			1				
Blackpoll Warbler												
American Redstart						1		1				
Northern Waterthrush												
Wilson's Warbler	8	20		28	12	6		18	15	22		37
American Tree Sparrow												
Savannah Sparrow												
Fox Sparrow									11	5		16
Song Sparrow						3		3				
Lincoln's Sparrow	3	4		7		2		2	20	8		28
Golden-crowned Sparrow												
White-crowned Sparrow												
Slate-colored Junco												
Oregon Junco	2	5		7	23	10		33	5	1		6
Dark-eyed Junco												
Red-winged Blackbird												
Rusty Blackbird												
Brambling												
Pine Grosbeak												
White-winged Crossbill									1	1		2
Common Redpoll												
Pine Siskin												
TOTAL OF ALL SPECIES	59	119	1	179	88	70	6	164	89	88	1	178
CAPTURE RATE (#/100nh)	15.0	30.2	0.3	45.4	21.2	16.9	1.4	39.5	21.4	21.2	0.2	42.9

Table 3. Continued.

BIOREGION:	Southwest				Southeast				Southeast			
SITE NAME:	Mother Goose Lake				Portage Valley				Johnson Pass			
CONTACT/AFFILIATION:	Susan Savage/USFWS				Aaron Poe/USFS				Aaron Poe/USFS			
Number of Stations	3				1				1			
No. days banding:	25				6				6			
Range of dates:	10 June - 2 Aug				13 June - 2 Aug				14 June - 7 Aug			
No. net-hours:	1,077				295				354			
SPECIES	HY	AHY	UKN	TOT	HY	AHY	UKN	TOT	HY	AHY	UKN	TOT
Sharp-shinned Hawk												
Solitary Sandpiper												
Rufous Hummingbird												
Red-breasted Sapsucker												
Downy Woodpecker	1	1		2								
Three-toed Woodpecker										3		3
Olive-sided Flycatcher												
Western Wood-Pewee												
Alder Flycatcher		8		8								
Pacific-slope Flycatcher												
Tree Swallow	3	9		12								
Gray Jay												
Steller's Jay												
Black-capped Chickadee	37	5		42		1		1				
Boreal Chickadee										2		2
Chestnut-backed Chickadee												
Red-breasted Nuthatch												
Brown Creeper												
Winter Wren												
Arctic Warbler												
Golden-crowned Kinglet												
Ruby-crowned Kinglet					10	15		25	2	12	1	15
Gray-cheeked Thrush	4	9		13								
Swainson's Thrush						1		1	2	9		11
Hermit Thrush	53	24		77	8	9		17	3	10		13
American Robin	6	6		12						1		1
Varied Thrush					3	2		5		6		6
Bohemian Waxwing												
Northern Shrike	1			1								
Warbling Vireo												
Orange-crowned Warbler	52	29		81	10	17		27	5	13		18
Yellow Warbler	19	55		74		1		1				
Myrtle Warbler					1	4		5	3	5	2	10
Townsend's Warbler						3		3		4		4
Blackpoll Warbler												
American Redstart												
Northern Waterthrush												
Wilson's Warbler	430	138		568	13	13		26	1	12		13
American Tree Sparrow	8	1		9								
Savannah Sparrow	12	6		18		2		2				
Fox Sparrow	23	11	1	35								
Song Sparrow					4	21	1	26				
Lincoln's Sparrow						1		1				
Golden-crowned Sparrow	12	22		34		2		2		3		3
White-crowned Sparrow	2	3		5								
Slate-colored Junco												
Oregon Junco												
Dark-eyed Junco										11	5	16
Red-winged Blackbird												
Rusty Blackbird												
Brambling		1		1								
Pine Grosbeak		4		4						1		1
White-winged Crossbill												
Common Redpoll	11	62		73		1		1				
Pine Siskin										1		1
TOTAL OF ALL SPECIES	674	394	1	1,069	49	93	1	143	27	87	3	117
CAPTURE RATE (#/100nh)	62.6	36.6	0.1	99.3	16.6	31.5	0.3	48.5	7.6	24.6	0.8	33.1

Table 3. Continued.

