
Society of Canadian
Bulletin of The Ornithologists

PICOIDES

Bulletin de la Société des Ornithologistes
du Canada

ISSN 0836-060X

Picoides, March 2000
Volume 13, Number 1



Common Loons – Lake Laberge, Y.T., August 1999
(photo by Dorothy McFarlane)

A relatively “common” species across much of boreal Canada, in contrast to “panic-button” efforts on its behalf along the southern perimeter of its North American range. Also featured as the logo of the Canadian Wildlife Service.

Society of Canadian Ornithologists Société des Ornithologistes du Canada

Officers for 2000

President: Dr. Kathy Martin, (UBC) Centre Appl. Cons. Biol., 3rd floor Forest Sci. Cen., Univ. Brit. Col., 3004-2424 Main Mall, Vancouver, B.C. V6T 1Z4; Voice: 604-822-9695; fax: 604-822-5410; e-mail: kmartin@interchange.ubc.ca

(CWS) Pacific Wildl. Res. Cen., Can. Wildl. Serv., 5421 Robertson Rd., R.R.1, Delta, B.C. V4K 3N2; Voice: 604-940-4667; fax: 604-946-7022; e-mail: as above.

Vice-President (President-elect): Dr. David Bird, Macdonald Coll., McGill Univ., 21,111 Lakeshore Rd., McDonald Stuart Bldg MS2072, Ste-Anne-de-Bellevue, Qué. H9X 3V9; Voice: 514-398-7760; fax: 514-398-7990; e-mail: bird@nrs.mcgill.ca

Secretary (Membership): Dr. Nancy Flood, Dept. Biological Sciences, University College of the Cariboo, 900 McGill Road, Box 3010, Kamloops, B.C. V2C 5N3. Voice: 250-828-5436; fax: 250-828-5450; e-mail: nflood@cariboo.bc.ca

Treasurer: Dr. Tom E. Dickinson, Dept. Biological Sciences, University College of the Cariboo, 900 McGill Road, Box 3010, Kamloops, B.C. V2C 5N3. Voice: 250-828-5447; fax: 250-828-5450; e-mail: tdickinson@cariboo.bc.ca

Recording Secretary: Dr. Peter Blancher, National Wildlife Research Centre, Can. Wildl. Serv., DOE, 100 Gamelin Blvd., Hull, Qué. K1A 0H3. Voice: 819-997-6086; fax: 819-953-6612; e-mail: peter.blancher@ec.gc.ca

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

Members of Council: [Councillors marked * are in 2nd terms]

elected December 1998:

Dr. Stephen Flemming, Gros Morne National Park, P.O. 130, Rocky Harbour, Nfld. A0K 4N0. Voice: 709-458-2417; fax: 709-458-2059; e-mail: stephen_flemming@pch.gc.ca

Dr. Marty Leonard, Dept. of Biology, Dalhousie University, Halifax, N.S. B3A 4J1. Voice: 902-494-2158; fax: 902-494-3736; e-mail: mleonard@is.dal.ca

Dr. Karen Wiebe, Dept. of Biology, Univ. of Saskatchewan, Saskatoon, Sask. S7N 5E2. Voice: 306-966-4406; fax: 306-966-4461; e-mail: wiebek@duke.usask.ca

elected December 1999:

* Dr. Fred Cooke, CWS/NSERC Chair - Wildlife Ecology, Dept. Biol. Sci., Simon Fraser Univ., Burnaby, B.C. V5A 1S6. Voice: 604-291-5610; fax: 604-291-3496; e-mail: fcooke@fraser.sfu.ca

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, Serv. can. de la faune, 1141, rte de l'Église, 9th floor, c.p.10100, Ste-Foy, Qué. G1V 4H5. Voice: 418-648-3500; fax: 418-649-6475; e-mail: jean-pierre.savard@ec.gc.ca

Dr. Kevin Teather, Dept. of Biology, Univ. P.E.I., Charlottetown, P.E.I. C1A 4P3. Voice: 902-566-0325; fax: 902-566-0740; e-mail: kteather@upe.ca

Past Presidents (marked * if deceased):

M. Ross Lein (1982-85), Spencer G. Sealy (1986-87), Erica H. Dunn (1988-89), Jon C. Barlow (1990-91), J. Bruce Falls (1992-93), Henri R. Ouellet* (1994-95), David N. Nettleship (1996-97), Antony W. Diamond (1998-99).

BIRDS 2000 - LIVING ON THE EDGE

**Joint Meeting of American and British Ornithologists' Unions,
and Society of Canadian Ornithologists**

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

14-19 August 2000

- Dates to note:** 6-13 August (Sun.-Sun.) - pre-conference tours;
14 August (Mon.) - business meetings;
15-19 August (Tue.-Sat.)- conference, with tours (17th, Thu.) and banquet (19th, Sat.);
20-26 August (Sun.-Sat.)- post-conference tours.
- Plenary topics:** 15 Aug. (Tue.) - Factors limiting bird populations: Relevance to conservation -
I. Newton (Inst. Terr. Ecol, UK);
16 Aug. (Wed.) - The many edges of fragmented ecosystems: Conservation risks and
strategies - S. Hannon (U. Alta., Canada);
18 Aug. (Fri.) - To cull or not to cull, is that the question? - F. Cooke (Simon Fraser U.,
Canada);
19 Aug. (Sat.) - Seabird ranges and oceanic habitats: Remote tracking in the service of
marine conservation - J. Croxall (Brit. Antarc. Surv., UK).
- Symposia topics:** 15 Aug. - Long-term population studies: Relevance for conservation:
T. Gaston (Can. Wildl. Serv.);
J. Fitzpatrick (Cornell U.);
C. Perrins (Oxford U.).
16 Aug. - The many edges of fragmented ecosystems: Conservation risks and
strategies:
K. Martin (U. Brit. Col.), & others;
18 Aug. - Are humans edging out birds? Species, habitat and human conflicts and
resolutions:
D. Bird (McGill U.);
C. Feare (UK);
S. Kress (Audubon, USA).
19 Aug. - Birds foraging at sea: Performance indicators of prey and oceanographic
changes:
B. Montevecchi (Mem. U. Nfld.);
R. Veit (Staten I. Coll., USA);
S. Wanless (ITE, UK).

