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Society of Canadian  
Bulletin of The Ornithologists

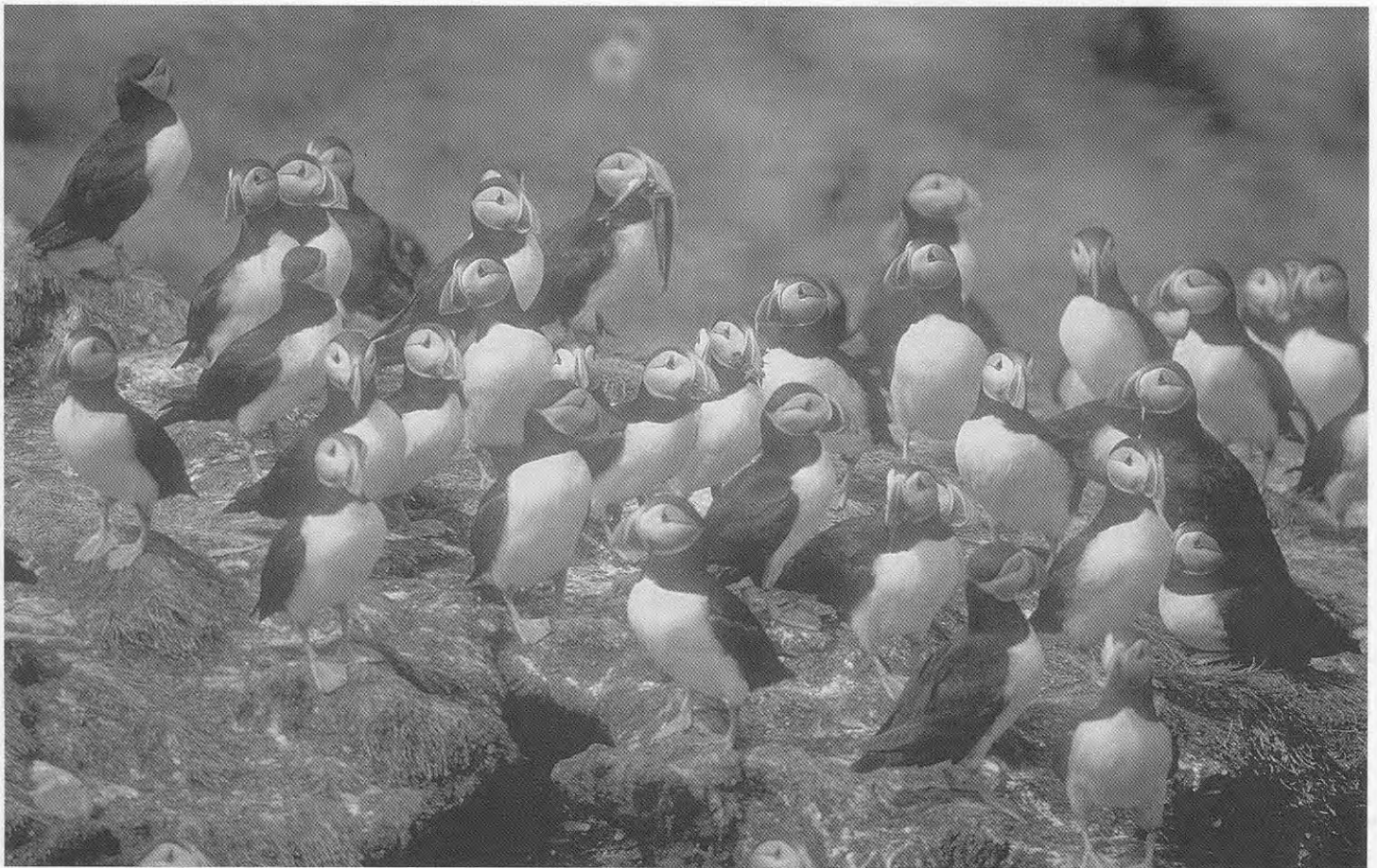
# PICOIDES

Bulletin de la  
Société des Ornithologistes du Canada

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Atlantic Puffins - Gull Island, Witless Bay, Nfld.  
(photo by John Chardine)

[Provincial bird of Newfoundland;

this group seems perplexed because no presentation at the Birds 2000 conference  
(see pp. 2-24) specially featured their species?!]

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# Society of Canadian Ornithologists Société des Ornithologistes du Canada

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(CWS) Pacific Wildlife Research Centre, Canadian Wildlife Service, 5421 Robertson Rd., R.R.1, Delta, B.C. V4K 3N2; Voice: 604-946-8546; fax: 604-946-7022; e-mail: as above.

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**Editor of S.C.O. Bulletin *Picoides*:** Dr. Tony Erskine, Canadian Wildlife Service, DOE, P.O. Box 6227, Sackville, N.B. E4L 1G6. Voice: 506-364-5035; fax: 506-364-5062; e-mail: tony.erskine@ec.gc.ca.

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Leah de Forest, IBA Program, Canadian Nature Federation, 1 Nicholas St., ste 606, Ottawa, Ont. K1N 7B7. Voice: 613-562-8208, ext.245; fax: 613-562-3371; e-mail: iba@cnf.ca

Dr. Cheri Gratto-Trevor, Canadian Wildlife Service, 115 Perimeter Rd., Saskatoon, Sask. S7N 0X4. Voice: 306-975-6128; fax: 306-975-4089; e-mail: cheri.gratto-trevor@ec.gc.ca

\* Dr. Erica Nol, Head, Dept. of Biology, Trent Univ., Peterborough, Ont. K9J 7B8. Voice: 705-748-1424; fax: 705-748-1205; email: enol@trentu.ca

Dr. Greg Robertson, 6 Bruce St., Mount Pearl, Nfld. A1N 4T3. Voice: 709-772-2778; fax: 709-772-5097; e-mail: greg.robertson@ec.gc.ca

\* Dr. Jean-Pierre Savard, Service canadien de la faune, 1141, route de l'Église, 9th floor, c.p.10100, Sainte-Foy, Qué. G1V 4H5. Voice: 418-648-3500; fax: 418-649-6475; e-mail: jean-pierre.savard@ec.gc.ca

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**2001 ANNUAL GENERAL MEETING/RÉUNION ANNUELLE GÉNÉRALE 2001  
UNIVERSITY OF WASHINGTON, SEATTLE, WASH., U.S.A.**

The 2001 AGM of S.C.O./S.O.C. will be held in Seattle in association with the annual A.O.U. conference 15-18 August. S.C.O. expects to sponsor or co-sponsor at least one session in addition to our (independent) AGM. Meetings will be held on the University of Washington campus. Further details will be in the spring *Picoides* - & sent by A.O.U. to members of that body.

Sievert Rohwer chairs the Local Executive Committee;

website <http://depts.washington.edu/bird2001/>.

Peter Lowther coordinates Papers & Poster submissions;

website <http://www.fmnh.org/aou/aoupage.htm>

For further information, please contact:

Kai Fujita, Conference coordinator,

Ornithology, Burke Museum,

Univ. of Washington, Seattle, Wash. 98195-3010 U.S.A.

(PH: 206-616-9322; FX: 206-685-3039; EM: [bird2001@u.washington.edu](mailto:bird2001@u.washington.edu))

#### THE "BIRDS 2000" EXPERIENCE

The recent bird conference in Newfoundland provided both novelty and sameness, and must have opened the eyes of many who were visiting the tenth province for the first time. For me, it was my first summer visit longer than overnight to St. John's, 50 years after my first experience of Newfoundland - when I didn't come within 150 km of the city in four months on "the Rock". It also was my 15th A.O.U. conference, but the first shared with other ornithological societies; that particular combination (with B.O.U., S.C.O.) seems unlikely to recur.

The conference setting, on a university campus, in August heat and humidity, with commuter traffic audible at most hours, might have been almost anywhere in eastern North America. St. John's laid on what for them were record temperatures - brought by humid southwest winds - that probably surprised people from away as much as they did locals. But as soon as you left the campus you knew you weren't in Alabama or Connecticut or even Ontario. The forested ridge across Long Pond

was boreal by any standard, despite exotic alien plants along the trails, and the birds were those we'd find around Quebec City or Sudbury. It was probably the first-ever A.O.U. meeting in the "Canadian Zone" (of Merriam 1894); Alaska meetings were in his "Hudsonian Zone" and other Canadian meetings in the "Transition Zone". Some suburban housing in the city might have been matched elsewhere, but older streets, especially towards the harbour, featured "vintage Newfoundland" buildings. The harbour itself, cherished as "Newfiejohn" by World War II convoys and entered only by a fjord-like gash in the rock, featured a Viking ship, visiting as part of the celebration of Norse visits to Newfoundland 1000 years ago.

Oh yes, we did go to St. John's to attend the conference! We weren't disappointed. The program committee did its work well; plenary lectures and accompanying symposia focused on aspects of northern and marine ecology to a degree unusual in A.O.U. meetings, even those held elsewhere in

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Canada. The other sessions, of volunteered oral and poster papers, gave adequate opportunities for presenting work in situations found elsewhere as well as in Canada. Audibility of speakers was rarely a problem, and recent computer technology produced dazzling visual aids beside which most earlier efforts looked drab. Tables, however, were not always ideally planned, some having too much detail or too small size of lettering and numbers. My main beef, however, was having concurrent sessions scattered across nearly a kilometre, using five halls in three buildings, so you always missed most of a presentation in moving between sessions; this has happened elsewhere, but less often recently. The "nutrition breaks" were a treat - if you weren't on a diet; better opportunities to get away from overloud talking at such times would be appreciated by some, including me. With hearing-aids, I found communal meals, whether in dining hall or restaurant, very difficult for meaningful conversations; the barbecue (in a marquee) was better than most.

On the excursion day I went to Cape St. Mary's,

my second visit in fog (but I had rain and a gale another time). We got good views of Gannets and Kittiwakes anyway. The countryside would have needed more explaining than it got to make much sense to first-time visitors, as most of it was hidden in fog; the longer route via Placentia and St. Brides might have given more variety, and box lunches instead of a restaurant meal at St. Brides could have allowed the extra travel time needed to go that way. [OK Bill, I realize you had to give the locals there a chance at sharing the shekels!] The fog at least spared us the record heat that St. John's experienced while we were away that day!

Our party drove both ways from New Brunswick, with too little time for other than essential stops. It seemed a long way to all of us. However, I drove half again that far to each of my first three A.O.U. meetings 40 years ago, so we Canadian ornithologists appreciated having a major bird meeting that close to home.

Tony Erskine

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**19th ANNUAL MEETING and 5th CONFERENCE of the SOCIETY OF  
CANADIAN ORNITHOLOGISTS/SOCIÉTÉ D'ORNITHOLOGISTES DU CANADA,  
held in conjunction with the AMERICAN ORNITHOLOGISTS UNION and the BRITISH  
ORNITHOLOGISTS UNION**

**Memorial University of Newfoundland, St. John's, Nfld.**

**14-19 August 2000**

The complete Scientific program will be published as a supplement to *The Auk*, and is not repeated here (see previous *Picoides* issue for outline). Abstracts (below) are published in *Picoides* only for presentations dealing primarily with birds in Canada. and (mostly) by Canadian authors.

The Abstract Book of BIRDS 2000 included the following disclaimer: "The abstracts in this work are not issued for the permanent scientific record."



## ABSTRACTS

Plenary Talk 2. **Living on the edge: Conservation lessons from fragmentation research in the boreal forest.** *Hannon, Susan J.* (Dept. Biol. Sci., Univ. Alberta, Edmonton, Alta.)

The boreal forest is one of the last frontiers in North America, both for resource extraction and conservation of avian species. I synthesize our research on bird responses to forest fragmentation and edges conducted in the boreal mixedwood forest of Alberta and develop conclusions and challenges for the conservation of bird species. The following major themes have evolved from this work:

1) Responses to fragmentation/edges are species-specific and scale-dependent. For example, Ovenbirds (*Seiurus aurocapillus*) did not avoid recent clearcut edges when setting up territories but their probability of occurring in a patch was reduced by forest harvesting at a landscape scale.

2) Responses of a species are context-dependent and relate to landscape disturbance history, land use in the matrix and time since fragmentation. American Redstarts (*Setophaga ruticilla*), for example, had higher reproductive success in newly fragmented forestry landscapes than in older fragmented agricultural landscapes due to differences in predator communities and abundances.

3) Small-scale behavioural decisions and habitat affinities can be used in a coarse way to "scale up" to predict a species' sensitivity to fragmentation at the landscape scale. We were able to use gap-crossing propensities and corridor use to predict species' abundance patterns in connected, isolated and control forest reserves.

4) Spatial heterogeneity, temporal variability in resources/weather and the dynamic nature of forested systems may swamp short-term treatment effects. Hence, long-term monitoring of controls and experiments are essential for conservation planning, and biologically-relevant effect sizes for treatments must be estimated.

Plenary Talk 3. **"To cull or not to cull"; that is the question.** *Cooke, Fred* (Simon Fraser Univ., Burnaby, B.C.)

Most conservation/management questions in avian ecology relate to declining populations of birds. Yet birds with seemingly continuous population increases can create environmental problems too. In this plenary talk, I would like to a) set the stage for the symposium session to follow, and b) examine in some detail the specific problems created at the present time by expanding populations of waterfowl, particularly

### Symposia Papers

**S04. Population monitoring and bird conservation: A case study of migration counts.** *Dunn, Erica* (Can. Wildl. Serv., Ottawa, Ont.), *Hussell, David* (Kanata, Ont.), and *Francis, Charles* (Bird Studies Canada, Port Rowan, Ont.)

Population monitoring surveys such as the Breeding Bird Survey have obvious conservation applications and many spin-off results that also have conservation value. Migration monitoring is used as a case study to illustrate these points. A brief history and evaluation of strengths and limitations will be followed by demonstration that trends in raptors and songbirds from migration counts correspond to trends in other surveys, such as Breeding Bird Survey and Christmas Bird Count. Aside from providing trends for individual species, migration monitoring has contributed to conservation in two important ways. First, it plays a key role in tracking certain species not sampled by other surveys. Second, migration counts provided some of the first

geese wintering in areas of agricultural crop production. My major focus will be the mid-continent Snow Geese (*Chen caerulescens*), a population that has recently been subject to massive management interest and activity. With a few exceptions, most holarctic populations of swans and geese have been expanding in recent years, in some cases creating negative impacts on human activities. Reasons for these expansions have been a) reduction or elimination of hunting pressure and b) increased availability of over-wintering food as a result of human activity or agricultural practices. In the case of the Snow Geese, populations have been expanding for at least 30 yr at an average of 5% per annum, leading to populations four times those of the 1960s. During much of this time, wildlife managers regarded the population increase favourably, but there were adverse consequences to the arctic salt marshes where the birds nest. The widespread disappearance of coastal salt-marsh vegetation as a result of increased goose grazing was leading to the loss of this habitat to other species of animals. This loss of habitat led to a re-appraisal of management policies from one of approval of increasing goose populations to a desire to reduce the populations. According to classical management theory, hunting regulations could be used to influence population sizes, but bag limits were already liberal. Knowledge of the population dynamics of these populations was good and it was possible to calculate the amount of additional hunting that would be needed to reduce populations, in order to reduce the environmental damage. Unfortunately the early calculations underestimated the scale of the problem, but when it was realized that as much as a sixfold increase in hunting would be needed to bring down the population of Snow Geese, this triggered a widespread public debate on the ethics and efficacy of this population control program. At one extreme was the hunting lobby, who would likely approve of the policy even if it did not achieve a population reduction; and at the other extreme the anti-hunters who see any human killing of birds as intolerable. Most conservation and scientific organizations took stands based on their perception of the effectiveness of the method in achieving the desired population reduction. A sound understanding of the population dynamics of Snow Geese allows us to predict the likelihood of achieving the objectives and points to ways in which the effectiveness of the program can be judged. My own judgement is that the strategy of population regulation through manipulating hunting regulations will fail.

evidence of long-term population fluctuation, requiring a long view in determining whether declines deserve conservation action. An example of a spinoff conservation result is the use of weight data to assess quality of migration stopover habitat.

**S10. Positive edge effects for cavity-nesting communities in old-growth interior forests in northwestern North America.** *Martin, Kathy* (Can. Wildl. Serv., & Dep. For. Sci., Univ. Brit. Col., Vancouver, B.C.)

In northwestern North America, increases in edge or fragmentation may result in little change in avian wildlife, even for species considered sensitive to forest fragmentation. For a community of 32 cavity-nesting species in mature mixed forest in British Columbia, we found that woodpeckers and secondary cavity-nesting birds showed strong selection for natural forest edges. We recorded a positive effect

of edge on the number of species and detection rates, as well as higher use of nest sites near edges. The weak excavators (nuthatches and chickadees) avoided edges. Nesting success for both edge and interior nests was high. Positive effects of edge are strengthened as the edge preferences of the cavity-producing woodpeckers cascade down through the nest web to the secondary cavity-nesting community. On two sites with extensive cutting, numbers of cavity-nesting species did not change, but species turnover rates may have increased. However, over a 5-yr period, we also observed strong annual effects in species richness and relative abundance on control (uncut) plots. Cavity-nesting forest birds may mitigate the negative effects of nesting habitat loss by capitalizing on food resources enhanced by the forest openings and increasing their re-use of cavities. Positive edge effects, particularly in the early stages of fragmentation, may be a general result for intact forest ecosystems with a "friendly" matrix. Thus, a knowledge of biological scale and landscape context is essential to predict responses of avian forest wildlife to increases in edge and fragmentation.