BIOREGION:	Central				Central			TOTAL			
SITE NAME:	Denali National Park				Canvasback Lake						
CONTACT/AFFILIATION:	Danielle O'Grady, IBP				David Shaw, ABO						
Number of Stations	6				1			15			
No. days banding:	36				6						
Range of dates:	10 June - 7 Aug				11 June - 31 July						
No. net-hours:	2,032				360						
SPECIES	HY	AHY	UKN	TOT	HY	AHY	TOT	HY	AHY	UKN	TOT
Sharp-shinned Hawk								1			1
Solitary Sandpiper			1	1						1	1
Rufous Hummingbird								8	13		21
Red-breasted Sapsucker								3	1		4
Downy Woodpecker								1	1		2
Three-toed Woodpecker		2		2					6		6
Olive-sided Flycatcher						3	3		3	3	6
Western Wood-Pewee					4	12	16	4	12	16	32
Alder Flycatcher		13		13		2	2		25	2	27
Pacific-slope Flycatcher								1	5		6
Tree Swallow								3	9		12
Gray Jay	5	6		11				5	6		11
Steller's Jay									1		1
Black-capped Chickadee	16	3		19				53	9		62
Boreal Chickadee	1	14		15	2	1	3	3	17	3	23
Chestnut-backed Chickadee								2	5		7
Red-breasted Nuthatch								3			3
Brown Creeper								4		1	5
Winter Wren									3	1	4
Arctic Warbler	11	16		27				11	16		27
Golden-crowned Kinglet								6			6
Ruby-crowned Kinglet	7	4		11	4		4	64	64	7	135
Gray-cheeked Thrush	11	9		20				15	18		33
Swainson's Thrush	9	16		25	4	7	11	29	62	11	102
Hermit Thrush	5	7		12				81	74		155
American Robin	4	4		8	6	20	26	22	37	26	85
Varied Thrush	1	6		7				17	24	2	43
Bohemian Waxwing	1			1	1	3	4	2	3	4	9
Northern Shrike								1			1
Warbling Vireo									1		1
Orange-crowned Warbler	54	36		90	1	6	7	141	139	9	289
Yellow Warbler	1	1		2	42	31	73	62	93	73	228
Myrtle Warbler	14	19		33	8	19	27	26	50	29	105
Townsend's Warbler								3	16		19
Blackpoll Warbler	2	3		5	2		2	4	3	2	9
American Redstart									1		1
Northern Waterthrush	6			6	2	1	3	8	1	3	12
Wilson's Warbler	180	101		281				659	312		971
American Tree Sparrow	55	13		68	4	5	9	67	19	9	95
Savannah Sparrow	10	5		15	28	2	30	50	15	30	95
Fox Sparrow	28	13		41	1		1	63	29	2	94
Song Sparrow								4	24	1	29
Lincoln's Sparrow	1			1	10	8	18	34	23	18	75
Golden-crowned Sparrow	1			1				13	27		40
White-crowned Sparrow	123	54		177	11	3	14	136	60	14	210
Slate-colored Junco	44	14		58	50	9	59	94	23	59	176
Oregon Junco								30	16		46
Dark-eyed Junco								11	5		16
Red-winged Blackbird					1		1	1		1	2
Rusty Blackbird					1		1	1		1	2
Brambling									1		1
Pine Grosbeak						1	1		6	1	7
White-winged Crossbill	2			2	8	3	11	11	4	11	26
Common Redpoll	10	59		69	37	6	43	58	128	43	229
Pine Siskin									1		1
TOTAL OF ALL SPECIES	602	418	1	1,021	227	142	369	1,815	1,411	383	3,609
CAPTURE RATE (#/100nh)	29.6	20.6	0.0	50.3	63.1	39.4	102.5				

Table 4. Migration monitoring activities in Alaska, 2001.

BIOREGION:	South-central				Southwest				Central			
SITE NAME:	Campbell Tract				Mother Goose Lake				Creamer's Field			
CONTACT/AFFILIATION:	Bruce Seppi-BLM				Susan Savage/USFWS				AM Benson, ABO			
Range of dates:	15 Aug-14 Sept				3 Aug -13 Sept				25 April - 29 Sept			
Number of days:	22				33				103			
No. net-hours:	1,037				1,526				17,811			
SPECIES	HY	AHY	UKN	TOT	HY	AHY	UNK	TOT	HY	AHY	UKN	TOT
Sharp-shinned Hawk									1			1
Northern Goshawk									1			1
Merlin										1		1
Lesser Yellowlegs										1		1
Solitary Sandpiper										8		8
Downy Woodpecker			1	1	2	1		3		1		1
Hairy Woodpecker										2	1	3
Three-toed Woodpecker									1			1
Northern Flicker		1	1	2								
Yellow-bellied Flycatcher									1			1
Alder Flycatcher	9	1		10	2	3		5	22	17	1	40
Hammond's Flycatcher									41	14	5	60
Tree Swallow										6		6
Violet-Green Swallow										51		51
Cliff Swallow										1		1
Gray Jay												
Black-capped Chickadee	92	10		102	140			140	55	5	8	68
Boreal Chickadee	16	1		17					7	3		10
Red-breasted Nuthatch	1	1		2								
Arctic Warbler												
Golden-crowned Kinglet	12	0		12								
Ruby-crowned Kinglet	153	7		160	1			1	63	3	2	68
Gray-cheeked Thrush					27	2		29	28	7		35
Swainson's Thrush	7			7					60	22		82
Hermit Thrush	145	7		152	434	7		441	15	1		16
American Robin		1		1	20	1		21	16	30	4	50
Varied Thrush	1	2		3					6			6
American Pipit					1			1				
Bohemian Waxwing										1		1
Northern Shrike					3			3	1			1
Orange-crowned Warbler	77	10		87	162	30		192	239	44	5	288
Yellow Warbler	64	8	1	73	362	13	1	376	49	31	5	85
Myrtle Warbler	90	6		96					667	109	39	815
Townsend's Warbler	4	1		5					3	2		5
Blackpoll Warbler	9	2		11					29	16	2	47
American Redstart												
Northern Waterthrush	10	2		12					37	12	2	51
Wilson's Warbler	109	6		115	2281	80	1	2362	90	7		97
American Tree Sparrow					137	6	3	146	232	25	2	259
Savannah Sparrow	1			1	52	2		54	46	11		57
Fox Sparrow	8	5		13	119	5	1	125	26	13		39
Lincoln's Sparrow	17	2		19					214	12	4	230
Golden-crowned Sparrow	38	4		42	147	6	1	154				
White-crowned Sparrow	22	1		23	29			29	38	16		54
Slate-colored Junco	278	24		302					241	48	6	295
Rusty Blackbird										5		5
Pine Grosbeak					2			2				
White-winged Crossbill												
Common Redpoll	9	7		16	199	59		258	21	123	3	147
Pine Siskin										1		1
TOTAL OF ALL SPECIES	1,172	110	3	1,285	4,120	215	7	4,342	2,250	649	89	2,988
CAPTURE RATE (#/100nh)	113.0	10.6	0.3	123.9	270.0	14.1	0.5	284.5	12.6	3.6	0.5	16.8

Table 4. Continued.