**S11. Effects of forest cover and fragmentation at different scales on breeding distributions of forest birds.** *Francis, Charles M. & Couturier, Andrew R.* (Bird Studies Canada, Port Rowan, Ont.), and *Cadman, Michael D.* (Can. Wildl. Serv., Guelph, Ont.)

We examined the relative influence of forest cover at various scales, and configuration of the remaining forest, on the distribution of 40 forest-dependent bird species in s Ontario. We used data from 969 10 x 10 km squares surveyed during the Ontario Breeding Bird Atlas 1981-1985. Many species exhibited strong gradients in their distribution. More than 50% of this spatial variation could be explained by forest cover or configuration. The amount of remaining forest cover within the 10-km square was the single best explanatory variable, but forest cover in the surrounding squares up to 20 km away was also important. Forest configuration (amount of fragmentation and amount of edge) was relatively less important, and had inconsistent results. Some species were more likely to occur in areas with increased fragmentation or edge. These results clearly indicate the need to maintain or restore as much forested habitat as possible for forest-dependent bird species, at broad landscape scales. However, it would be premature to conclude that configuration can be ignored in landscape management. The study area provided only a limited range of possible configurations, especially in areas with low forest cover, so that many combinations were not tested. Furthermore, we considered only the presence-absence of each species, and did not consider either population densities or source-sink dynamics in each landscape.

**S12. Scaling of natal dispersal distances in birds and mammals and its implications for habitat fragmentation.** *Sutherland, Glenn D.* (Cen. Appl. Cons. Biol., Univ. Brit. Col., Vancouver, B.C.) and *Harestad, Alton S.* (Dep. Biol. Sci., Simon Fraser Univ., Burnaby, B.C.)

Natal dispersal distance remains one key unknown in interpreting effects of habitat fragmentation for many vertebrates. Do life history attributes of species predict dispersal distance? If so, how far apart can habitats be to remain connected for each species? Using data for 77 bird and 68 mammal species, we tested whether median and maximum natal-dispersal distances are correlated to body mass, diet type, social system, taxonomic family, and migratory status. For carnivorous (but not herbivorous or omnivorous) birds, body mass predicts dispersal distances. In mammals, body mass predicts dispersal distance for each of the 3 diet types. Natal-dispersal distances in birds or mammals are not related significantly to broad categories of social systems. Only in birds are taxonomic relatedness and migratory status correlated with natal dispersal, and then only for maximum distances. With these allometric relationships, we estimated dispersal distances for 203 forest-dwelling birds and 72 mammals in British Columbia.

Percentages of species with potential vulnerability to fragmentation of forests (dispersal distance < 0.5 km) are birds 2% and mammals 25% (median distance) and birds 25% and mammals 46% (maximum distance). Birds appear less vulnerable to forest fragmentation than mammals. Some potentially vulnerable species are habitat generalists or strongly associated with early seral stages. We conclude that general patterns of dispersal distance for many species appear derived from life history attributes that link to resource availability in landscapes. These relationships could serve as initial filters for planning eventual spatial configurations of forest patch types, in the absence of more detailed behavioural data.

**S13 Behavioural mechanisms and avian responses to forest edges.** *Desrochers, André* (CRBF, Foresterie & Géomatique, Univ. Laval, Ste-Foy, Qué.)

Despite the rapidly increasing number of studies of birds in relation to forest edges and configuration, our understanding of avian behavioural responses to edges remains poor. I present studies of boreal forest songbirds and a nest predator, showing small-scale (<100 m) responses to forest edges and how they are associated with larger-scale (>80 ha) occurrence patterns. Edges delimiting habitat gaps as narrow as 20 m act as barriers to forest songbird movements. These barriers constrain songbird territory limits. They can also channel foraging movements over larger areas (20 ha), such as ranges of chickadee winter flocks. Alternatively, forest edges (<30 m) are chosen as prime foraging habitats by a forest nest predator, the Gray Jay (*Perisoreus canadensis*), even though their 80-ha territories accommodated highly variable amounts of edge habitat. Standard analysis of occurrence vs. landscape structure can obscure small-scale relationships and therefore should not be used as evidence for or against responses to forest edges such as described above. The discrepancy between results from behavioural and landscape approaches illustrates the need to better understand the contrast between edge effects on the occurrences of species in landscapes (population level) vs. edge effects on the occurrence of individuals within forest patches.

**S14. Fragmentation and edges: Conservation risks and strategies — Conclusion.** *Martin, Kathy* (Can. Wildl. Serv., & Dep. For. Sci., Univ. Brit. Col., Vancouver, B.C.)

<no abstract>

**S15. Can we have too many birds?** *Bird, David M.* (Avian Sci. & Cons. Cen., McGill Univ., Montreal, Qué.) and *Blom, Eirik* (Belcamp, Md., U.S.A.)

Roughly 10% of the world's 10,000 or so avian species are threatened with extinction, and thus herculean but sometimes controversial efforts are being made to save even those populations down to their last dozen individuals. But what about the other side of the coin - a superabundance of birds within a given species? While preservationists say "Let nature take its course", others demand human intervention. Reasons for control of bird populations vary and may include preventing the destruction of wildlife habitat, minimizing the birds' impact on agriculture or aquaculture, saving a highly endangered species from extinction, preventing a species from becoming endangered, avoiding human endangerment, or minimizing public nuisance. To stimulate discussion, we examine four case histories:

1) killing escaped and now proliferating Ruddy Ducks (*Oxyura jamaicensis*) to prevent genetic swamping of White-headed Ducks (*O. leucocephala*) in Europe;

2) trapping Brown-headed Cowbirds (*Molothrus ater*) to minimize brood parasitism of endangered Kirtland's Warblers (*Dendroica kirtlandii*) in the midwest U.S.;

3) controlling the numbers of Double-crested Cormorants



(*Phalacrocorax auritus*) to lessen predation on commercial and sport fisheries and catfish farms in North America; and

4) killing gulls to save human lives, minimize a public nuisance, and preserve endangered species.

**S21. Birds foraging at sea: Performance indicators of prey and oceanographic changes.** *Montevocchi, William A.* (Memorial Univ. Nfld., St. John's, Nfld.)

The conspicuousness, oceanic ranges, multi-trophic interactions, and relative ease of study of seabirds compared to other marine animals enable us to exploit them as useful indicators of biophysical oceanographic changes and perturbations. Research involving the remote sensing of birds at sea is revealing many of the complex, intricate and often indirect ways that seabirds respond to changes in the marine environment. The objective of this symposium is to overview a representative cross-section of this research and to ask how these studies can aid in the protection and conservation of marine birds and the important oceanographic habitats on which they depend for survival. In doing so, we have brought together an international complex of stellar researchers who work with surface-feeding, plunge-diving and pursuit-diving species in the Antarctic, Pacific, North and South Atlantic Oceans. It is, collectively, our challenge and

responsibility as ornithologists, scientists and concerned humans to preserve the global habitats of birds for their sake and undoubtedly as importantly for our own. These presentations have been designed to aid in that effort in the world's oceans.

**S23. The foraging behaviour of Northern Gannets as indicator of food availability and hydrography.** *Garthe, Stefan* (Inst. Mar. Res., Kiel, Germany), *Benvenuti, Silvano* (Univ. Pisa, Pisa, Italy), and *Montevocchi, William A.* (Memorial Univ. Nfld., St. John's, Nfld.)

The distribution of the largest seabird of the North Atlantic, the Northern Gannet (*Morus bassanus*), is limited to relatively few, large colonies. We studied its foraging behaviour by attaching different types of microelectronic devices to chick-rearing adults on Funk Island, Newfoundland, in Jul/Aug 1999. We used 5 different devices that recorded data on flight direction, activity (swimming and flying), dive depth and duration, underwater movements, prey ingestion and water temperature. This information will enable us to reveal both the foraging strategy of Gannets and environmental characteristics of the feeding sites. These data may then be used to assess the complexity of factors related to the behaviour of birds at sea which is a prerequisite for conservation of marine life.

#### Contributed Papers

**5. Bird communities of riparian buffer strips in a coastal forest.** *Shirley, Susan* (Dep. Zool., Univ. Brit. Col., Vancouver, B.C.)

Riparian habitats, which support rich communities of terrestrial organisms including birds, are under increasing pressure from agriculture, forestry, recreation and urban development. From 1995 to 1998 I studied riparian bird communities on the west coast of Vancouver Island to evaluate 1) bird distribution and abundance in natural riparian communities, 2) bird use of existing riparian buffer strips and 3) response of bird communities to fragmentation of riparian habitats. I compared bird communities across 19 riparian sites with varying buffer widths and undisturbed forest. Associations between riparian birds and habitat attributes such as vegetation and forest insects were studied using vegetation measurements, sweepnets, and malaise traps. Forty bird species were detected in buffers and undisturbed sites while 25 bird species were detected in clearcuts. Over 147 families of insects and spiders have been identified from sweepnet samples. The results show that species richness increases with buffer width more slowly when compared to similar areas in undisturbed forest and is driven by increases in foliage/ground gleaners and coniferous/mixed tree-nesting species. Bird density is similar across buffer width except for higher, more variable densities in very narrow buffers. While the number of species remained constant in the old-growth fragments, species richness in buffer fragments increased over a 3-yr period. Species turnover over the same period was similar between buffers and old-growth fragments and increased with decreasing fragment size. These results will provide forest managers with information to maintain natural riparian bird communities.

**8. Hooded Warbler habitat selection: A little logging goes a long way.** *Whittam, Rebecca, McCracken, Jon, and Francis, Charles* (Bird Studies Canada, Port Rowan, Ont.)

Hooded Warblers (*Wilsonia citrina*) appear to benefit from some types of selective logging because they require shrubby gaps within mature forest for breeding. We examined Hooded Warbler habitat selection in two different forest blocks approximately 8 km apart in sw Ontario: South Walsingham (SWA), which is predominantly deciduous, and St. Williams (STW), which is predominantly coniferous plantations.

These forests contain up to 35% of the Canadian population of this nationally Threatened species. Hooded Warblers have historically been common in SWA, but have declined since 1995, while numbers in STW have concurrently increased. At least 3 birds banded in SWA have subsequently been founding breeding in STW, suggesting movement between forest blocks. We measured characteristics of nest and control sites in SWA (1996-1997; n=52,66) and STW (1999; n=24,41) to determine if these two different forest types share structural characteristics that are favoured by Hooded Warblers. At both sites, nests had a greater density of low shrubs, and more basal area attributable to large trees (dbh >38 cm), compared with controls. In STW, nests also had more cut stumps, a higher canopy, and were more likely to be found in forest gaps compared to controls (these data were not collected in SWA). Nests in SWA appeared to be characterized by older gaps, as low shrubs were less dense, and tall shrubs were more dense, compared to STW. We suggest that gaps in SWA are becoming too mature for Hooded Warblers, resulting in movement to STW, where recent selective logging (in 1993 and 1996) created new gaps suitable for this species. Using GIS techniques, we relate Hooded Warbler nest-site selection to recent logging history in STW, and suggest forest management guidelines that will maintain suitable habitat for Hooded Warblers at a landscape level.

**13. Natural cavity use by Barrow's Goldeneye and Bufflehead in British Columbia, and a comparison to nest box usage.** *Evans, Matthew* (Cen. Wildl. Ecol., Simon Fraser Univ., Burnaby, B.C.)

Both Barrow's Goldeneye (*Bucephala islandica*) and Bufflehead (*B. albeola*) are secondary cavity nesters and rely heavily on nest sites created by primary cavity nesters such as Pileated Woodpeckers (*Dryocopus pileatus*) and Northern Flickers (*Colaptes auratus*), respectively. However, studies of natural cavity selection and success by these birds are lacking. Prior studies have predominantly made use of artificial nest boxes. This study examines the biophysical characteristics of cavity nest sites (tree species, decay class, dbh, distance from water, and distance from forest edge) and compares the nesting demographics of cavities to those of nest boxes. In 1997 and 1998 30 Barrow's Goldeneye and 80 Bufflehead natural cavities were examined. For both species nest sites were predominantly in aspen

(74% and 85%, respectively) followed by Douglas-fir (22% and 9%, respectively). Barrow's Goldeneye cavities were typically 91.7m from water and 54.5m from forest edge. Bufflehead were found nesting 44.7m from water and 2.9m from forest edge. Nesting success for Barrow's Goldeneye cavities was 86% in 1997 and 78% in 1998. This is compared to nest-box nesting success of 52% and 48%, respectively. Bufflehead cavity nesting success was 88% in 1997 and 84% in 1998 and nest-box success was 83% and 90%, respectively. Sources of nest failure and patterns of nest-site philopatry for both cavities and nest boxes are also presented.

**17. The influence of previous breeding experience on Semipalmated Plover reproductive success.** *Badzinski, Debbie S.* (Watershed Ecosys. Grad. Prog., Trent Univ., Peterborough, Ont., & Bird Studies Canada, Port Rowan, Ont.) and *Nol, Erica* (Dep. Biol., Trent Univ.)

We studied annual variation in clutch size, egg predation rate, hatching success, and fledging success of Semipalmated Plovers (*Charadrius semipalmatus*) breeding at Churchill, Manitoba, in 1992-1998, to test whether breeding experience of individuals affected hatching success, fledging success, and nesting chronology. Our prediction was that experienced individuals would hatch more eggs, fledge more chicks, and nest earlier than would inexperienced birds. Clutch size, hatchability, hatching success, nest predation rates showed significant annual variation. Clutch size was lower in two years, suggesting that reductions in clutch size of shorebirds are more common than previously believed. Hatchability of nests ranged from 80 to 98%, which was lower than that of other shorebirds. Low clutch size and hatchability in 1992 and 1998 may be linked to El Niño events during the previous winters. There was no detectable annual variation in number of chicks fledged per nesting attempt or number of chicks fledged per brood. On average, pairs produced 0.92 fledglings/nesting attempt and 1.87 fledglings/brood. Breeding experience could not explain differences in hatching success among pairs, but fledging success improved with breeding experience. However, the influence of previous breeding experience varied among sexes. Pairs with an experienced male fledged more chicks than did either inexperienced pairs or those with an experienced female. There was also a tendency for pairs with experienced males to nest earlier than those without an experienced male.

**18. The influence of body condition on incubation constancy by arctic Common Eiders nesting on Southampton Island, Nunavut.** *Bottita, Grace E.* (Watershed Ecosys. Grad. Prog., Trent Univ., Peterborough, Ont.)

In breeding birds, the ability to successfully raise offspring is often influenced by the level of their energy reserves, particularly among waterfowl species that fast during incubation. In 1998-1999, we examined costs of reproduction among Common Eiders (*Somateria mollissima*) nesting in the Arctic, in relation to their energy reserves. Clutches were switched pairwise between nests to shorten or prolong the length of incubation by 5 d (1998, n=30; 1999, n=40). We predicted that experimentally extended hens would: 1) take more frequent incubation breaks of longer duration, 2) have significantly poorer body condition at hatch than females with shortened incubation, and 3) have a higher probability of nest failure, than either control or shortened. We quantified the incubation constancy of hens through behavioural observations and by placing Remote Incubation Monitoring Systems (RIMS) in 38 nests. The length of time spent off the nest per incubation recess as well as the number of recesses increased significantly with day of incubation for all treatments (ANOVA: recess minutes,  $F_{1,219}=16.54$ ,  $p=0.001$ ; number of recesses,  $F_{1,219}=16.54$ ,  $p=0.001$ ). Incubating females were weighed to determine rate of mass loss during incubation (1998, n=40, 1999,

n=69). Experimentally extended hens were in poorer body condition at hatch (ANOVA,  $F_{2,23}=7.35$ ,  $p=0.003$ ) and also had a higher probability of nest failure ( $\chi^2=6.19$ ,  $df=1$ ,  $p=0.016$ ).

**19. The phylogenetic placement of the Great Auk: Evidence from mtDNA sequences.** *Baker, Allan J.* (CBCB, Royal Ont. Mus., Toronto, Ont.) and *Friesen, Vicki* (Dep. Biol., Queen's Univ., Kingston, Ont.)

The last recorded sighting of the Great Auk (*Pinguinus impennis*) was in 1844 when 2 breeding birds were seen on Eldey Island off Iceland, and the species became extinct following heavy exploitation by humans. Given that this bird is the icon of the A.O.U. and was formerly very abundant in Newfoundland, it is fitting at this meeting to re-examine its phylogenetic relationships within the Alcidae. Because of its obvious morphological similarity with the Razorbill (*Alca torda*), the Great Auk was formerly classified as *A. impennis*. However, it is now usually placed in a separate genus (*Pinguinus*), but this placement remains controversial owing to conflicting morphological evidence. We recovered DNA from Great Auk bones from Ireland, and obtained good quality sequences from protein-coding mtDNA genes. Trees constructed using both maximum parsimony and maximum likelihood placed the Great Auk as sister to a clade containing the Razorbill, Dovekie, and the murre. Thus the Great Auk is best classified in a separate genus as *P. impennis*.

**33. Do Gambel's White-crowned Sparrows have song dialects?** *Chilton, Glen* (Dep. Biol., St. Mary's Coll., Calgary, Alta.), *Wiebe, Myra O.* (Can. Wildl. Serv., Yellowknife, N.W.T.), and *Handford, Paul* (Univ. West. Ont., London, Ont.)