BIOREGION:	Central				Central				Total			
SITE NAME:	Denali Institute				Tetlin NWR-Pump							
CONTACT/AFFILIATION:	ABO				Keith Larson							
Range of dates:	30 July - 8 Sept				30 July - 27 Sept							
Number of days:	37				58							
No. net-hours:	2,141				6,650				29,165			
SPECIES	HY	AHY	UKN	TOT	HY	AHY	UKN	TOT	HY	AHY	UNK	TOT
Sharp-shinned Hawk					6	1		7	7	1		8
Northern Goshawk									1			1
Merlin										1		1
Lesser Yellowlegs										1		1
Solitary Sandpiper										8		8
Downy Woodpecker									2	3	1	6
Hairy Woodpecker										2	1	3
Three-toed Woodpecker					2		1	3	3		1	4
Northern Flicker					3	1		4	3	2	1	6
Yellow-bellied Flycatcher									1			1
Alder Flycatcher	12	3		15	36	11		47	81	35	1	117
Hammond's Flycatcher	2			2	3			3	46	14	5	65
Tree Swallow										6		6
Violet-Green Swallow										51		51
Cliff Swallow										1		1
Gray Jay	2			2	4			4	6			6
Black-capped Chickadee	10			10	6	1		7	303	16	8	327
Boreal Chickadee	9	1		10	51	4		55	83	9		92
Red-breasted Nuthatch									1	1		2
Arctic Warbler	13		1	14					13		1	14
Golden-crowned Kinglet									12			12
Ruby-crowned Kinglet	83	7	1	91	217	35		252	517	52	3	572
Gray-cheeked Thrush	13	2		15	27	5		32	95	16		111
Swainson's Thrush	32	4		36	242	16		258	341	42		383
Hermit Thrush	13	2		15	26	1		27	633	18		651
American Robin					11	4		15	47	36	4	87
Varied Thrush	5	2		7	36	2		38	48	6		54
American Pipit									1			1
Bohemian Waxwing					1			1	1	1		2
Northern Shrike	1			1					5			5
Orange-crowned Warbler	60	6	1	67	57	18		75	595	108	6	709
Yellow Warbler	1	1		2	12	12		24	488	65	7	560
Myrtle Warbler	34	1		35	47	25		72	838	141	39	1,018
Townsend's Warbler					1	1		2	8	4		12
Blackpoll Warbler	6			6	4	5		9	48	23	2	73
American Redstart					1			1	1			1
Northern Waterthrush	15	1		16	12	6		18	74	21	2	97
Wilson's Warbler	236	22	2	260	109	23		132	2,825	138	3	2,966
American Tree Sparrow	25	3		28	42	17		59	436	51	5	492
Savannah Sparrow	9	1		10	13	2		15	121	16		137
Fox Sparrow	11	1	1	13	139	21		160	303	45	2	350
Lincoln's Sparrow	7			7	4			4	242	14	4	260
Golden-crowned Sparrow	2			2		1		1	187	11	1	199
White-crowned Sparrow	130	21		151	9	3		12	228	41		269
Slate-colored Junco	35	5		40	432	49		481	986	126	6	1,118
Rusty Blackbird										5		5
Pine Grosbeak									2			2
White-winged Crossbill						17		17		17		17
Common Redpoll	11	4	1	16	26	11		37	266	204	4	474
Pine Siskin										1		1
TOTAL OF ALL SPECIES	777	87	7	871	1,579	292	1	1,872	9,898	1,353	107	11,358
CAPTURE RATE (#/100nh)	36.3	4.1	0.3	40.7	23.7	4.4	0.0	28.2	33.9	4.6	0.4	38.9

Table 5. Education, inventory, and research banding in Alaska, 2001

BIOREGION:	Southeast	Southeast	Southeast	South-central	Central
SITE NAME:	Pilot	Ward Lake	BRAD	Cook Inlet	Creamer's Field
CONTACT/AFFILIATION:	Don Youkey	Don Youkey	Don Youkey	Steve Matsuoka	AM Benson
Affiliation:	USFS	USFS	USFS	USGS	ABO
Type of Banding:	Training	Education	Training	Research	Training
No. days banding:	3	2	1		2
Range of dates:	26 - 30 May	20 - 21 April	9 June		24-25 July
No. net-hours:	36	18	6		
SPECIES	AHY	AHY	AHY	HY AHY UKN TOT	HY AHY UKN TOT
Semipalmated Plover					
Spotted Sandpiper					
Red-breasted Sapsucker	1				
Alder Flycatcher					1 1
Hammond's Flycatcher					1 1
Tree Swallow					
Violet-Green Swallow					
Gray Jay					
Black-capped Chickadee				492 290 185 967	
Boreal Chickadee				87 36 16 139	
Chestnut-backed Chickadee	1				
Red-breasted Nuthatch				31 27 1 59	
Winter Wren	1				
Ruby-crowned Kinglet					1 1
Gray-cheeked Thrush					
Swainson's Thrush					
Hermit Thrush	5		1		
American Robin		2			
Varied Thrush					
Orange-crowned Warbler	2		4		2 3 5
Yellow Warbler	1				1 1
Myrtle Warbler					
Townsend's Warbler					
Blackpoll Warbler					
Northern Waterthrush					
Wilson's Warbler	4		3		
American Tree Sparrow					
Savannah Sparrow					
Fox Sparrow	2	1			
Song Sparrow		2			
Lincoln's Sparrow	1				6 1 2 9
White-crowned Sparrow					1 1
Slate-colored Junco					2 1 3
Oregon Junco					
Common Redpoll					
TOTAL OF ALL SPECIES	18	5	8	610 353 202 1,165	14 6 2 22
CAPTURE RATE (#/100nh)	50.0	27.8	133.3		