Like most songbird species studied to date, White-crowned Sparrows (*Zonotrichia leucophrys*) have dialectal song variation. Between 1968 and 1972, DeWolfe et al. (1974, Bird-Banding 45: 224-252) recorded songs of territorial male *Z. l. gambelii* in se Alaska. That sample did not provide evidence for song dialects as found in other subspecies. We have recorded songs over a much larger portion of the subspecies' range, including Churchill, Man.; Yellowknife, N.W.T.; Whitehorse, Y.T.; Clearwater River, Alta.; and s British Columbia. This larger sample demonstrates dialectal variation in the song's terminal trill, the same song feature used in categorizing dialects in other subspecies. A single dialect can be heard over a vast area in this long-distance migrant. Comparing these results to those of other subspecies, it appears that the size of dialect populations is positively correlated with migratory distance in this species. Some of the complex syllables recorded by DeWolfe et al. have been faithfully transmitted to the present, and can be heard in distant localities.

**38. Post-fledging movements and territoriality of forest songbirds.** *McFarlane, Dorothy M.* and *Diamond, Antony W.* (Atl. Coop. Wildl. Res. Netwk., Univ. New Brunswick, Fredericton, N.B.)

Studies on songbirds stress the importance of territoriality early in the breeding season; however, it is not known whether fledglings are confined to the same territories as adults. Our study shows that fledglings remain on their natal territory after leaving the nest. 97% of fledglings of 12 species observed were found within territories or within 50 m of a male singing point. Fledglings showed no movement away from territories until 3-4 weeks post-fledging, strongly suggesting territorial behaviour of the adults in this period related to feeding young. We conclude that territoriality is important in the latter part of the breeding cycle and that it directs the movements of juveniles until dispersal.

**46. Census and habitat assessment of threatened Marbled Murrelets in Clayoquot Sound, British Columbia, using radar.** *Burger, Alan E.* (Dep. Biol., Univ. Victoria, Victoria, B.C.) and



Lawrence, Andrea D. (Victoria, B.C.)

High-frequency marine radar was used to count Marbled Murrelets (*Brachyramphus marmoratus*) entering 19 watersheds in Clayoquot Sound, Vancouver Island. Counts varied diurnally and seasonally, but comparisons among years and among watersheds were possible using pre-sunrise counts made between 15 May and 16 July. Counts were positively correlated with increasing cloud, fog, and drizzle in 1997, but not 1996 or 1998. The number of murrelets entering the combined watersheds was similar among years, but counts per watershed varied, suggesting some shifts among watersheds between years. At least 4,600 Marbled Murrelets used the sampled watersheds and the Clayoquot Sound population was estimated at 6,000-8,000 breeding and non-breeding birds, a substantial portion of the British Columbia population. Counts of murrelets per watershed were compared with macro-habitat features derived from GIS databases, and were positively correlated to areas of mature forest, low elevation forest, and certain biogeographic forest types, but negatively correlated with areas of logged and immature forest (multiple  $r^2=0.90$ ). Counts were not affected by distances to known foraging areas (range 1-28 km). The area of mature forest below 600 m was the strongest predictor ( $r^2=0.73$ ) and provided a simple measure of habitat quality readily estimated from GIS, aerial photographs, or timber inventories. Radar is thus a powerful tool to census this threatened species and study its macro-habitat associations.

**48. The accuracy of models of species abundance derived using Breeding Bird Survey data for the Great Lakes Basin.** Pearce, Jennie L. (Can. For. Ser., Sault Ste. Marie, Ont.)

Statistical modelling of species abundance data in relation to mapped environmental predictors is becoming increasingly used to predict distributions of species for use in regional conservation planning. We evaluate to what extent predictive mapping of habitat suitability might be refined by modelling relative abundance or density of a species instead of presence/absence. We use Breeding Bird Survey data collected at survey sites within the Great Lakes Basin region to develop models predicting the abundance of species as a function of regional-scale climatic and vegetation variables. The predictive accuracy of these models is then evaluated using two types of data: 1. Survey data from subsequent years, and 2. Data derived using jackknife resampling techniques. A number of direct abundance modelling techniques were evaluated including generalised linear and generalised additive Poisson regression, and zero-inflated negative binomial regression. We also evaluated the performance of predicted probability of occurrence generated by logistic regression modelling as an indirect index of abundance. Both the direct and indirect modelling techniques generally failed to provide consistently reliable predictions of abundance. The performance of models of species abundance is discussed for species guilds.

**52. Vocal identification of individual Bicknell's Thrushes.** Ball, Melanie (Dep. Biol., Dalhousie Univ., Halifax, N.S.)

Many passerines have songs and calls unique to individuals. Individual vocalizations are an important, non-invasive, censusing tool in species at risk, where disturbance is a consideration, and in species that are difficult to catch and resight due to behavioural or environmental constraints. Bicknell's Thrush (*Catharus bicknellii*) is an excellent candidate for vocal censusing of individuals. It is considered vulnerable by COSEWIC (Committee on Status of Endangered Wildlife in Canada), and its breeding habitat of dense stunted conifers makes this bird inaccessible. The purpose of my study was to determine if vocalizations are useful for identifying Bicknell's Thrush individuals, i.e. if each bird has unique song or call types, which are distinctive by sonogram. I recorded Bicknell's Thrush in Parc de la Gaspésie, Québec, during the 1999 breeding season. I

obtained additional recordings courtesy of other researchers. Classification tree analysis (CART) showed that song types and song repertoire are more stereotyped within individuals than call types and call repertoire. Each individual Bicknell's Thrush had a unique set of song types and repertoire, that were shared with no other individual. Based on these results, songs may provide a useful censusing tool for this species; I would not recommend the use of calls for censusing. Further work is required to determine if song types remain static throughout the breeding season and over different breeding seasons.

**66. The effect of global warming on the relation between clutch size and laying date in Tree Swallows.** Winkler, David W. (Dep. Ecol. & Evol. Biol., Cornell Univ., Ithaca, N.Y.) and Dunn, Peter O. (Dep. Biol. Sci., Univ. Wisc., Milwaukee, Wis.)

Across North America, Tree Swallows (*Tachycineta bicolor*) have decreased their mean clutch initiation date by about 9 d over the past 30 yr, apparently in response to global warming caused by anthropogenic increases in atmospheric greenhouse gases (Dunn & Winkler 1999, Proc. Royal Soc. 266B: 2487-2490). Others have suggested that changes in lay dates caused by global warming may have negative fitness effects, and we analyzed the relation between clutch size and laying date in a large set of 2,881 records collected by volunteer nest record schemes in the U.S. and Canada. A set of mixed-model analyses indicates a very strong effect of laying date on clutch size in this widespread sample, and there were no significant effects of year or the year\*laydate interaction on clutch size. These results indicate that clutch size and its relation to lay date have not changed in response to global warming, and Tree Swallow clutch size appears to respond to relative rather than absolute laying dates. Predicting the effects on birds of global change depends on the generality of this response to relative dates, and the diversity of avian response to global warming could help us understand the interactions of birds with the various cues and limiting resources in their pre-breeding environments.

**67. Age effects on reproductive output in Tree Swallows: Evidence for senescence?** Rendell, Wallace B. (Univ. Cal., Berkeley, Cal.) and Robertson, Raleigh J. (Dep. Biol., Queen's Univ., Kingston, Ont.)

Studies have documented improvements in reproductive output with age in animals, but few studies have been conducted long enough to address if output declines with advanced age. We describe the results of a 24-yr cross-sectional study on age, nesting phenology, and reproductive output in Tree Swallows (*Tachycineta bicolor*), concluding that there is evidence for senescence in output in older birds. In females, reproductive output improved with age from 1 (age of sexual maturity) to 3 yr; they began laying earlier, laid larger clutches, and hatched and fledged more young. After 3 yr, all measures of reproductive output declined, significantly so between 3 and 4 yrs of age in the number fledged, and the ratio of fledglings per eggs laid. In males, no individual variable of reproductive output was different between age groups. Using a composite measure of annual expected brood size at fledging for each sex each year, we regressed this variable against age. A significant amount of variation in expected brood size was predicted best by a quadratic equation, with reproductive output improving until age 3 yr, after which it declines, for both sexes. These results are important because evidence of senescence improves our understanding of the evolution of life histories, and the likelihood of selection for early age of first breeding.

**69. Geographic differences in protein availability to Herring Gulls breeding on the Laurentian Great Lakes.** Hebert, Craig, E.; Shutt, J. Laird (Can. Wildl. Serv., Natl. Wildl. Res. Cen., Hull, Qué.), and Ball, Ron O. (Univ. Alberta, Edmonton, Alta.)

Plasma amino acid concentrations were measured in wild Herring

Gulls (*Larus argentatus*) captured during incubation in 8 Laurentian Great Lake colonies. These concentrations were used as an indicator of protein availability at these locations. Significant differences in amino acid concentrations were observed among colonies. Lower amino acid levels, particularly of the essential amino acids, were measured in gulls nesting on Lake Superior whereas values in gulls captured on Lake Ontario and Lake Erie were greater. These geographic differences in protein availability probably reflected spatial differences in the availability of high quality prey such as fish. Geographic differences in prey availability probably affected diet composition. Comparison of amino acid levels in wild birds to reference values obtained through captive feeding studies indicated that gulls nesting on Lake Superior may have been protein limited. Adult female body condition, intra-clutch variation in egg size and productivity were correlated with an index of plasma amino acid concentrations.

**70. Diet composition and contaminant exposure in Laurentian Great Lakes Herring Gulls.** *Hebert, Craig E.* (Can. Wildl. Serv., Natl. Wildl. Res. Cen., Hull, Qué.), *Hobson, Keith A.* (Can. Wildl. Serv., Saskatoon, Sask.), and *Shutt, J. Laird* (Can. Wildl. Serv., Natl. Wildl. Res. Cen., Hull, Qué.)

Polychlorinated biphenyl (PCB) concentrations in Great Lakes Herring Gull (*Larus argentatus*) eggs declined greatly during the 1970s and early 1980s. By the mid-1980s, further declines were not as obvious. An exception to this general trend was observed on Lake Erie. On that lake, egg PCB concentrations continued to decline rapidly during the 1980s-1990s. Evidence from stable isotope analyses indicated that temporal changes in the composition of the Herring Gull diet occurred on Lake Erie. These changes corresponded with declines in fish availability, possibly resulting in the gulls relying on a greater proportion of terrestrial food in their diets. Decreases in the proportion of fish in the gull diet would have resulted in reduced PCB exposure. This may be partially responsible for the continuing rapid rate of decline in egg PCB concentrations. This continuing decline should be interpreted with caution. We must consider that these trends may not be indicative of lake-wide declines in PCB bioavailability but may only reflect changes in dietary exposure. Although these results demonstrate a potential difficulty associated with using Herring Gulls as monitors of environmental contamination, they also demonstrate the sensitivity of this species to changes in ecosystem structure and function.

**75. Winter behaviour of a migrant Song Sparrow population.** *Schiffer, Catrien A.H.* and *Smith, James N.M.* (Dep. Zool., Univ. Brit. Col., Vancouver, B.C.)

Most Song Sparrow (*Melospiza melodia*) populations on the Pacific Coast of North America are resident. We report data on the sex ratio, morphology, and behaviour of a migrant population wintering at a site in Vancouver, B.C., where summer surveys revealed an absence of resident birds. Birds arrived at the study site in late September, and 18 colour-banded individuals all occupied very small winter ranges (ca. 0.1 ha) until they began to depart in late March. The population was mostly made up of males (a 10:1 sex ratio, n=32 birds), suggesting that the birds were differential migrants with most males wintering further north than females. The dark plumage of the birds, and shape differences between the migrants and locally resident *Melospiza melodia morphna* individuals, suggested that most birds belonged to the coastal races *merrilli* or *inexpectata*, which live further north and east in British Columbia. Some wintering male birds often perched conspicuously and behaved much like territorial residents, except that they rarely interacted aggressively, and often shared the same small areas with minimal social interaction. In late winter, Song Sparrows retained their small winter ranges, but sometimes fed nearby in small, loose flocks. Other birds spent most of their time under or near shrub

cover, and behaved as non-territorial floaters do in the breeding season. We suggest that the shrub habitats used by migrant Song Sparrows in winter allow them to retain their breeding social system year-round.

**84. A molecular phylogenetic study of calidridine sandpipers.** *Greenslade, Annette D.* (Univ. Toronto, Toronto, Ont.) and *Baker, Allan J.* (Royal Ont. Mus., Toronto, Ont.)

The Scolopacidae (snipes, sandpipers and phalaropes) comprise a diverse family of birds, with respect to both behavioural and morphological characteristics. Although previous studies have investigated the systematic relationships within this group and within its constituent subfamilies using classical methods, comprehensive molecular phylogenetic analyses have not been done. The phylogenetic relationships of the calidridine sandpipers of the genera *Aphriza*, *Calidris*, *Limicola*, *Micropalama*, *Tryngites*, and *Philomachus* based on analysis of DNA sequence data from both mitochondrial (ATPase 8 & 6, cytochrome b, ND4, 12S, and 16S) and nuclear genes (intron 7 of the beta-fibrinogen gene) will be presented and compared with the results of other phylogenetic studies. Methods of phylogenetic reconstruction using molecular data include distance (neighbor-joining), maximum parsimony, and maximum likelihood.

**87. The impacts of two exotic grasses on the avian community in native mixed grass prairie habitat.** *Dale, Brenda C.* (Can. Wildl. Serv., Edmonton, Alta.), *Martin, Pamela A.* (Can. Wildl. Serv., Burlington, Ont.), and *Taylor, Philip S.* (Can. Wildl. Serv., Saskatoon, Sask.)

Much native mixed prairie grassland in Canada has been destroyed through cultivation, and remaining grassland is frequently invaded by introduced Eurasian grass species. The impact of this invasion on the attractiveness of grassland habitat to endemic passerines is largely unknown. We censused territorial males on 12 plots in pure native grassland and 12 plots in grassland infested with either smooth brome (*Bromus inermis*, n=6-8 plots) or Kentucky bluegrass (*Poa pratensis*, n=4-6 plots), at Last Mountain Lake National Wildlife Area, Saskatchewan, in 1990 and 1991. All plots were left uncut. In 1992, we also assessed passerine productivity. Vegetation physiognomy was measured in each plot. Baird's Sparrows (*Ammodramus bairdii*) and Sprague's Pipits (*Anthus spragueii*) were less abundant in plots dominated by smooth brome, compared to plots of native grass or those invaded by bluegrass; Sprague's Pipit in particular completely avoided the latter vegetation. Savannah Sparrows (*Passerculus sandwichensis*) and Clay-colored Sparrows (*Spizella pallida*), however, were more common in brome-dominated plots, significantly so in 1991. Nevertheless, productivity of Savannah Sparrows was no greater in brome-dominated plots than in native grassland.

**95. Breeding success and diet of Black-legged Kittiwakes and Herring Gulls at Corossol Island, Québec: Implications for use as bioindicators.** *Rail, Jean-François* and *Chapdelaine, Gilles* (Can. Wildl. Serv., Ste-Foy, Qué.)

Populations of Black-legged Kittiwakes (*Rissa tridactyla*) and Herring Gulls (*Larus argentatus*) at Corossol Island increased between 1970 and 1985 but have since declined. To identify factors underlying these population declines we investigated reproductive success and chick diet over 2 yr (1997-1998). Young kittiwakes and gulls were fed mostly sandlance and capelin, respectively. Clutch size and hatching success of both species appeared normal, suggesting that food abundance was sufficient in the early part of the nesting season. Fledging success of both species was poor, resulting in low productivity for kittiwakes. For gulls, higher clutch size and hatching success compensated for the low fledging success. Our observations suggest much of the high rate of kittiwake chick mortality resulted



from predation by gulls. Capelin shortage in the vicinity of the colony towards the end of the chick-rearing period may have incited gulls to prey on kittiwake chicks. Population models using our productivity measurements suggest that kittiwake numbers will decline further on Corossol Island, whereas the Herring Gull population will stabilize. In this particular case, gull predation appeared to influence the kittiwake colony more than any other environmental factor. Thus, inclusion of such a colony in a monitoring scheme to indicate changes in the marine environment requires careful consideration of the interactions between seabird species.

**96. Pre-laying displays of Common Murres: Paternal investment signals or mate synchronization?** Storey, Anne E. (Dep. Psych., Memorial Univ. Nfld., St. John's, Nfld.), Wilhelm, Sabina I. and Walsh, Carolyn J. (Biopsych. Prog., Memorial Univ. Nfld.)

Nest-related activities by male birds may signal paternal investment to females (Soler et al. 1998, Anim. Behav. 56: 1435-1442) and they may be involved in the steroid declines that accompany the pair's transition from courtship to incubation (Feder et al. 1977, Biol. Reprod. 16: 666-677). Common Murres (*Uria aalge*) lay their single eggs on bare rock ledges, and it is unknown what behavioral interactions serve these same functions in this non-nestbuilding species. Possible signalling behaviours include joint cliff attendance, allopreening bouts, copulation solicitation, and the pebble-moving display. Despite the absence of a nest, pre-laying Common Murre pairs manipulate small stones at their sites, behaviour reminiscent of nest-building movements in other Charadriiform species. We determined whether the timing of any of these behavioural interactions could provide reliable cues for males about when their mates would lay eggs. If these behaviours are predictive of egg-laying date, then males should thereafter increase their time at the nest site as the male's presence helps to protect the egg from foraging gulls. Behavioural interactions may facilitate males' transition to incubation and hence provide honest signals to females about their readiness to provide paternal care. Correlations between the frequencies of these pre-laying behaviours and the extent of subsequent male investment in brooding and chick feeding would provide support for the signal hypothesis.