Table 5. Continued.

BIOREGION: SITE NAME: CONTACT/AFFILIATION: Affiliation: Type of Banding: No. days banding: Range of dates: No. net-hours:	Southwestern King Salmon	Western Unalakleet/ Anvik/Bonasila Bruce Seppi BLM Misc breeding	Central Creamer's Field AM Benson ABO Research	Central Eielson AFB/ Bonanza Cr. Kristen Bartecchi ABO Research	Total
SPECIES	HY AHY TOT	AHY	HY AHY TOT	HY AHY UKN TOT	HY AHY UKN TOT
Semipalmated Plover		2			2 2
Spotted Sandpiper		7			7 7
Red-breasted Sapsucker					1 1
Alder Flycatcher		1		2 2	4 4
Hammond's Flycatcher					1 1
Tree Swallow			77 30 107		77 30 107
Violet-Green Swallow			1 1		1 1
Gray Jay		1			1 1
Black-capped Chickadee			17 17	2 2	511 290 185 986
Boreal Chickadee		1			87 37 16 140
Chestnut-backed Chickadee					1 1
Red-breasted Nuthatch					31 27 1 59
Winter Wren					1 1
Ruby-crowned Kinglet					1 1
Gray-cheeked Thrush	3 3				3 3
Swainson's Thrush		12			12 12
Hermit Thrush	1 1				7 7
American Robin	13 13	1			16 16
Varied Thrush		2			2 2
Orange-crowned Warbler	4 4	1		2 2	2 16 18
Yellow Warbler		4		1 1	1 6 7
Myrtle Warbler	3 3	3		46 46	52 52
Townsend's Warbler				33 33	33 33
Blackpoll Warbler	5 5	3			8 8
Northern Waterthrush	1 1	35			36 36
Wilson's Warbler	11 11	2			20 20
American Tree Sparrow	3 3				3 3
Savannah Sparrow	8 8		1 1		9 9
Fox Sparrow		4			7 7
Song Sparrow					2 2
Lincoln's Sparrow					6 2 2 10
White-crowned Sparrow	4 4	8		1 1	1 13 14
Slate-colored Junco		2		1 89 1 91	3 92 1 96
Oregon Junco	1 11 12				1 11 12
Common Redpoll		20			20 20
TOTAL OF ALL SPECIES	1 67 68	109	94 32 126	3 174 1 178	722 772 205 1,699
CAPTURE RATE (#/100nh)	0.5 36.2 36.8	20.3			

BIRD CONSERVATION REGIONS

Western Alaska; Aleutian and Bering Sea Islands

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

In attendance were Rob MacDonald, Heather Moore, and Susan Savage (USFWS), Gene Augustine (DoD), and Steve Matsuoka (USGS).