**97. Seeking sperm or social bonding? The outcome of extra-pair copulations in Common Murres.** Walsh, Carolyn J., Wilhelm, Sabina I. (Biopsychol. Prog., Memorial Univ. Nfld., St. John's, Nfld.), Davidson, William S. (Dep. Biochem., Simon Fraser Univ., Burnaby, B.C.), and Storey, Anne E. (Dep. Psych., Memorial Univ. Nfld.)

Although the Common Murre (*Uria aalge*) typically maintains long-lasting pair bonds, extra-pair copulations (EPCs) are common (Birkhead, et al. 1985, Anim. Behav. 33: 608-619; Hatchwell 1988, Behaviour 107: 157-185). However, to date, there have been no genetic data presented for this species which would indicate how many of these EPCs result in extra-pair fertilizations (EPFs). We observed the mating behaviour of a group of individually marked Murres on Great Island, Newfoundland, in 1996-1999. EPC attempts and successful EPCs (with cloacal contact) occurred among murres in our study plot. Behavioural observations indicated that there is marked individual variation in the propensity to solicit, attempt, and/or accept EPCs; thus, simply examining rates of EPCs in the population may be misleading, as a significant proportion of successful EPCs can be attributed to a few individuals. Overall, the number of successful EPCs decreased noticeably just before the onset of egg-laying, when the number of pair copulations increased, suggesting that EPCs might not lead to a high proportion of EPFs. However, upon examination of the genetic parentage of 32 families using 4 single-locus microsatellite primers (ua-123, ulo14b29, ulo12a12, andulo12a22; courtesy of G. Ibaruchi & V. Friesen), there were 3 cases in which the chick and putative male parent mismatched. Thus, in 9% of the families

examined, fertilization by an extra-pair male was indicated. The control of copulation in Common Murres, and the possible roles of EPCs will be discussed with reference to individual circumstances and the outcome of genetic analyses.

**98. Sex differences in parental care behaviours and body condition of Common Murres.** Wilhelm, Sabina I. (Biopsychol. Prog.) and Storey, Anne E. (Dep. Psych., Memorial Univ. Nfld., St. John's, Nfld.)

Declines in adult body condition of seabirds during the breeding season reflect the high energetic demands associated with this period. Changes in body mass may be due to reproductive stress (e.g., Wendeln & Becker 1996, Bird Study 43: 85-95) and/or may be a consequence of an adaptive pressure for individuals to adjust their body mass to maintain a low wing loading (Blem 1976, Am. Zool. 16: 671-684) when flight demand increases. Because Common Murres (*Uria aalge*) have one of the highest wing loading of any flying bird due to their small wing size (Greenwalt 1962, Smithson. Misc. Coll. 144), body mass may be an important consideration during the breeding period for this species. Since 1998, electronic balances installed on the study site have allowed us to repeatedly record the body mass of individually marked male and female murres from pre-laying to post-fledging, and to monitor an individual's body condition throughout the breeding season. Males and females lost body mass from pre-laying to chick rearing, and females continued to lose mass after the chicks had fledged with their fathers. Furthermore, females weighed less than males during the chick-rearing periods. Changes in body condition over the breeding period are presented in relation to observed sex differences in parental care behaviours and in light of the two aforementioned theories.

**100. Population trends and breeding performance of Gannets at Bonaventure Island, Gulf of St. Lawrence, as a response to optimum breeding habitat.** Chapdelaine, G. and Rail, J.-F. (Can. Wildl. Serv., Québec Reg., Ste-Foy, Qué.)

Population estimates and breeding performance of Gannets (*Morus bassanus*) at Bonaventure Island had been recorded over the last 33 yr (1966-1999) at approximately 4-5 yr intervals. From 1969 to 1976 the population decreased from 20,511 to 16,400 pairs and thereafter increased constantly to reach 37,000 pairs in 1999. The overall net productivity of this population was only 30% in 1966-1970, after which it improved to 45% in 1974 and then varied from 69% to 74% up to 1999. Hatching and fledging success were measured in study plots located in cliff-face and upper plateau habitat. Hatching success at the end of the 1960s and beginning of 1970s was low in both habitats and had been related to high concentrations of DDE residues in their eggs to explain why net productivity was so low. At that time, breeding pairs were more abundant on the cliff-face compared to the upper plateau. Following the improvement of breeding performance after diminution of organochlorines, hatching success, fledging success and net productivity were higher on the upper plateau than on cliff-face, though most differences were not statistically significant. At the dawn of this millennium the breeding population nesting on the upper plateau is almost double the size of the cliff-face group suggesting that topography influences breeding performance of Gannets at Bonaventure Island, and probably at Bird Rocks and Anticosti Island, 2 other colonies in the Gulf of St. Lawrence.

**101. Physiological indicators of reproductive status of the Marbled Murrelet in Desolation Sound, B.C.** McFarlane Tranquilla, Laura and Cooke, Fred (Can. Wildl. Ecol., Dep. Biol. Sci., Simon Fraser Univ., Burnaby, B.C.)

A thorough understanding of breeding biology includes knowledge of breeding chronology of a species. Unfortunately, traditional methods of observation of seabirds at their colonies to understand breeding

biology are not possible for the Marbled Murrelet (*Brachyramphus marmoratus*), which nests in old-growth forests, not in colonies. Their nests are difficult to find and widely dispersed. Thus, breeding biology of the Marbled Murrelet is currently being investigated using two nontraditional methods, radiotelemetry and physiological analyses of plasma, to identify the breeding status of unknown individuals when caught at sea, away from the nest. An egg-yolk precursor, vitellogenin (VTG), is detected in blood plasma and used to predict when the female bird is forming an egg. However, analysis of VTG cannot identify breeding males or breeding females that are no longer producing eggs. Other physiological methods to identify these birds are currently being investigated, including the feasibility of corticosterone analysis as an indicator of breeding status. This study provides a unique opportunity to identify breeding individuals and stages in the breeding chronology using both physiological analyses and radiotelemetry. Also, an assessment of the impact of capture and handling on reproductive success is possible, by following the breeding activities of radiotagged birds and comparing these with their physiological status at the time of capture.

**112. Mechanisms underlying nest predation: A test using red squirrels (*Tamiasciurus hudsonicus*) in the boreal forest.** Lewis, Keith P. (Biopsychol. Prog., Memorial Univ. Nfld., St. John's, Nfld.)

Patterns of nest predation have commonly been explained by an assumed relationship between nest predators and landscapes, that is that predators are more common near edges (e.g. edge effects or ecological trap hypotheses) or in small habitat fragments. However, this assumed relationship between nest predators and the landscape has rarely been tested and does little to account for predator behaviour or environmental heterogeneity. Consequently, the results of these studies have been equivocal. An alternative approach employs a recently developed foraging theory model that predicts environmentally induced variations in food supply, probability of encountering a nest, and nest characteristics, alter the behaviour of various predators and prey, resulting in different rates of nest predation. This model can be used to test a variety of hypotheses concerning patterns of nest predation. I report on the results of an experiment designed to test this model. A relatively simple system to test theories on nest predation patterns exists in the boreal forest of Newfoundland, where the introduced red squirrel (*Tamiasciurus hudsonicus*) has been identified as a major nest predator. Using artificial nests, I test this model by manipulating food supplies for squirrels, encounter probabilities, nest vigilance, nest characteristics, in black spruce (*Picea mariana*) and balsam fir (*Abies balsamea*) forests. This experiment should give a more general approach to studying nest predation by examining behaviour and environmental heterogeneity in addition to predator density.

**118. Brood division in Savannah Sparrows: Sex, size and survival.** Wheelwright, Nathaniel T., Tice, Kimberley A. (Dep. Biol., Bowdoin Coll., Brunswick, Me.) and Freeman-Gallant, Corey R. (Dep. Biol., Skidmore Coll., Saratoga Springs, N.Y.)

Between 1987 and 1999, we studied parent-offspring interactions during the post-fledging period in an isolated population of Savannah Sparrows (*Passerculus sandwichensis*) nesting on Kent Island, New Brunswick. Parents divided the brood shortly after fledging, but brood division was not based on offspring sex; male and female parents were equally likely to care for sons or daughters. Males were more likely to feed the smallest fledglings within a brood, perhaps because younger fledglings remain closer to the nest and the center of the male's territory. Males disproportionately cared for fledglings from early broods, presumably freeing their mates to initiate a second clutch; females tended to care for more fledglings from late broods. Overall, males and females invested equally in parental care (median age of

fledglings at independence = 23 d after hatching). Fledgling survivorship was not affected by the sex or age of the parent that provided care. Raising fledglings was costly, as parent survivorship decreased with increasing length of post-fledging care and number of fledglings. Parental survivorship, however, was not affected by the sex of fledglings that they cared for, suggesting that sons were no more expensive to raise than daughters.

**121. The role of male vigilance in feeding and productivity of Harlequin Ducks breeding in southern Labrador.** Goudie, R. Ian (Atl. Coop. Wildl. Ecol. Res. Netwk., Dep. Biol., Memorial Univ. Nfld., St. John's, Nfld.)

Mate guarding is characterized by the close association of males with females during periods when females are fertile. The close association of males with their mates during periods of fertility is a way of assuring their paternity in subsequent offspring as well as optimizing female condition for breeding. I studied behavior of Harlequin Ducks (*Histrionicus histrionicus*) breeding at Fig River, a tributary of the Lower Churchill River in s Labrador, in 1999. Proportion of time spent feeding by paired females was significantly dependent on proportion of time vigilant by their respective mates ( $R^2=51.4\%$ ) based on independent 30-min watches. Because 8 pairs were marked using alphanumeric color leg bands, I was able to demonstrate a positive relationship between overall proportion of time feeding by known females and vigilance by their mates ( $R^2=40.8\%$ ) during prebreeding. Known females having the highest feeding rates were associated with the most vigilant males and displayed higher productivity than paired females with mates displaying low levels of vigilance. Vigilance by paired males is likely critical in reducing interference of mates by other males, and reducing predation risk while maximizing foraging time by females resulting in optimum body condition for reproduction.

**123. Polygyny in the Red-winged Blackbird: A problem solved?**

Pribil, Stanislav and Searcy, William A. (Dep. Biol., Univ. Miami, Coral Gables, Fla.)

A long-standing question in mating systems research is why females in territorial species sometimes choose to settle with already-mated males when doing so lowers their share of both male parental help and territorial resources. The polygyny threshold model proposes that females pay the costs of polygynous mating only when compensated by obtaining a better territory or male. We present the first experimental field test to demonstrate that females trade mating status against territory quality as proposed by this hypothesis. Other things being equal, female Red-winged Blackbirds (*Agelaius phoeniceus*) in Ontario (a) prefer settling on territories of unmated rather than mated males, and (b) prefer nesting sites over water to nesting sites on shore. We performed an experiment in which females were given choices between 2 adjacent territories, 1 owned by an unmated male without any over-water nesting sites, and the other by an already-mated male with over-water sites. Females overwhelmingly preferred the already-mated males, demonstrating that superior territory quality can reverse preferences based on mating status. These results demonstrate that females who would normally avoid polygynous status will choose to mate polygynously when compensated by acquiring a superior territory.

**134. Global warming and spring migration: Trends over four decades from Long Point and Powdermill bird banding stations.**

Marra, Peter P. (Smithson. Envir. Res. Cen., Edgewater, Md.), Francis, Charles M. (Bird Studies Canada, Port Rowan, Ont.), and Mulvihill, Robert S. (Carnegie Mus. Nat. Hist., Powdermill Nature Res., Rector, Pa.)

Over the last century, the earth has experienced a general increase in mean surface air temperatures by about 0.5°C. Several ecological



processes have now been shown to be changing in response to this global warming. We analyzed first and median capture dates from banding studies conducted at the Long Point Bird Observatory and the Powdermill Banding Station. Over the approximately 40-yr period (1960 to 1998), there was a general trend toward earlier first capture dates by long-distance migrants. No general patterns were found with median capture dates. First and median capture dates were correlated to mean April temperatures. Our results, taken together with those from the United Kingdom, and studies from three other bird species in North America suggest that continued global warming will impact bird populations. Earlier arrival may have both positive and negative effects on bird populations and these will be discussed.

**135. Scopes and Isotopes: Comparing two methods for identifying, evaluating, and prioritizing winter shorebird habitat in the Fraser River Delta.** *Evans Ogden, Lesley J.* (Cen. Wildl. Ecol., Dep. Biol. Sci., Simon Fraser Univ., Burnaby, B.C.)

The Fraser River Delta is Canada's largest West Coast estuary and represents the country's only major over-wintering area for shorebirds. In addition to their use of the invertebrate-rich coastal mudflats, shorebirds feed and roost in adjacent farmland. While currently within an Agricultural Land Reserve system, this farmland faces strong development pressure. My research seeks to: (1) determine major biological and environmental factors influencing shorebird habitat selection within the array of available agricultural land, (2) ascertain the importance of farmland as a winter food source, and (3) identify priority areas for conservation via land stewardship initiatives. Two principal methods have been used to pursue these objectives: (i) habitat surveys of a random stratified sample of agricultural fields, and (ii) stable isotope analysis of Dunlin blood samples. Several key correlates of habitat choice have been identified via surveys, including field distance from shore, indicating that farmland closer to shore is more heavily used by Dunlins. An average delta Carbon-13 value for Dunlins of  $-17.06 \pm 2.05\text{‰}$ , in comparison with the local marine value of  $-11.56 \pm 2.95\text{‰}$ , and local terrestrial value of  $-23.46 \pm 0.565\text{‰}$ , indicates that approximately 50% of the diet of wintering Dunlins is derived from farmland. Maximum and minimum estimates of total numbers of Dunlins using fields is extrapolated from both survey and stable isotope results, and conservation implications of these parameters are discussed.

**156. Mitochondrial DNA and vocal divergence in the Warbling Vireo (*Vireo gilvus*).** *Croke, Carol* (Dep. Zool., Univ. Toronto, Toronto, Ont.), *Barlow, Jon C.* (CBCB-Ornithol., Royal Ont. Mus. & Dep. Zool., Univ. Toronto), and *McGillivray, W.B.* (Prov. Mus. Alta., Edmonton, Alta.)

The relationship of the Eastern (*Vireo gilvus gilvus*) and Western (*V. g. swainsonii*) subspecies of the Warbling Vireo has been questioned in recent years. These subspecies are largely allopatric but overlap marginally in sw Alberta. Preliminary mtDNA (Murray et al. 1994, Condor 96: 1037-1054) and vocal analyses coupled with the results of recent studies of morphology (Barlow and McGillivray unpubl.) and the scheduling of molt and migration patterns (Voelker and Rohwer 1998, Auk 115: 142-155) suggest that the Eastern and Western races are distinct species. We have been investigating the status of these races using mitochondrial DNA (control region) and vocalizations obtained from birds found from Ontario to British Columbia with an emphasis on Alberta, the zone of overlap of the two kinds. Field observations in se Alberta where the 2 taxa are occasionally found on adjacent territories support the results of lab analyses. Size, plumage and song differences are observable in these instances. To date, no evidence of hybridization between the 2 kinds has been found in Alberta.

**160. The importance of behavioural scale and variation in foraging strategies to temporal and spatial comparisons of foraging effort in diving birds.** *Heath, Joel P.* (Biopsychol. Prog., Memorial Univ. Nfld., St. John's, Nfld.)

The amount of time and effort spent foraging has been a central consideration in foraging theory. It is often necessary to compare foraging behaviour over various temporal and spatial scales and biotic and abiotic variables. These comparisons can provide insight into factors which may influence foraging strategies. A literature review of research on diving birds and preliminary studies of the Harlequin Duck (*Histrionicus histrionicus*) foraging at sea in Newfoundland indicate that foraging behaviour may vary independently at the dive cycle, foraging bout, and foraging cycle levels. Recovery from diving may occur during brief surface pauses, or may be deferred to subsequent rest bouts. With few exceptions, previous studies have analysed foraging by diving birds at only one of the above levels of behaviour. This may often be inappropriate, as the pertinent level of investigation may depend on the temporal scale and context of the question addressed. Analysis of dive-pause relationships may be appropriate at small temporal scales; however, each level of foraging behaviour must be incorporated over larger time periods. A mathematical representation of foraging effort per foraging cycle is proposed which incorporates behavioural variation at the dive cycle, foraging bout, and foraging cycle levels. The components of this equation may subsequently be analysed to determine the predominant foraging strategy for the situation under investigation. This will provide insight into the plasticity and constraints on foraging behaviour over various ecological, environmental and physiological circumstances, across multiple species of diving birds.

**161. Food-finding mechanisms of breeding Common Murres.** *Davoren, Gail K.* (Biopsych. Prog., Memorial Univ. Nfld., St. John's, Nfld.)

I investigated the behavioural mechanisms Common Murres (*Uria aalge*) use to locate prey at sea when rearing chicks in Witless Bay, Newfoundland. Prey availability peaked in the morning and evening in an area within visual range of the colony. Scans in this area revealed peaks in foraging activity at similar times with another peak at mid-day. The number of feeding flocks in this area also peaked at mid-day. Murres departed the colony by flying directly away (31%) or landing in the water near the colony (69%). Murres mainly preened ( $49.0 \pm 2.0\%$ ) and rested ( $47.0 \pm 2.3\%$ ) in this area. Memory of foraging patches is only reliable over a brief time period because prey is highly ephemeral. Murres landing on water near the colony spent  $239.0 \pm 18.9$  min at the colony prior to departure. Departure directions suggested the use of local enhancement to locate foraging patches. Alternately, murres directly departing the colony only spent  $13.9 \pm 2.7$  min at the colony. Departure directions suggested the use of memory to locate foraging patches. Combined departure directions were inconsistent with directions of incoming birds to the colony. At another colony where murres foraged out of visual range of the colony, departure directions were consistent with incoming directions of birds. Investigating mechanisms seabirds use to locate prey will aid in understanding the factors influencing seabird coloniality and distributions at sea, both of which are important for conservation.

**162. Short-term spatial organisation of roosting and foraging Greater Snow Geese in spring.** *Béchet, Arnaud, Giroux, Jean-François* (Dep. Sc. Biol, Univ. Québec à Montréal, Montréal, Qué.), and *Gauthier, Gilles* (Dep. Biol. & Cen. Étud. nord., Univ. Laval, Québec, Qué.)

We investigated the roosting and foraging behavior of spring staging Greater Snow Geese (*Chen caerulescens atlanticus*) at Lac St-Pierre in sw Quebec. Sixty and 56 radio-tagged geese were located every

morning in 5 adjacent roosting sites in 1998 and 1999, respectively. Fidelity rates (0.34 in 1998 and 0.24 in 1999) were significantly higher than expected from a randomly generated roosting site use. Fidelity rate in 1998 was higher than expected under the null hypothesis in 4 of the 5 roosting sites but in only 1 in 1999. In this region, geese mainly feed on stubble cornfields which is a scarce and ephemeral resource. We hypothesised that roost sites were associated with particular direction of foraging trips facilitating resource finding by local enhancement (the attraction of searching individuals to groups of already-feeding birds). In 1997, 1998 and 1999, we obtained 95, 92 and 50 foraging bouts on respectively 33, 36 and 30 radio-tagged birds. For the 3 yr, observed mean foraging trip distances were significantly lower than expected when we randomly reallocated the birds to the available roosting sites. In 1998 and 1999, roosting sites were significantly associated with particular foraging areas. Roost fidelity and roost change could constitute an individual strategy aiming to optimize resource search and to minimise foraging trip distances.

**166. Diving time-budgets of Common Loons lack flexibility.** *Nocera, Joseph J.* (Nova Scotia Dep. Nat. Res., Kentville, N.S.) and *Burgess, Neil M.* (Can. Wildl. Serv., Mt. Pearl, Nfld.)

Many species of diving birds adjust their foraging behavior in response to variation in their environment. Common Loons (*Gavia immer*) are visually oriented predators that are sensitive to environmental variation, yet little is known about the flexibility of their diving behavior. We tested the hypothesis that loons adjust their diving schedules, by increasing or decreasing dive duration during foraging bouts, to accommodate environmental variation during the breeding season. The dive duration and dive-pause components of the loon dive cycle did not vary between lakes with different lake chemistry, lake morphometry, fish abundance or mercury exposure. We observed some variation across breeding stages in mean dive duration and dive-pause intervals that approached statistical significance. We propose that loons might otherwise alter their foraging strategies in response to differences between lakes, but they do not seem to alter their diving time budgets. This diving schedule rigidity may make loons highly susceptible to catastrophic changes in prey densities within their foraging areas, as they are obliged to forage on 1, or very few, lakes. Therefore, the rigidity of loon diving schedules will hinder their ability to compensate for variable prey density, unless they change their foraging strategies.

**170. The reproductive biology of Sabine's Gull.** *Stenhouse, Ian J.* (Biopsych. Prog., Memorial Univ. Nfld., St. John's, Nfld.), *Gilchrist, H. Grant* (Can. Wildl. Serv., Yellowknife, N.W.T.), and *Montevocchi, William A.* (Biopsych. Prog., Memorial Univ. Nfld.)

The reproductive biology of Sabine's Gulls (*Xema sabini*) is poorly known, but owing to a number of distinct behavioural differences they are considered to represent an ecological outlier within the Laridae. The reproductive biology of Sabine's Gulls was studied on Southampton Island, in the eastern Canadian Arctic, from May to August 1998-2000, and results are compared to information collected from the same area in 1980 (Abraham 1986, Can. J. Zool. 64: 898-903). Breeding phenology was 10 d earlier in 1998 when compared to other years, and reflects an earlier annual onset of snowmelt. Nests were dispersed, with a density of 7.6 to 8.7 nests/km<sup>2</sup>. Sabine's Gulls exhibited strong inter-annual fidelity to breeding sites. Mean clutch size was lower in 1999 than 1998, and lower in both these years than in 1980. Hatching success was 63% in 1998, but only 21% in 1999 due to increased predation by Arctic Foxes (*Alopex lagopus*). Gulls and chicks abandoned nest-sites within a few hours of hatching of the last chick, and relocated to coastal ponds where adults continued to attend chicks. We assess the implications of predators on coloniality in Sabine's Gulls, and compare their reproductive ecology to that of

closely related 'tern-like' gull species and other small 'black-headed' gulls.

**171. Comparative reproductive performance and nestling diet of Cassin's Auklet breeding in two distinct oceanographic domains off British Columbia.** *Hedd, April* (Can. Wildl. Serv., Delta, B.C., & Dep. Biol. Sci., Simon Fraser Univ., Burnaby, B.C.), *Harfenist, Anne* (Can. Wildl. Serv., Delta), and *Bertram, Douglas F.* (Can. Wildl. Serv., Delta, & Dep. Biol. Sci., Simon Fraser Univ.)

Nestling performance of Cassin's Auklets (*Ptychoramphus aleuticus*) on Triangle Island (coastal upwelling domain) and Frederick Island (coastal downwelling domain) showed significant differences in 1994-1998 despite strong similarities in 1981-1982. Reproductive performance has been consistently high at Frederick Island, and while equally high on Triangle Island in the early 1980s, performance has been extremely variable in the 1990s. The nestling diet is composed largely of copepods and euphausiids, with fish contributing substantially in some years at Triangle Island. The copepod *Neocalanus cristatus*, however, is the single most important prey item at both colonies. In years when spring was early and warm, nestling growth at Triangle Island was significantly reduced. *N. cristatus* contributed less to the diet overall in warmer years, and was scarce or absent late in chick-rearing. The degree to which the seabird breeding season overlaps temporally with the peak availability of copepods in surface waters appears to be reduced in years with warm, early spring. Copepods also varied between years at Frederick Island, but were replaced in the nestling diet by prey of higher energy density. In addition to inter-colony differences in reproductive performance, population size is declining on Triangle Island but not on Frederick Island. Independent evidence indicates slower survival and smaller size-at-age in southern vs. northern stocks of B.C. salmonids (which show dietary overlap with Cassin's Auklets). We suggest that the north-south differences observed for both salmon and seabird predators reflects differential regional effects of ocean climate change on prey populations.

**175. Seabirds as ecological indicators: What can they really tell us?** *Diamond, Antony W.* and *Bernard, Laurel* (Atl. Coop. Wildl. Ecol. Res. Netwk., Univ. New Brunswick, Fredericton, N.B.)

Data from 5 yr of monitoring breeding biology, populations, and diet of 4 species of seabird - 2 surface-feeders and 2 underwater divers - on Machias Seal Island, Bay of Fundy, are explored for their potential to indicate changes in the marine ecosystem. Particular attention is paid to congruence among responses and between species; to comparisons between surface-feeders and divers; to confounding effects of weather; and to differences in diet and behaviour. Comparison between species is proposed as a partial solution to the fundamentally intractable problem of measuring availability of prey. Particular emphasis is placed on the need to disentangle effects of weather and disturbance from responses to environmental change; on the potential to predict future conditions rather than responding to past events; and the ability to detect signals from subtle and unexpected changes rather than large and obvious ones.

**177. Bobolinks, ducks and cows: Can they cohabit?** *Giroux, Jean-François, Lefebvre, Josée, Lavallée, Jocelyne* (Dep. Sci. Biol., Univ. Québec, Montréal, Qué.), and *Bélanger, Luc* (Can. Wildl. Serv., Ste-Foy, Qué.)

We investigated whether cover manipulation for nesting ducks on islands used for cattle grazing could affect the density and reproductive success of Bobolinks (*Dolichonyx oryzivorus*). Our study was conducted in 1996-1998 on 4 islands (111.5 ha) located in the St. Lawrence River near Montréal, Québec. Four treatments were compared: idle fields with no vegetation improvement but exclusion of



cattle (IDLE), improved pastures with seeding of forage plants for cattle (IPAST), fields with improved nesting cover for ducks and exclusion of cattle (DNC), and unimproved pastures used by cattle after the duck nesting season (UPAST). More than 85% of male Bobolinks were color-banded each year. We monitored a total of 180 males of which 66% established a territory and attracted at least 1 female, 26% failed to attract a female, and 8% did not establish a territory. In 1996-1997, the density of males was higher in DNC and UPAST (0.8-1.0/ha) and lower in IDLE and IPAST (0.2-0.3/ha). In 1998, the accumulation of dead vegetation in DNC reduced the attractiveness of this habitat (0 male) whereas the reduction of grazing pressure improved the IPAST (1.3 males/ha). Nesting success (at least 1 young fledged) was 78% in IDLE, 53% in DNC, 64% in IPAST and 81% in UPAST. We concluded that cover improvement for nesting ducks (DNC) has no effect on Bobolinks until the vegetation becomes too dense which probably also decreases the use by ducks. Rotational grazing can benefit Bobolinks by preventing succession towards shrubby vegetation. However, the density and distribution of cows should be limited to prevent trampling of nests.

**178. Cumulative effects thresholds of development on boreal bird populations — Have we avoided critical research?** *Setterington, Michael A.* (AXYS Envir. Consult. Ltd., Sidney B.C.) and *Machtans, Craig S.* (Can. Wildl. Serv., Yellowknife, N.W.T.)

Cumulative effects are changes to the environment caused by an action in combination with other past, present and future human actions. A Cumulative Effects Assessment (CEA) is meant to evaluate those changes and to provide information to help land managers and regulators make decisions that will balance development and conservation goals. For project-specific assessments, managers need to estimate both the incremental contribution of a project and the overall contribution of all projects on any given environmental component. Birds are often used either as indicators of environmental effects or are assessed because of species-specific concerns. For land-use regulation to be effective, regulators must know the critical thresholds of disturbances before bird populations or communities are "significantly" affected. Knowledge of ecological thresholds, in the absence of other planning goals, provides stakeholders with a basis for evaluating the significance of project-specific or regional cumulative effects on a component in question (birds). There are currently no readily implementable ecological or socially determined thresholds for landbird or waterbird species, and regulators are depending on ecologists and society to provide those limits so land-use decisions can be justified. Development of appropriate thresholds will require detailed information on species-specific and community responses to development disturbances. The involvement of ecologists is therefore crucial to the implementation of Environmental Impact Assessments and CEAs to develop methodological frameworks and protocols, to implement and coordinate inventory and monitoring studies, and to develop ecological thresholds. We urge increased effort in research that directly addresses thresholds because of increasing demands on boreal forest ecosystems, and the need to start improving data collection necessary to make defensible balances between conservation and development.

**180. Effects of selection cutting on the reproductive success of two Neotropical migrant bird species.** *Bourque, Julie* (Dep. forest. geomat., Univ. Laval, Ste-Foy, Qué.) and *Villard, Marc-André* (Dep. biol., Univ. de Moncton, Moncton, N.B.)

We measured the effects of selection cutting on the productivity of 2 Neotropical migrant bird species, Black-throated Blue Warbler (*Dendroica caerulescens*) and Ovenbird (*Seiurus aurocapillus*). Study plots were located either in recent (<5 yr) selection cuts (30% removal every 20 yr) or in uncut stands, in nw New Brunswick. Black-throated

Blue Warblers reached higher densities in selection cuts, but their reproductive performance (pairing and fledging success) did not differ significantly between stand types (uncut vs. selection cut). Nonetheless, in 1998, 61% of the estimated number of fledglings produced in our plots were born in selection cuts. In contrast, this proportion was only 23% for Ovenbirds in 1998 and 1999 combined. Ovenbirds had lower densities and their reproductive performance was significantly lower in selection cuts than in uncut plots. These results indicate that the effects of selection cutting on demography are species-specific and that Ovenbird persistence in selection cuts may be compromised unless the intensity or frequency of cutting is decreased.

**181. Identification and conservation of Harlequin Duck critical habitats and populations in eastern North America.** *Brodeur, Serge* (Parks Canada, Gaspé, Qué.), *Savard, Jean-Pierre L., Robert, Michel* (Can. Wildl. Serv., Ste-Foy, Qué.), and *Titman, Rodger* (Dep. Nat. Res. Sci., McGill Univ., Ste-Anne-de-Bellevue, Qué.)

During May 1996 and April 1997, 8 Harlequin Duck (*Histrionicus histrionicus*) males were captured and fitted with satellite transmitters while migrating along the shores of Forillon National Park, Gaspé, Québec. Another 17 males were equipped with satellite transmitters in river systems of e Hudson Bay, Ungava Bay, and n Labrador in June 1997 and 1998. Our objectives were to identify critical habitats used by these birds and to verify whether they belonged to the population wintering in e North America. All birds tracked from Gaspé migrated to Labrador, although 1 presumably bred on the Ste-Anne River (Gaspé Pena.) before going to Labrador. Moulting areas were identified for 6 birds. Two of the Forillon males were followed to their wintering area near Isle au Haut, Maine. Fifteen males captured in the north migrated to the Labrador coast and later reached sw Greenland between 9 July and 8 August. The n Labrador coast was identified as a major staging area. Three birds were located in Greenland in December, January and April. Harlequin Ducks breeding in Hudson Bay, Ungava Bay, and in n Labrador watersheds likely molt and winter in Greenland, and thus may be part of a separate population from that wintering in the n U.S..

**192. The significance of dead oiled birds found during beached bird surveys.** *Wiese, Francis K.* (Dep. Biol., Memorial Univ. Nfld., St. John's, Nfld.)

Chronic oil pollution has been a continuous problem in Newfoundland since the early 1960s. Systematic beached bird surveys were implemented in 1984 to monitor the problem quantitatively, to give an idea about patterns of seabird mortality due to oil, and to create a baseline for comparison in case of a large oil spill in the area. Yet the significance of the dead oiled birds in relation to the overall effect of chronic oil pollution on seabirds remains unknown. Past estimates of annual seabird mortality due to oil in our waters range between 20,000 and 500,000 seabirds, a range too imprecise to predict population impacts. Present data indicate an annual 3.2% increase in the proportion of oiled birds found since 1984 despite increased efforts of surveillance and enforcement. A preliminary model to estimate annual seabird mortality in an defined area of water around Newfoundland is presented based on data collected on weekly beached bird surveys, carcass persistence studies, drift block experiments, and buoyancy studies. Research in progress is discussed which will further enhance this model, and mechanisms are presented which will help reduce this anthropogenic impact on seabirds.

**199. Demographic variation in Brewer's Sparrows at the northern edge of their range.** *Mahony, Nancy A.* (Cen. Appl. Cons. Biol., Univ. Brit. Col., Vancouver, B.C.) and *Krannitz, Pamela G.* (Can. Wildl. Serv., Delta, B.C.)

Persistence of small populations is dependent on yearly variation in

demographic parameters and on spatial variation of those parameters in connected sub-populations. This study examines such variation in a peripheral, threatened songbird population. We studied Brewer's Sparrow (*Spizella breweri breweri*) demography in 1997-2000 in 4 subpopulations in s British Columbia, at their northern range limit. This population is endangered in B.C., and the species has declined by 3.7%/yr for 30 yr throughout its range (BBS data Sauer et al. 1997). Seasonal fecundity (number fledglings/female) did not vary between sites in 1998. In 1999, one site was significantly less productive than two others ( $p=0.014$ ), despite having the highest fecundity in 1998. The most productive site in 1999 was least productive in 1998 and vice versa (1998: White Lake, number fledged = 3.5, Kilpoola = 1.3; 1999: White Lake = 1.7, Kilpoola = 4.0). These differences were largely due to significant variation in nest predation rates and re-nesting attempts between sites. Adult survival varied between sites and years and was highest in 1997-1998 with 50-67% of males and 43-50% of females re-sighted at three sites as compared to 21-36% of males and 9-25% of females re-sighted in 1998-1999 at 4 sites.

**203. Brewer's Sparrow habitat selection is influenced by arthropod abundance and diversity.** *Krannitz, P.G., Parken, S.L.* (Can. Wildl. Serv., Delta, B.C.) and *Paczek, S.* (For. Sci., Univ. Brit. Col., Vancouver, B.C.)

Populations of Brewer's Sparrow (BRSP; *Spizella breweri breweri*) are distributed in patches throughout sagebrush habitats. In an earlier study, surveys at 260 point-count stations determined that BRSP selected areas with more perennial herbs. We hypothesized that flowers provided a greater supply of arthropods for rearing young. Because arthropods emerge several weeks after the return of migrant BRSP, flowers could also be a cue for sites rich in food. We tested this hypothesis by sampling arthropods from two kinds of sites: 1) with nesting BRSP and high herb density, and 2) with no BRSP and low herb density. Grass cover did not differ between the two types, though elevation and moisture did. Arthropods were collected from the shrub understorey, killed with ethyl acetate, and stored in 70% alcohol until sorting, pinning and identification. Sites with BRSP had 4 times as many arthropods and twice the number of species as compared to sites without BRSP. Affected orders were: Lepidoptera (larvae), Hemiptera, Hymenoptera and Coleoptera. Analysis by CANOCO showed that differences in the plant community only partially explained variation in arthropod abundance, whereas site selection by BRSP explained 60% of variation in the arthropod community. Therefore BRSP selected sites with an abundance of arthropods, but used other cues along with herbaceous perennials to identify those sites.