McKay's Bunting

We need to continue to push to have work done on McKay's Buntings, the lone endemic landbird in Alaska and the highest-ranking priority landbird in the state (Andres 1999). The species is thought to breed solely on St. Matthew and Hall Islands (Byers et al. 1995), which are part of the Alaska Maritime NWR. Due to the remote nature of the islands, access is both difficult and costly. The Alaska Maritime NWR plans to visit St. Matthew Island in July 2002; however, this will be too late to either survey breeding birds or examine reproduction. Robert Gill (U.S. Geological Survey—Alaska Science Center) and Vernon Byrd (U.S. Fish and Wildlife Service—Alaska Maritime NWR) have been discussing visiting St. Matthews Island in 2003 during which they would survey the Aleutian race of Rock Sandpipers (*Calidris ptilocnemis ptilocnemis*) across the island in mid-May. If this happens, the survey will also include McKay's Bunting. We should seek funds to support additional work on the systematics and breeding ecology of the species during this rare visit to the island.

Priority species

Another issue that arose was the need to work on our priority species for the region, such as the McKay's Bunting above. Unlike McKay's Bunting; however, many of these species are priority birds in more than one region in the state. These species might be good candidates for investigation since we may be able to collaborate with biologists in other regions to better evaluate their status in Alaska. For example, Gyrfalcon is a priority species in the Arctic Plain and Mountains, Western Alaska, and the Northwestern Interior Forest. Surveys of nesting birds and breeding success could be done in selected areas to assess the population status of this species. In addition, Blackpoll Warbler and Gray-cheeked Thrush are priority species throughout Alaska. Brian McCaffery (USFWS—Yukon Delta NWR) has suggested that we should begin planning a broad-scale study across different habitats and regions that examines breeding abundance, survival, and reproduction in relation to habitat for these co-occurring species.

Northwestern Interior Forests; Arctic Plain and Mountains

John Wright, *Alaska Department of Fish and Game*

2001 ACTIVITIES

Migration Monitoring.—Alaska Bird Observatory, Tetlin NWR, and the Denali Institute completed another year of migration monitoring at their mist net banding stations.

Off-road point-count surveys.—Point-count surveys were conducted at several locations as part of a statewide population monitoring effort: Denali National Park and Preserve, Kanuti National

NWR, Yukon Flats NWR, Tetlin NWR, Wrangell-St. Elias NP, and Koyokuk-Nowitna NWR, and Yukon Charlie NP.

MAPS.—Yukon Flats NWR and Denali NP operated MAPS stations during 2001.

Training Programs.—ABO offered a bander-training program again during 2001, and their first point-count and distance-estimation training program.

Other studies of Interest.—

- ABO completed the second year of a study examining the effects of intense jet noises on Neotropical Migrants. This large-scale nesting study in the Bonanza Creek area has found Brown Creepers to be nesting commonly and a Yellow-bellied Sapsucker nest that drew birders from throughout Alaska.
- ABO, TNWR, ADFG, and Alaska Division of Forestry worked cooperatively to study habitat selection by birds in the Tok River drainage. These data will be used to assess changes in bird distribution after large-scale logging in the region. Additionally, ABO will develop a predictive model using Tok River data to help identify habitats of concern for several bird species
- Blood samples were collected from Black-capped Chickadees to assist in the Alaska Biological Science Center study on bill deformities in Fairbanks and Anchorage.
- Owl surveys were conducted throughout interior Alaska and the information is summarized in this report.

PLANS FOR 2002

Logging is still considered the greatest threat to landbird habitats and populations within the region. We need to coordinate studies and conservation actions with Yukon Territory. The Blackpoll Warbler was selected as the focal species for the upcoming year, with everyone attempting to gather information on habitat, productivity, and other aspects of ecology. The other species of importance mentioned was the Gyrfalcon, with Ted Swem offering to take the lead on that species.