**207. Landscape barriers to forest bird movements.** *Bélisle, Marc; Desrochers, André, and Fortin, Marie-Josée* (CRBF, Univ. Laval, Ste-Foy, Qué.)

We report evidence from 201 independent homing trials showing that landscape composition and configuration influence the movements (1-4 km) of 2 neotropical migrants (Black-throated Blue Warbler *Dendroica caerulescens* and Ovenbird *Seiurus aurocapillus*) and 1 resident (Black-capped Chickadee *Poecile atricapilla*) forest birds in Québec. Trials consisted in translocating territorial, mated males and measuring the time they needed to return to their territories (homing time) as well as the probability with which they returned to their territories within 30 h (homing success). Birds took more time and were less likely to return to their territories as forest cover (%) decreased in the landscape. Once the effect of forest cover was removed from landscape configuration variables, their influence on homing time and success was small or nonexistent. Contrary to our expectation, mean nearest-neighbor distance between forest patches had no impact on homing time or success, but its coefficient of variation was positively correlated with homing time and negatively

correlated with homing success. On the other hand, homing time and success were not influenced by the number of forest patches or the amount of edge per unit of forest cover in ha. These results were consistent for all 3 bird species we studied. Our data support the hypothesis that movements are constrained when forest birds travel in deforested and fragmented landscapes outside migratory periods. Such an impediment is likely to disrupt habitat selection processes, reduce the colonization of isolated forest patches and, ultimately, alter population structure and dynamics.

**211. Lighter-weight migrant shorebirds indicate healthier ecosystems.** *Lank, David B., Ydenberg, Ron C.* (Dep. Biol. Sci., Simon Fraser Univ., Burnaby, B.C.), *Butler, Robert W.* (Can. Wild. Ser., Delta, B.C.), *O'Reilly, Kathleen* (Biol. Dep., Portland Univ., Portland, Ore.), and *Ireland, John* (G.C. Reifel Migr. Bird Ref., Delta, B.C.)

Birds regulate their body mass carefully. A growing body of literature suggests that overwintering songbirds maintain themselves at lighter weights when predator numbers increase. This indicates that a bird's "optimal" mass in the absence of predators includes a buffer against poor feeding or poor weather, which birds give up when predators are present because predation risk increases with a bird's mass: a predation-starvation risk tradeoff. We present data suggesting that predation risk may also influence habitat choice and/or the level of fat stores carried by migrant sandpipers. During southward migration, both the number and the body masses of Western (*Calidris mauri*) and Least Sandpipers (*C. minutilla*) captured at a small staging site in coastal British Columbia, and of Semipalmated Sandpipers (*C. pusilla*) captured at a small site in the Bay of Fundy, declined throughout the 1980s and 1990s. Concurrently, falcons increased in abundance, due to lower environmental levels of DDT and successful captive rearing and reintroduction programs. In contrast, sandpiper masses at a large, open, and presumably safer site on the B.C. coast remained unchanged throughout the period. We suggest that changes in predation risk led to changes in mass-specific habitat choices by migrants, resulting in abandonment of more risky sites, especially by heavier birds. In addition to behavioural ecological questions, such a process should be considered in the design of, and will affect the interpretation of, population monitoring schemes for migrant shorebirds, including those proposed in the U.S. and Canadian National Shorebird Plans.

**212. Population genetic structure and conservation unit designation in Piping Plovers.** *Haig, Susan M.* (USGS-For. & Rangeland Ecosys. Sci. Ctr, Corvallis, Ore.), *Gratto-Trevor, Cheri L.* (Can. Wildl. Serv., Saskatoon, Sask.), and *Mullins, Thomas D.* (USGS-For. & Rangeland Ecosys. Sci. Ctr, Corvallis, Ore.)

Piping Plovers (*Charadrius melodus*) are endangered throughout their range, and are considered the top priority species for recovery in the Canadian Shorebird Conservation Plan and U.S. National Shorebird Plan. The species has been described as having 2 subspecies: eastern (*C. m. melodus*) and prairie (*C. m. circumcinctus*), with no clear indication of the identity of Great Lakes birds (the most severely endangered population). Despite its position as an endangered species, there has been no assessment of subspecies designations for Piping Plovers, nor its genetic status. We addressed these issues via sampling of the mitochondrial control region (800 bp) and variable Random Amplified Microsatellite primers with 340 samples from 11 breeding populations across the species' range. Results suggest there are significant differences between the subspecies. Furthermore, the Michigan birds appear to be members of the western subspecies (*C. m. circumcinctus*). The critical status of these Great Lakes birds thus may be somewhat alleviated by translocation of individuals from other populations. Before these analyses, it was never clear if it was safer to translocate from eastern or western populations. These signature markers will also now allow us to identify the identity of eastern and



western birds in the winter. Given our lack of knowledge regarding winter locations of most Piping Plovers, this is a significant breakthrough in monitoring the status of specific breeding populations throughout the annual cycle.

**213. Trophic dynamics on an intertidal mudflat: The importance of predation by Semipalmated Sandpipers, nutrient enhancement, and compensatory interactions among species.** *Hamilton, Diana J. and Diamond, A.W.* (Atl. Coop. Wildl. Ecol. Res. Netwk. & Dep. Biol. Univ. New Brunswick, Fredericton, N.B.)

Semipalmated Sandpipers (*Calidris pusilla*) migrate annually through the upper Bay of Fundy, feeding heavily on the amphipod *Corophium volutator* in intertidal mudflats. Using predator exclosures and application of fertilizer, we assessed whether bird predators exert a strong top-down force on the intertidal community, or whether bottom-up factors such as nutrient availability may be more important. Shorebird predation reduced *Corophium* abundance by >80%, and fertilization significantly enhanced algal abundance (assessed by chlorophyll a concentration). However, effects did not cross trophic levels, suggesting that neither top-down nor bottom-up effects were of paramount importance in this system. Transmission of effects through the system was probably blocked by the activities of mud whelks (*Ilyanassa obsoleta*), which are competitors of *Corophium*. Whelks responded rapidly to both fertilization and bird predation; when either primary production increased or *Corophium* declined, *Ilyanassa* increased in abundance. Through a combination of interference and exploitation competition, whelks acted as compensating herbivores and, by blocking transmission of indirect effects, probably contributed to the stability of the mudflat community. These results suggest that, contrary to previous assertions, birds probably have little long-term effect on the intertidal community, and that their movements throughout the Bay are unlikely to result in substantial changes on intertidal mudflats.

**225. Effects of habitat loss and degradation on songbird communities in British Columbia's high-elevation forests.** *Dickinson, T.E.* (Dep. Biol. Sci., Univ. Coll. Cariboo, Kamloops, B.C.), *Leupin, E.E.* (For. Sci., Univ. Brit. Col., Vancouver, B.C.), and *Flood, N.J.* (Dep. Biol. Sci., Univ. Coll. Cariboo)

Forestry has been implicated in the decline of songbirds, mainly because of its effects on breeding habitat. It has, however, often proven difficult to separate effects of habitat loss from those of habitat degradation — specifically where forest fragmentation is involved. This paper presents results of a study in which the amount of habitat lost was kept constant, but 4 different harvesting methods were used which varied the size of openings created in a continuous stand. Using a randomized block design with 4 treatments and a control, 30% of the timber volume was harvested from twelve 30-ha blocks in a mature Englemann Spruce-Subalpine Fir stand in s British Columbia. Data from point counts were used to compare the abundance and diversity of songbirds present before and after harvesting. In addition, for 8 "core" species, the numbers breeding in different treatments were compared. Overall, the community demonstrated a surprising resilience to harvesting, but declines occurred in "forest interior" species (e.g., Golden-crowned Kinglet *Regulus satrapa*), and several "generalist" species (e.g., American Robin *Turdus migratorius*) colonised the stand. Residents and short-distance migrants were affected more than neotropical migrants. Species reacted differently to the various harvesting treatments suggesting that, although the volume of trees removed was equal in all treatments, the suitability of the habitat differed.

**226. Effects of riparian buffer width on high-elevation breeding songbird communities.** *Haag, Devon A.* (Dep. For. Sci., Univ. Brit.

Col., Vancouver, B.C.) and *Dickinson, Thomas E.* (Dep. Biol. Sci., Univ. Coll. Cariboo, Kamloops, B.C.)

In British Columbia, legislation requires the retention of forest buffers when harvesting occurs adjacent to streams. As buffer widths are primarily determined by stream width and fish presence, the requirements of terrestrial species are not directly addressed. This project examined the ability of different buffer widths to provide habitat for songbirds breeding along small, high-elevation streams. Research was conducted north of Kamloops, B.C., in conifer-dominated forests >1200 m in elevation. Community composition and species-habitat associations were assessed across 4 treatment widths and controls. Sampling methods involved spot-mapping bird surveys, vegetation plot sampling, and songbird behavior observations. A Geographic Information System (GIS) was used to delineate songbird territories and to examine territory size and distribution. Regression analysis was employed to examine changes in community structure and species-territory density with increasing buffer width. Preliminary results indicated that the highest species richness, diversity and overall territory density occurred in the widest buffer (65 m). When species were separated into habitat guilds (forest, open and ubiquitous), the control plots possessed the greatest density of forest-associated species. Two forest species, Townsend's Warbler (*Dendroica townsendi*) and Golden-crowned Kinglet (*Regulus satrapa*), exhibited a significant, positive linear relationship between buffer width and territory density/ha. Management recommendations resulting from this research will facilitate the conservation of songbird communities in montane forests.

**227. Assessing the effects of a severe natural habitat disturbance on the Cerulean Warbler.** *Jones, Jason, DeBruyn, Ryan D., Barg, Jennifer B., and Robertson, Raleigh J.* (Dep. Biol., Queen's Univ., Kingston, Ont.)

In January 1998, the worst ice storm in Canadian history struck s Ontario and Québec. One region negatively affected by the storm is home to one of the largest breeding populations of Cerulean Warblers (*Dendroica cerulea*) in North America. This population has been studied since 1994, thereby allowing a unique opportunity to examine the effects of habitat disturbance on the reproductive ecology and behavior of this vulnerable songbird. We addressed two main questions: (1) Did the habitat disturbance have reproductive consequences for breeding Cerulean Warblers? and (2) Did the breeding population exhibit any responses to this habitat disturbance (e.g. a shift in habitat selection patterns)? There was a significant decline in reproductive output in the 1998 breeding season, the first following the ice storm. This decline does not appear to be related to nest microclimate, changes in predator populations, or increased conspicuousness of parental movements around the nest-site. However, it may be related, directly or indirectly, to changes in insect abundance. Reproductive success in 1999 rebounded towards pre-storm levels and this resurgence was accompanied by a significant increase in territory size and a significant shift in nest-site selection patterns. We suggest that Cerulean Warblers possess a degree of plasticity in their habitat affinities, and that this plasticity rendered the population somewhat resilient to this particular disturbance.

**232. Identification and conservation of globally, continentally, and nationally significant Important Bird Areas in Canada.** *de Forest, Leah* (Can. Nature Fed., Ottawa, Ont.)

The Canadian Important Bird Areas (IBA) program is part of an international effort to identify and conserve a network of sites critical to the long-term health of bird populations. The Canadian Nature Federation and Bird Studies Canada are the national co-partners in this global program spearheaded by BirdLife International. IBAs are sites that hold significant global, continental or national populations of at

risk species, restricted range species, biome-restricted species assemblages, and congregatory species. Over 1000 sites have been identified as potential IBAs across the country. At the local level, high priority IBAs have been selected by provincial advisory committees for development of IBA conservation plans. IBA community conservation planners are developing and assisting in the implementation of these plans with the direct involvement of local communities and a variety of stakeholders. The process is highly inclusive, cooperative, and locally driven, taking national and international bird conservation initiatives into account. Funding for conservation actions within IBAs is available from the IBA Community Action Fund. An update of the national and provincial programs will be presented.

**235. Dynamics of nest-site reuse by cavity-nesting birds in central British Columbia.** *Aitken, Kathryn E.H.* (Dep. For. Sci., Univ. Brit. Col., Vancouver, B.C.)

Suitable nest holes are essential for reproduction in most cavity-nesting species and have been shown to limit some cavity-nesting populations. Cavity-nesters may contend with limited nest-site availability by reusing cavities from year to year. The same individual(s), the same species, or other species may reuse a cavity. The disadvantages of cavity reuse may include increased predation risk as predators learn the location of nest sites, and the presence of nest parasites or debris. The frequency of cavity reuse may depend on cavity availability and quality, habitat quality, nest-site fidelity, and competition for cavities by other cavity-nesting species. I monitored 525 cavities for at least two consecutive years between 1995 and 2000 on my study sites in c British Columbia. At the community level, reused cavities had larger openings, and were deeper, lower on the tree, closer to woodland edge, and in more fragmented habitat, than cavities that were not reused. Although nest fate of the previous occupant did not affect cavity reuse, hatching success was only 84.8% in cavities occupied 2 yr in a row ( $n=92$ ), whereas it was 100% in cavities unoccupied the previous year ( $n=29$ ). Here, I examine which cavity and habitat characteristics influence nest-site reuse by each species in this community and I relate these preferences to differences in morphological, reproductive, ecological and life history attributes among these species. I also determine which characteristics of reused cavities are related to nest success.

**236. Content versus context in songbird demographics.** *Diamond, Antony W. and McFarlane, Dorothy M.* (Atl. Coop. Wildl. Ecol. Res. Netwk., Univ. New Brunswick, Fredericton, N.B.)

We tracked density, productivity, and survival of songbirds for 5 yr in mature stands of hardwoods in 3 landscapes subject to different intensities of management in s New Brunswick. We predicted that density, productivity, adult survival, and site-fidelity (as indicated by return rates of banded individuals) would be lower in the landscape dominated by plantations than in contiguous forest (Fundy National Park), with a woodlot-dominated landscape intermediate. Our predictions were met only partly; demographic details were overwhelmed by steep declines in population density in all three landscapes. The reality of this trend is examined in relation to likely demographic contributors, including the unexpected conclusion that breeding philopatry may be compromised in intensively-managed landscapes.

**238. Does dispersal vary according to migratory tendency or habitat stability?** *Robichaud, Isabelle and Villard, Marc-André* (Dép. biol., Univ. Moncton, Moncton, N.B.)

Intraspecific differences in dispersal are relatively well documented, but the factors underlying interspecific differences are less well known. Birds are highly agile organisms, and a positive correlation is

often assumed between migratory tendency and dispersal ability. However, migration and dispersal are very different movement types, both in their nature and consequences. We predicted no difference in dispersal distance and site fidelity between resident and migratory species. On the other hand, we expected that species breeding in unstable habitats would exhibit greater dispersal distances and lower site fidelity than those breeding in relatively stable habitats. Using generalized additive models, we analyzed the influence of migratory strategy and habitat stability on median dispersal distance and site fidelity of adult and juvenile passerines using data from the literature. We controlled for the effects of sex, body mass, sampling effort and taxonomic position. Median return rates across species were 2.5% for juveniles and 39.4% for adults. Median dispersal distances were 627 m for juveniles and 75 m for adults. Neither dispersal distance nor return rate was significantly related to habitat stability. Median dispersal distances did not vary significantly with migratory strategy either, but site fidelity was higher in resident species than in migratory species. These contradictory results suggest that migratory species may indeed disperse farther than more sedentary ones, but that finite-area studies underestimate actual dispersal distances in these species. Additional studies on open-nesting migratory species would be useful to improve our understanding of the mechanisms underlying dispersal patterns because current knowledge is biased towards cavity-nesting, sedentary, species.

**240. Seasonal variations in survival rate of a migratory and hunted species, the Greater Snow Goose.** *Gauthier, Gilles* (Dep. biol. & Cen. d'Études nord., Univ. Laval, Ste-Foy, Qué.), *Pradel, Roger* (Cen. d'Écol. fonct. Évol., CNRS, Montpellier, France), *Menu, Stéphane* (Univ. Laval), and *Lebreton, Jean-Dominique* (CEFE, CNRS)

We estimated variations in seasonal survival rates in a long-lived, hunted species that completes 2 lengthy migratory flights (>3000 km) annually. The study was conducted on adult female Greater Snow Geese (*Chen caerulescens atlantica*) in 1990-1998, and is based on 3,890 neckbanded birds and 13,657 sightings. Birds were banded once a year in the Canadian Arctic where the birds breed, and they were sighted in summer in the Arctic and in spring and fall at migratory stopovers in s Québec. Survival rate was modelled with SURGE using recent developments in capture-recapture methodology. Monthly survival rates from spring to summer (3-month) and summer to autumn (2.5-mon) were equal ( $0.989\pm 0.003$ ) and showed little variation over the years even though the 2 migratory flights and breeding occurred during these periods. In contrast, monthly winter survival (from autumn to spring, 6.5-month) differed from survival during the other seasons and varied significantly over the years (range:  $0.936\pm 0.021$  to  $0.993\pm 0.008$ ). Mean survival of adult females was 0.96 from spring to autumn, 0.86 during winter, and  $0.83\pm 0.05$  for the whole year. Natural mortality was equal among seasons and did not vary over the years, which suggests that mortality risk is not increased during migration or reproduction. There was a significant inverse relationship between winter survival and the kill rate, suggesting that hunting mortality was largely additive to natural mortality.

[to be concluded in next issue]



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**REPORTS FROM 2000 ANNUAL MEETING/RAPPORTS DE LA RÉUNION ANNUELLE DE 2000**  
(edited mainly as to format)

**MINUTES OF ANNUAL GENERAL MEETING/PROCÈS-VERBAL DE LA RÉUNION GÉNÉRALE ANNUELLE**

19 August 2000, 16:30; in attendance 41 persons.

1. Introductions: President Kathy Martin introduced members of S.C.O. executive and council.
2. Minutes of 1999 Annual General Meeting (handout): - on motion (by Peter Blancher, 2. Cheri Gratto-Trevor), the Minutes were approved as written.
3. Membership Report (handout): Nancy Flood reviewed the report. As of that date, S.C.O. had members from all 10 provinces and all 3 territories, over 300 in total.
4. Financial Statement (handout): Tom Dickinson reviewed the financial situation. Funds from the Fredericton meeting largely paid for Special Publication No. 1; copies are still available @ \$20.
  - on motion (by Tom Dickinson, 2. Bruce Falls), the Financial Statement [for calendar 1999] was approved, with correction of date listed for *Picoides*.
  - on motion (by Tom Dickinson, 2. Nancy Flood), Larry Peet was retained as Auditor for the 2000 calendar year.
5. Editor's Report: Tony Erskine noted that 2 issues of *Picoides* were published in the past year, each delayed a week due to printing in Moncton rather than Sackville. He wishes to step down as Editor, but is prepared to continue while Council looks for a replacement.
6. Publications Committee: Tony Diamond thanked Richard Elliot for substantial help with S.C.O.'s Special Publication. Material is needed for the *Picoides* bulletin. It can be sent in anytime, but deadline for this fall's issue is mid-October (to Tony Erskine) Comment: Abstracts of graduate theses in Canada would be a useful focus for *Picoides* publication lists, as journal publications are abstracted elsewhere.
7. Student Awards: Greg Robertson thanked Erica Nol and Tom Dickinson for helping judge best student papers at Birds 2000. There are 18 applicants for 2 awards; oral and poster presentations are considered together this year. Winners, to be announced at banquet tonight, will receive 4 books each.
8. Student Research Awards: David Bird reported there were 23 excellent applications. Awardees were determined by 3 judges, none with students in competition. Winners are:
  - Baillie Award - Dan Mennill (Queen's U.)
  - Taverner Awards - Tara Paton (R.O.M., U. of Toronto), and Joel Heath (Memorial U. of Nfld.).Kevin Teather will take over organizing Student Research Awards for next year.
9. North American Banding Council (NABC): Heidi den Haan reported for Brenda Dale, S.C.O.'s representative to NABC. NABC met in Arizona in January 2000, summarized in Dale's account in *Picoides*. Considerable progress is being made on bander training publications - check NABC web site for updates. Canadian Wildlife Service has agreed to provide translation. Landbird and hummingbird banders' guides have been completed. Bander certification sessions are being standardized. The U.S. Bird Banding Laboratory is changing some requirements for banders; NABC will provide comment on these changes.
10. Nominations: David Bird reported that 2 [present] Councillors will stand for renewal, with 4 persons invited to offer for the one vacant position on Council.

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Q: Does Council take nominations from the floor?

A: Send any nomination suggestions to Bird by e-mail.

11. Ornithological Council: Lesley Evans Ogden has agreed to serve as an S.C.O. representative on the Ornithological Council, joining Tony Diamond.

12. International Ornithological Committee (I.O.C.): Fred Cooke explained that the I.O.C. "Committee of 100" (actually about 200 persons) includes several Canadians, who currently are responsible for suggesting new Canadian members for the Committee. As Canada's representative on the I.O.C. Executive, Cooke has been given a list of slots available to Canada. Should S.C.O. be involved in choosing new I.O.C. members? General response was positive. Suggested Action: S.C.O. Committee to propose names, and get feedback from members by listing these names in *Picoides*. Current I.O.C. membership can be viewed on the web at: <http://www.nmnh.si.edu/BIRDNET/IOC/members.html>

13. A.O.U./S.C.O. relationship: Fred Cooke raised the issue of S.C.O. continuing to meet jointly with A.O.U. in future, while working to keep a high S.C.O. profile. A.O.U. is likely to be sympathetic to joint meetings with S.C.O., based on Cooke's discussions with Rohwer and Fitzpatrick.

Comments: What is the difference between A.O.U. for North America and joint A.O.U./S.C.O.? A.O.U. meeting dates are a problem for some Canadians still in the field in August. Difficult to recognize what S.C.O. was responsible for at Birds 2000 meeting, as sessions were not identified by Society. S.C.O. profile was higher at past 4 separate meetings in Canada, which put S.C.O. on the map. S.C.O. should consider meeting occasionally with A.O.U., but not every year.

14. Next S.C.O. meetings: Following from the above, Kathy Martin presented the next 4 proposed meeting venues:

2001 in Seattle, with A.O.U.;

2002 in New Orleans, with most OSNA societies;

2003 in Saskatoon, with other Canadian meetings such as C.W.S. bird committees; 2004 in Quebec (U. Laval), suggested as joint meeting with A.O.U.

15. S.C.O. Web Site: Bob Curry, webmaster for Ornithological Council's BirdNet web site, described what he has done and could do with S.C.O. material for the web. S.C.O. is welcome to continue to use the BirdNet web site (server at the Smithsonian) or put up a site elsewhere with a link to BirdNet.

ACTION: Suggestions for S.C.O. web pages to be sent to Kathy Martin or Bob Curry (his e-mail = [curry@ucis.villanova.edu](mailto:curry@ucis.villanova.edu)). It was suggested that *Picoides* could be put on the web.

16. Recent Ornithological Literature On-Line (ROLO): Kathy Martin explained that S.C.O. is pledging a one-time donation of \$600 in support of adding back issues into a database for ROLO. In future, this will be a read/write file, so that authors can post material to the site. The site will eventually be author-maintained (= Authors will post own publications from non-standard journals; standard journal postings will not require author posting).

17. Publications/Journal: Tony Diamond summarized recent S.C.O. history regarding need for a journal. Tom Dickinson summarized a draft business plan he prepared; cost might be about \$60,000 for 4 issues/year.

Questions & Discussion: Q. What is Canadian population of ornithologists? A. About 600 (from Directory of Canadian Ornithologists), not including graduate students nor many amateurs.

There is need for a market survey to assess what kind of journal would be supported, and what potential subscribers would pay.

Q. Has an on-line journal been considered? A. On-line journal unlikely to work without established readership of hardcopy journal first; would need about 1,000 on-line subscribers to be successful.

Q. What would be scope of journal, and is there a niche available? A. *Bird Study* suggested as model last year, possibly in partnership with Bird Studies Canada. There is possibly a niche for a



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journal of avian ecology. Erica Dunn clarified that a Canadian journal might focus on some elements of ornithology, but not to the exclusion of other elements; some flexibility needs to be retained.

18. Thanks/Adjournment: On behalf of S.C.O., Kathy Martin thanked:

Greg Robertson for his key role in the Planning Committee for Birds 2000;

Tony Diamond, outgoing President, for contributions during his term as President;

Tony Erskine for his contribution as Editor of *Picoides* over the past 7 years.

Meeting adjourned at 17:50.

#### **ADDENDUM, from President's report to AGM**

- The most visible achievement of the past year was the emergence of our book *Biology and Conservation of Forest Birds*, published by Bounty press as S.C.O. Special Publication No. 1. This arose from the symposium on forest bird conservation at our annual meeting in 1996 at U.N.B., Fredericton. Tony Diamond and David Nettleship were editors and deserve most credit for making this publication a reality. The book is dedicated to the memory of Dr. Henri R. Ouellet, our 1999 Doris Huestis Speirs Award winner.

- It goes without saying that S.C.O. is looking for a new Editor for *Picoides*. Please pass suggestions of potential new editors to your S.C.O. Councillors or executive. Tony Erskine has given us some time to search for a new editor, by offering to produce the next one or two issues or to assist a new editor during the transition.

#### **S.C.O. TREASURER'S REPORT/RAPPORT DU TRÉSORIER DE S.O.C.**

The Society's financial position remained stable in 1999. During the year we again provided two Taverner awards in support of research by Grace Bottita and Ryan Norris. Also we honoured the memory of Henri Ouellet with a Doris Heustis Speirs Award. Gilles Seutin and his associates at McGill University deserve thanks for hosting our very successful scientific meeting in Montreal. Tony Erskine produced two more issues of our bulletin. All in all, a very active year!

The audited year-end statement, for period ending 31 December 1999, that accompanies this report shows the Society's assets growing modestly (about 7% for 12-month period). This growth would not have been possible without contributions from meetings in Peterborough and Vancouver which each turned a profit for the Society. Even though we increased membership fees last year, income from the higher rates is just beginning to appear in our accounts. This is due, in part, to the number of members who held multi-year memberships when fees increased. We were fortunate to have other sources of income because low interest rates (as low as 3.5%) plagued our investments over the past

several years. We have not generated sufficient investment interest to cover operating expenses recently.

Two items in the 1999 Financial Statement require explanation. At year-end there were large balances in savings and chequing accounts. This arose because investments matured very late in December and were not re-invested until 2000. Second, financial institutions increased service charges last year, and the 1999 statement notes bank charges levied against our accounts. As of January, our bank (TD) agreed this year to stop charging for preparation of monthly accounting statements.

The financial situation for 2000 is difficult to predict. In the interim report, income is low because not all members have yet renewed for 2000 and investments have not paid annual interest. Meanwhile, our expenses have grown. As our society becomes more actively involved with international groups, such as the Ornithological Council, we incur additional membership fees. We continued to publish - this year two excellent bulletins and a top notch "Proceedings". We were able to afford the latter by combining profits from

the Vancouver and Peterborough meetings with those from Fredericton. I expect the year-end account will show little growth. The longer term looks more promising, because interest rates have started to climb out of the cellar.

Our ability to grow and maintain the position we

have in the ornithological community will require that we maintain a large and active membership. We can all do more to encourage colleagues to join the society. In addition, we must give cautious consideration to involvement in new ventures, until we have more resources.

1999 Financial Statement (audited by L.J. Peatt, 21 July 2000)

Opening balances & investments (1 Jan. 1999)

Cash.....	100.00
Savings.....	80.30
Chequing.....	2,289.02
Investments (G.I.C.s).....	21,750.00
	Total \$24,219.32

Income:

Donations.....	170.00
Transferred from other Accounts.....	1,880.46
Membership Fees.....	3,172.97
Interest on Investments.....	865.08
	\$6,088.51

Disbursements:

Speirs Award (Ouellet).....	80.50
Taverner Awards (Norris, Bottita).....	1,000.00
Montreal Meeting (Seutin).....	500.00
Picoides: Fall 1998, Spring 1999.....	2,800.25
Bank Charges.....	26.98
	\$4,407.73

Closing Balances (31 Dec. 1999)

Cash.....	100.00
Savings.....	4,761.68
Chequing.....	9,538.42
Investments.....	11,500.00
	\$25,900.10

2000 **Interim** Financial Statement

Opening Balances (1 Jan. 2000): total.....	25,900.10
Income (through 17 July 2000): total.....	7,777.10
Disbursements (through 17 July 2000): total.....	9,518.14
Closing Balances (17 July 2000): total.....	24,159.06



## COMMITTEE REPORTS/RAPPORTS DES COMITÉS

### MEMBERSHIP (report by Nancy Flood)

As of 23 July 2000, 289 members are on the rolls of S.C.O., including several libraries, various clubs, societies, private agencies and firms, and many individual members (Table 1). Membership is stable, or increasing slightly. As in past years, this "active" list includes those who paid dues for 2000 and beyond, as well as those who, not yet renewed for this year, were paid through 1999 (Table 2). Due to building renovations around my office since May (not complete as I write), I was late in sending out renewal notices; I expect many people to renew at the meeting in St. John's.

Table 1.  
Affiliation of SCO members

Affiliation	No. members
None stated	47
University	106
C.W.S.	50
Other Federal Govt.	9
Museum	10
Non-govt. agencies (e.g. D.U.)	19
Provincial Govt.	15
Private Consultants	15
Clubs, societies	11
Libraries	6

Table 2.  
Renewal Status of members

Paid through	No. members
1999	149
2000	111
2001	19
2002	6
2003	3
2005	1

So far in 2000, S.C.O. gained 30 new members, compared with 28, 11, and 13, who joined in 1999, 1998, and 1997, respectively. As a number of people usually join at the annual meeting, this bodes well

and the Society may surpass the record of 300 members we had briefly in 1997. I have not analyzed the patterns of member retention as in previous years, but new members seem harder to hold on to than those who have been around for a while. A breakdown of the membership by category is shown in Table 3. Introduction of a lower student membership fee probably encouraged students to join S.C.O.

Table 3.  
Breakdown of SCO membership by category.

Membership category	No. of members
Regular (\$15/a)	236
Sustaining (\$30/a)	20
Student (\$10/a)	30
Complimentary	3

I also broke down the membership geographically (Table 4). As noted in previous reports, the society is lacking members from P.E.I. (one newly elected councillor from P.E.I, presumably will join soon). All other provinces and all three territories are represented among the members, and American membership seems to be on the rise.

Table 4.  
Geographical distribution of S.C.O. membership

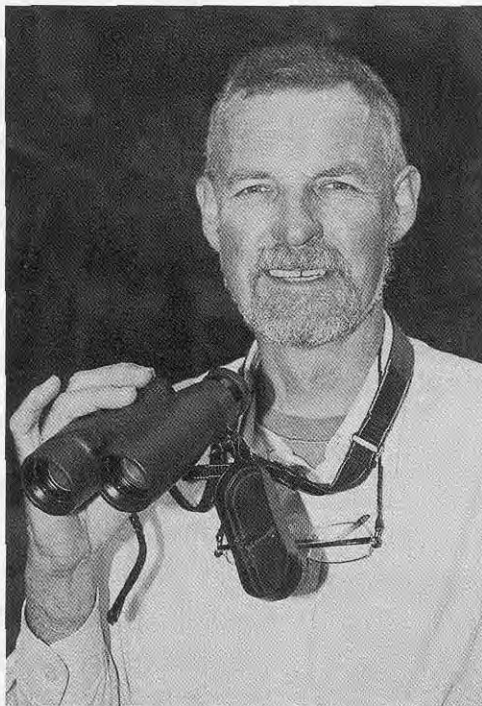
Geographical area	No. of members
Newfoundland	6
Nova Scotia	14
New Brunswick	17
Quebec	32
Ontario	86
Manitoba	13
Saskatchewan	15
Alberta	21
British Columbia	52
Yukon	3
Northwest Territories	2
Nunavut	1
United States	21
UK & Europe	4

## 2000 DORIS HUESTIS SPEIRS AWARD FOR OUTSTANDING CONTRIBUTIONS IN CANADIAN ORNITHOLOGY

**The Doris Huestis Speirs Award for outstanding contributions in Canadian Ornithology, the most prestigious award of the Society of Canadian Ornithologists, was presented in 2000 to Dr. James Neil Munro Smith** (better known as 'Jamie'), Professor of Zoology, University of British Columbia, Vancouver. This award was established in 1986, and is made annually to honour lifetime achievements in Canadian ornithology.

Dr. Smith is honoured in recognition of over 25 years of research, teaching, and public education on the ecology, behaviour, and conservation of birds in Canada. His long-term studies, with a small army of graduate students and post-doctoral fellows, of population dynamics, life history, and ecology of Song Sparrows on Mandarte Island (B.C.), have permanently linked this species and site in scientific memory. Cowbird parasitism of Song Sparrows there provided a lead to wider research on interactions of this brood parasite and its hosts, in British Columbia and beyond (major compendium in press). His long list of scientific publications, on these and other subjects, bears witness to his research activity.

Dr. Smith's influence on Canadian ornithology extends well beyond his field studies. He views his teaching as of equal importance to his research work,



new courses he developed (& taught) including perhaps the first university course offered in conservation biology in Canada. Many of his former students ("his fledglings"), some attending this conference, hold university faculty and government positions across North America. His role as constructive critic is valued by students and colleagues - "if you can fly your idea past Jamie, it will probably remain airborne". He has been a vigorous spokesperson on avian conservation issues, willingly helping in government and NGO initiatives. His services as lecturer, author, referee, editor, selector, have been available and used by local, national, and international groups.

He was already honoured by selection as the first speaker at the opening plenary session in the 21st International Ornithological Congress at Vienna in 1994. S.C.O. takes great pleasure in now presenting Dr. Jamie Smith with the Doris Huestis Speirs Award for the year 2000. [A prophet need not be without honour in his own country!] Bravo, Jamie!

The Speirs award selection committee for 2000 included A.W. Diamond, K.A. Hobson, D.N. Nettleship (chair), and S.G. Sealy.

This citation was adapted (by Editor) from presentation remarks by Kathy Martin.

## S.C.O. RESEARCH AWARDS - 2000 report

The winner of the James L. Baillie Student Research Award for 2000 is  
- DANIEL JOSHUA MENNILL of Queen's University, for his Ph.D. project, "The ecology and evaluation of female eavesdropping and female choice of extra-pair partners", supervised by Dr. Laurene Ratcliffe.