Northwest Pacific Rainforest

Gwen Baluss, *USDA Forest Service-Tongass National Forest*

During the *Boreal Partners in Flight* annual meeting, member of the Northwest Pacific Rainforest BCR met to discuss the conservation of landbirds in the region. In attendance were Colleen Handel (USGS), Aaron Poe, Paul Myers, and Mary Anne Benoit (Chugach National Forest); Ellen Campbell, Don Youkey, and Gwen Baluss (Tongass National Forest); Mason Reid (Wrangell-Saint Elias National Park); Bob Altman (American Bird Conservancy); Michelle Kissling (USFWS); and Andrea Swingley (Alaska Bird Observatory)

Large-scale monitoring.—The effort to conduct a statewide randomized off-road BBS point count program and the use of distance estimation was discussed during the *BPIF* annual meeting. Colleen Handel clarified some of the aspects of the plan. It was decided that blocks that were predominantly rock, ice, or snow would be excluded from sampling. Don Youkey agreed to lend

his knowledge of the southeast Alaska for this effort. The general consensus for the plan is positive, but it remains to be seen what will be logistically practical. It is likely that most of the blocks in the BCR would fall on USDA Forest Service land. Aaron is interested in moving forward with expanding the program on the Chugach National Forest. Gwen Baluss and Michelle Kissling talked about coordinating training for southeast Alaska.

The MAPS program was briefly discussed, with agreement that a thorough report and evaluation of the data is imperative to see if we are meeting any monitoring objectives.

Cornell Laboratory of Ornithology.—Expanding Project FeederWatch in the BCR was discussed. Attracting bears is a big concern, especially since bears in southeast Alaska may be active as late as December. Michelle agreed to be a point of contact if there were individuals in southeast Alaska who were interested in participating. She has since given information to the Audubon Society, posted information on Eaglechat, southeast Alaska's lively internet discussion group, and wrote an article for the Juneau Empire. Public interest in the program remains low, probably because of the bear issue.

The Birds in Forested Landscapes program was also discussed. The Juneau Ranger district has participated in the program and there were some sites in the Thorne Bay area. Gwen Baluss and Don Youkey agreed that the effects of recreation on birds are important to study, but adapting this national protocol to Alaska is difficult. Further, Citizen Science projects are good education tools, but they may lack the statistical power to detect trends.

Black Swifts.—Bob Altman brought up Black Swifts, a conservation priority throughout the BCR, which extends through British Columbia to northern California. He is developing a protocol for nest searching. Ellen Campbell agreed that the Forest Service was interested in entering a partnership on this work. Gwen Baluss agreed to look for volunteers who could go search for swifts this summer, and has since received many replies to a posting on Eaglechat.

Rufous Hummingbirds.—Rufous Hummingbirds on and in the vicinity of the Northern Tongass MAPS stations are being banded, and feather and pollen samples collected as part of a range-wide study of migration, genetics and ecology of the species. The project is lead by Bill Calder from Arizona State University.

Update from the Tongass National Forest.—Michelle Kissling is preparing for her second field season on her graduate study evaluating beach buffers on the Tongass. Estimated completion and write-up of her findings will be December 2002. She and her field crew may be able to assist in reconnaissance of the randomized off-road BBS routes if they fall near her sites; and she will possibly be available to assist with point-count and distance-estimation training.

Graduate student Jim Johnson (Utah State University and USFWS) is planning a third season of point counts on large rivers that connect southeast Alaska with interior British Columbia.

Juneau Ranger District will continue the MAPS stations at Juneau, Hoonah and Yakutat for another season. The Birds in Forested Landscapes site will be surveyed again. Some of the 14 off-road point count routes will be surveyed. However, instead of trying to count all routes

annually, the plan is to switch some to every other year, and to use distance estimation for all counts. Funding to do reconnaissance on some of the randomized blocks this summer has been requested.

As in past years educational programs on bird conservation are planned. These include International Migratory Bird and Earth Day presentations, newspaper articles, and banding demonstrations for school groups. The Juneau Ranger District will continue to work with Juneau Audubon, the Mendenhall Glacier Visitor Center, and Michelle Kissling on these.

Ellen Lance from Thorne Bay Ranger District reports that they will continue with owl surveys on Prince of Wales, Heceta, and Kosciusko Islands. They have 50 owl nest boxes to monitor as well. They will continue running BBS routes and off-road point counts in the area.

Several biologists with an interest in landbirds from the Tongass have taken positions elsewhere. Cole Crocker –Bedford, Ellen Lance, Peg Robertson, Don Youkey, and Jim Zelenak, will be missed.

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