Winners of the two Taverner Awards are  
- JOEL HEATH, Memorial University of Newfoundland, for his M.Sc. project, "Factors affecting foraging behaviour of the endangered Harlequin Duck (*Histrionicus histrionicus*) in winter", supervised by Dr. William Montevecchi; and  
- TARA A. PATON, Royal Ontario Museum and University of Toronto, for her Ph.D. project, "A comparison of



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mitochondrial and nuclear DNA sequences to determine phylogenetic affinities among selected families in the avian order Charadriiformes”, supervised by Dr. Allan Baker.

Reports on these projects will appear in the next issue of *Picoides*.

The judges were Kim Cheng, Gilles Gauthier, and Ralph Morris, none of whom had students in the competition.

## STUDENT PRESENTATION AWARDS

The Society of Canadian Ornithologists/Société des Ornithologistes du Canada presented awards for the two best student presentations (among Canadians) at the recent joint meeting of the AOU/BOU/SCO-SOC, BIRDS 2000. These awards are unranked, reflecting scientific quality and the ability to effectively present material.

- One award was presented to CELIA M. McLAREN, University of Manitoba, for her

presentation “Patterns of multiple parasitism on Song Sparrows by Brown-headed Cowbirds”.

- The other award went to TODD J. UNDERWOOD, also of University of Manitoba, for his presentation “Can Warbling Vireos grasp-eject Brown-headed Cowbird eggs? A test of the bill-size constraints and the evolutionary equilibrium hypothesis”.

Congratulations to the winners, and thanks to all students that participated in this competition.

## PUBLICATIONS

### Committee Note

The draft business plan for a proposed S.C.O. Journal was not ready in time for circulation to the membership with previous issues of *Picoides*, as promised a year ago. In view of later initiatives, which substantially change the terms of reference for a journal, the earlier business plan will not be circulated. Anyone wishing to examine a copy should contact the Treasurer (at addresses on inside front cover).

## Editor's Report - 1999-2000 YEAR

This year, as usual, we published two issues of our bulletin, 12(2) and 13(1), of 20 and 12 text pages, respectively. The former reported mainly on the Montréal meeting and conference; the latter comprised student award reports and annual journal literature. Owing to illness by its chair, no reports were received from the Conservation Committee for either issue, and no other feature articles were received (nor written by the Editor). Thus, what members received was relatively “thin soup” - despite good cover photos, well-reproduced (with able assistance by John Chardine). No complaints were received [except one from our President - for non-receipt of 12(2)], but that doesn't mean everyone was satisfied.

In spring 1999 our printer closed its lab in Sackville, and our last two issues were printed at their

Moncton shop. Copy was transferred between Sackville and Moncton (50 km one-way) by their employees commuting to & from work, so little inconvenience (to Editor) resulted from that move. However, both *Picoides* issues in the past year took about a week longer in production (initial submission to mailing) than the previous average (across 6 years) with the same Editor/printer combination.

Neither the rather uninspired content of *Picoides* nor its somewhat delayed circulation in the last year need demand a change in Editor, but both could be signs that my enthusiasm for the job - and my energy? - may be running out. If I were still gung-ho, I might have pushed harder, but I didn't. When a S.C.O. journal appears, the role of *Picoides* will change, new demands on its Editor will arise, and a new Editor may become essential - but that

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eventuality may not emerge for several years. I recommend that S.C.O. Publications Committee undertake a search for a new Editor for *Picoides*, to take over the job by (say) summer 2001. I am willing to produce another one or two issues (if appointed),

to allow time for a willing successor to be found. I can keep the wheels turning longer, if there are delays in finding a new Editor; but if someone is eager to start, I would be happy to step aside sooner - and glad to have helped S.C.O. in this way for this long.

#### LOGO FOR S.C.O.

Last year we invited members to express their preferences for a variety of possible logos. Those who thought the faithful woodpecker somewhat outdated were hoping for an avalanche of support for something more dashing, but it was not to be - no avalanche, barely a flurry. Of the eight (yes, 8!) votes received, 5 were for the woodpecker, 2 for the flying jay, 1 for the jay head. So our trusty woodpecker can soldier on. Thanks for your responses.

Tony Diamond

#### Call for Applications - STUDENT RESEARCH AWARDS IN 2001

Applications are invited for two Taverner Awards (up to \$500 each) and one Baillie Award (\$1,000) for 1998.

- Taverner Awards are offered by the Society of Canadian Ornithologists to honour Percy A. Taverner and to further his accomplishments in increasing knowledge of Canadian birds through research, conservation and public education. The awards are aimed at people with limited or no access to major funding, regardless of professional status, who are undertaking ornithological work in Canada.

- The James L. Baillie Student Research Award is open to any student conducting ornithological research at a Canadian university. It honours the memory of James L. Baillie and will support field research on Canadian birds. This award is funded by Bird Studies Canada/Long Point Bird Observatory from proceeds of the Baillie Birdathon, and is administered by the Society of Canadian Ornithologists.

A single application may be made for both awards,

but only one award can be won by an applicant in a given year. Taverner Awards are given only once for the same project; Baillie Awards only once to the same person. However, past winners of either award may apply for the other. Funds are not awarded for stipends.

Application procedures changed in 1997 from those used earlier. All applicants must use a standard application form, which may be obtained by contacting the chair of the committee. Completed applications must reach the following address before 15 January 2001:

Dr. Kevin Teather, Chair,  
S.C.O. Research Awards Committee,  
Dept. of Biology, University of P.E.I.,  
Charlottetown, P.E.I. C1A 4P3

Awards will be announced by 1 April 2001. For application materials or additional information, contact K. Teather, PH: 902-566-0325; FX: 902-566-0740; EM: kteather@upei.ca

#### Call for Nominations - DORIS HUESTIS SPEIRS AWARD

The Speirs award is our Society's most prestigious honour, presented annually to an individual who has made outstanding lifetime contributions in Canadian ornithology. Previous awardees included ornithologists who worked at museums (e.g. Earl Godfrey), government agencies (e.g. Graham Cooch), private institutions (e.g. Albert Hochbaum), universities (e.g. Bruce Falls), or as volunteers (e.g. Stuart Houston, Louise de Kiriline Lawrence). People honoured in the first 15 years were mostly near the close of their working careers - recent



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greats of Canadian ornithology. In future, we will be looking more at scientists at or nearing their peaks.

If you wish to suggest a candidate, with or without supporting data, please contact the committee chair for the Speirs Award:

Dr. Erica Nol, Head, Dept. of Biology,  
Trent University, Peterborough, Ont. K9J 7B8  
(PH: 705-748-1424; FX: 705-748-1205; EM: enol@trentu.ca)

## RECENT LITERATURE

### **Canadian Atlas of Bird Banding, vol. 1: Doves, Cuckoos, and Hummingbirds through Passerines, 1921-1995**

by D. Brewer, A. Diamond, E. Woodsworth, B. Collins, E. Dunn.  
Special Publication, Canadian Wildlife Service, 2000.

“This volume is part of a series intended to summarize, for the first time, bird-banding results for Canada.” Originally conceived by the Ontario Bird Banding Association over 25 years ago (then to include data through 1975), it began without aid of current computer technology, and bogged down

before data compilation was completed. Reactivated towards 1990, it was expanded to include the vastly larger numbers of bandings and recoveries between 1975 and 1995. Even with personal computers, it proved a huge task, involving specialists in data-processing and statistics as well as “bird brains” (no insult intended!). The authors and compilers deserve congratulations on a worthwhile job well-done. Anyone interested in bird movements (>100 km) should find much of interest therein.

[This is a notice of publication, not a serious review. Ed.]

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### **Thesis abstracts**

Title: Limitations of the point-count method for inferring stand-level species-resource relationships: a sampling simulation approach

Clive Goodinson, M.Sc., Univ. Brit. Col. - February, 2000

In this thesis, I suggest that only under special, simplified circumstances is the point-count method appropriate for deducing stand-level species-resource relationships. As a field evaluation of the point-count method, I developed stand-level species-resource models for two woodpecker species, the red-naped sapsucker (*Sphyrapicus nuchalis*) and the northern flicker (*Colaptes auratus*). Compounding sources of uncertainty severely compromised the usefulness of this exercise in elucidating species-resource relationships. In response to the difficulties with the field data, I developed Sample Sim'on, a program that simulates the repeated sampling of a

population of mobile, territorial organisms in a landscape with one or more resources. I show that the spatial distribution of resources, species behaviour, and sampling design can greatly affect the success rate with which species-resource relationships can be determined correctly (i.e., the sampling success rate). Realistic values for parameters describing those elements result in a very low sampling success rate, even when sampling effort is impracticably high. In addition, other variables that are not explicitly defined in Sample Sim'on, including those acting over larger spatial scales, can only add variance to species-resource data, further weakening sampling success.

A copy of this thesis can be downloaded at:  
<http://www.forestry.ubc.ca/conservation/downloads/downloads.html#goodinson>

The author may be contacted at  
[clive@goodinson.com](mailto:clive@goodinson.com)

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## NEWS ITEMS AND ANNOUNCEMENTS

### Opportunities for student employment

- Field Assistants (4) needed for 14 weeks (May-August 2001) for a study of the reproductive success of forest birds in managed and unmanaged forested landscapes in southeastern New Brunswick (in and around Fundy National Park). Duties involve point counting, nest searching, spot mapping, banding and conducting detailed vegetation surveys. To be qualified for this position applicants must have skills and experience in at least one of the following: (1) Identification of northeastern birds by sight and sound, (2) Mist netting and banding of forest birds. Knowledge of eastern herbaceous and woody vegetation will be beneficial. All applicants must enjoy hiking long distances in difficult terrain, and have a tolerance for many biting insects. Housing and food will be provided. Salary will range between \$1100 and \$1600 (Canadian/month) depending upon experience. Please send cover letter, resumé and names of two references by 15 January 2001 to

Matthew Betts,  
Greater Fundy Ecosystem Research Group  
(GFERG),  
University of New Brunswick, P.O. Box 45111,  
Fredericton, N.B. E3B 6E1.  
EM: mbetts@unb.ca .

For information on the GFERG see:  
<http://www.unb.ca/forestry/centers/centres-fs.html>  
For information on ACWERN (co-sponsor of this project) see: <http://landscape.acadiau.ca/acwern/>

- I am looking for potential graduate students interested in studying either the effects of Dutch Elm Disease on bird communities, or various aspects of the ecology of Northern Flickers. Applicants should have an NSERC scholarship, or a GPA of at least 80% (to be competitive for university scholarships and teaching positions). Please send a resumé or e-mail to:

Dr. Karen Weibe,  
Dept. Biology, Univ. of Saskatchewan,  
112 Science Place, Saskatoon, Sask. S7N 5E2  
[PH: 306-966-4406; FX: 306-966-4461;  
EM: weibek@duke.usask.ca]

“The flicker situation will puzzle all naturalists in the world.” (Audubon 1843)

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### Fred Cooke as A.O.U. President-Elect

At the 118th stated meeting of the American Ornithologists' Union, in St. John's, Nfld., Fred Cooke was elected as President-Elect (to succeed to the presidency in 2002). Fred will be only the 3rd or 4th person of long Canadian residency to become President of the A.O.U., joining the distinguished company of J.H. Fleming (President 1932-36), Hoyes Lloyd (1945-48), and Austin Rand (1962-64). Fleming's bird collection, perhaps the most complete ever assembled by a private individual, formed the core of the R.O.M. collection, and with his library brought that institution to the forefront of bird research. Lloyd was the first head (1918-44) of the

federal government agency that later evolved into the Canadian Wildlife Service. Rand was Nova Scotian-born and served as curator of ornithology at National Museum of Canada (1941-47); most of his working career was passed in major museums of the U.S.A., and his presidency recognized primarily his leading role in that country. Fred's role in advancing ornithological knowledge and understanding from Canada fully deserves this recognition. We are proud of him, and confident that he will do us proud in that role.

Editor



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### Death of J.B. Gollop, long-time ornithologist

We note with regret the passing, on 26 May 2000 at Saskatoon, of Bernie Gollop, aged 74. Bernie was the first C.W.S. biologist to be located in Saskatoon, where he was employed for 38 years, probably the longest service (before retirement) of anyone in that

agency. A full obituary will appear in *Blue Jay*, a journal he served as editor as well as long-time supporter. He will be missed by many.

Editor

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### Progress on "Endangered Spaces" in Canada

In 1989 World Wildlife Fund (Canada) challenged provincial and territorial governments each to exclude from development 12% of their area as "protected spaces" for wildlife and nature. The deadline suggested was 1 July 2000, now passed. Since the campaign began, over 1,000 areas totalling over 38 million ha were protected, doubling the area set aside for wildlife. However, not one jurisdiction

fully achieved its goal, although B.C. reached 95% of theirs, and 4 other provinces and Yukon passed the two-thirds mark. N.B., at 26%, ranked last, far behind the national 57%. Much more work remains to be done.

from P.E.I. newsletter

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### Important Bird Areas (IBA) Community Action Fund

The IBA Community Action Fund is seeking proposals that support communities and individuals taking on key IBA initiatives in Canada. To be eligible, proposed projects must contribute to the conservation of the birds and habitats within an officially recognized IBA. Deadline for receipt is 19

January 2001. Maximum annual grant per project is \$5,000. A 1:1 match is required, which may be cash and/or in kind.

For more information, consult website:

<http://www.ibacanada.com>

### IN THE NEXT ISSUE OF *PICOIDES*

One major component will be the remaining abstracts from the BIRDS 2000 conference. Another will be reports from our research award winners of 2000. Under "Recent Literature", we hope to include more abstracts of recent Canadian theses (Ph.D.s & masters'). We also hope to include feature articles, one on work of Bird Studies Canada already offered. [If all that material appears, we may not have space for our annual summary of journal publications!]

Pictures supplementing published material would also be very welcome.

Reminders of presentation deadlines for the 2001 Conference will appear in the next issue - but don't wait until then to start preparing YOUR presentations. See recent *Auk* article on suitable designing of slides.

**Deadline for copy for the spring 2001 issue will be 1 March.**

Lavigne (1996, C.W.S. Occas. Papers 91: 59-71) made several generalizations on relationships among marine mammals, commercial fisheries, and prey exploited by both groups of predators. Most apply also to relationships among mergansers, sport fisheries, and Atlantic salmon, a system I studied in the 1960s. The latter system may be simpler and more visible to the public (?), and is equally open to misinterpretation. Some of the same points apply in management of hunted stocks of birds - as recognized long ago.

In discussing "Where do we go from here?", Lavigne summarized information under several headings, of which bioenergetics and feeding habits were not in question in the merganser - salmon picture. Modeling therein would have involved much guesswork; population data for both birds and fish (of all ages) were scanty and uncertainly representative; the structure of the marine food-web embracing sea-life of salmon was imperfectly understood; and human catch of salmon (at all stages) was incompletely known. Lavigne's final point - public education, involves convincing people that scientists understand how a controversial system works - at least sufficiently to recognize which remedial actions may work and which are inappropriate.

In summary, Lavigne noted that "We do not know how to manage ecosystems, and, in reality, we don't even try. What we do attempt to manage - and we haven't been very successful at this, either - is human activities. The real object of [wildlife] management is... to ensure that catches [harvests]... are sustainable into the future." This fits well with the recent biodiversity thrust, but it is only a restatement of what I heard in a wildlife management course at U.B.C. over 40 years ago, that

most "wildlife management" is people management. Before people allow their activities to be managed (read "regulated"), they must be convinced that the responsible scientists or managers understand these complex systems more fully than do politicians, outdoor writers, or other scientists with "a different axe to grind".

It's much easier to tell the public that birds eat salmon, with the implication that killing birds will leave more salmon for people (to kill), than to explain complexities of the system. Fishes move from river to sea to ocean and back, with aquatic predators active all along the way, and with humans creaming off large but variable proportions of the returning stock. The birds get their whacks in early, before the fish go to sea - though recent data suggest previously unrecognized avian predation at sea, and 90% of salmon that reach the sea don't return. Sending more fish to sea may feed marine predators better, but will **not** guarantee increased return. Appropriate public education is the real challenge for "management" of many/most exploited stocks.

The above case does not fit the (more desirable) situation described by Graham Wynne [Ibis 141(3): 526, 1999] - that "advocacy and political pressure are lagging behind the facts". Unlike the U.K. situation, we in Canada are often unsure "what happened, why it happened, and what needs to be done about it". We usually still have the situation that formerly prevailed in the U.K., "the gut feeling [that something was wrong] lacked the scientific facts to back it up." Avian science has made real advances in Canada in the last half-century, but pertinent information on many topics here may be spread as thinly as is human population in most of Canada.

The Editor

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#### ACKNOWLEDGMENTS

Thanks, from Editor and S.C.O. members, go to everyone who provided material for this issue in timely fashion. We did it together! Without your help, the Editor's task would indeed be thankless.





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## MEMBERSHIP INFORMATION

If you would like to be a member of the Society of Canadian Ornithologists, please send your name, address, phone number, and a cheque or money order (payable to S.C.O.) for \$15.00 to the Membership Secretary [Increased fee; still \$10 for students]:

Dr. Nancy Flood, Dept. of Biological Sciences,  
University College of the Cariboo,  
900 McGill Rd. (Box 3010), Kamloops, B.C. V2C 5N3

Si vous désirez devenir membre de la Société des ornithologistes du Canada, faites parvenir vos coordonnées ainsi qu'un chèque ou mandat-poste (à S.O.C.) au montant de 15,00\$ à l'adresse ci-haut [Les frais sont augmentés, sauf pour les étudiants].

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Attention: A.J. Erskine