For information, please contact:

<http://www.mun.ca/birds2000/res2/logo.html> OR

Dr. W.A. (Bill) Montevecchi,

Biopsychology Programme & Ocean Sciences Centre,

Memorial Univ. Nfld., St. John's, Nfld. A1B 3X9

ph: 709-737-8496; fx: 709-737-2430; em: mont@morgan.ucs.mun.ca

S.C.O. Council Elections

The fall 1999 elections confirmed David Bird as our new Vice-President (President-elect) - elected by acclamation.

Councillors elected, all for 2-year terms starting 1 January 2000, were:

re-elected: Fred Cooke, Erica Nol, Jean-Pierre Savard;

new [including replacing David Bird (promoted)]: Leah de Forest, Cheri Gratto-Trevor, Greg Robertson, Kevin Teather.

With incumbents, Past Presidents, and Editor (ex officio), Council for the first time has representation from every province, including the first from P.E.I.. Next year we may hope for representatives from the North.

from notes by K. Martin

(see inside front cover for full list of officers and councillors, with addresses)

Good News! Fredericton Symposium Proceedings in print.

Our book *Biology and Conservation of Forest Birds* (S.C.O. Special Publication no. 1) arrived from Bounty Print on 3 February. Copies were mailed in the following week to paid-up members (and those who were paid up during the gestation period but aren't now?). "The book looks splendid, with the contents most impressive." [8.5 x 11 inches, stiff softcover with perfect binding. 143 pp. ISBN

1-55131-004-X]

Extra copies are available for \$20.00 (p & p incl.). To order, send cheque or money order, payable to "Society of Canadian Ornithologists", to Dr. A.W. Diamond, ACWERN, U.N.B., P.O. Box 45111, Fredericton, N.B. E3B 6E1. All purchased copies will help pay down the publication costs.

S.C.O. STUDENT AWARDS

Reports from 1999 Awardees

(a) James L. Baillie Student Research Award

"Natural and sexual selection in Least Flycatchers: Why do breeding birds cluster?".
Scott Tarof, Queen's University.

The material resources hypothesis proposes that patchy resource distribution (e.g. vegetation, insects) results in preferential breeding sites within contiguous forests. The predation hypothesis suggests individuals cluster to reduce risk of

predation. The hidden lek hypothesis proposes that clustering is adaptive in terms of sexual selection. That is, female pursuit of extra-pair copulations (EPCs, copulations outside the social partnership) contributes to male clustering because of female preference for appraising males in groups. Just as lekking males compete for promiscuous copulations with females that visit display sites, socially monogamous birds may cluster for EPCs resulting in a clumped distribution of territories. Male clustering, female pursuit of copulations, no female-required resources other than sperm, no paternal care, male-male competition, and a skew in male mating

success, characterize leks. I test these 'ecological' and 'social' explanations for clustering in the Least Flycatcher (*Empidonax minimus*), a socially monogamous migratory suboscine. I define clusters as aggregations (of at least two pairs) of breeding territories with contiguous boundaries, separated from other aggregations by adjacent unoccupied habitat. This is the first evaluation of possible ecological and social mechanisms contributing to clustering in this species using a combination of behavioural and genetic evidence. However, I also model spatial and temporal patterns of clustering, describe Least Flycatcher breeding biology (such as partnership formation, mate guarding and copulation behaviour), and assess how females choose social and genetic mates.

This study was conducted 1 May-31 July 1997-99 at Queen's University Biology Station, and includes data from 15 clusters ranging in size from 2 to 33 pairs each. Over the past three years I caught, banded, and collected DNA samples from 79 adults. To evaluate the three aforementioned hypotheses, I collected data on arrival dates, pairing success, spatio-temporal settlement patterns, male singing performance, male and female morphology, age and mating behaviour. Fifty-two pairs were observed for 2-4 hrs. during mornings (256 hrs.) to quantify mating behaviour and song performance. Territory boundaries and nest locations were mapped using GPS technology. I quantified vegetation characteristics (n=302 plots) and sampled insects (n=24 plots) using malaise traps inside and adjacent to clusters, as well as in control forests without Least Flycatchers. Paternity assignments are being performed using microsatellites. We have developed 7 variable microsatellite loci for use in paternity analyses at Queen's University Molecular Ecology Laboratory.

Although the majority of males established territories in clusters, some males settled solitarily, thereby exhibiting interesting variation in male settlement behaviour. These solitary males were significantly less likely to attract social mates. Mating behaviour within clusters of Least Flycatchers is consistent with the notion that clusters resemble leks. For example, males and females

commonly foray off territory and seek EPCs at a rate of 1.8 ± 0.3 attempts/hr. EPCs sometimes involved mixed-sex groups (of 4 or more) and typically ended in highly aggressive chases and fights. Female mating behaviour is consistent with the prediction that females exhibit some level of control over copulation. Male singing behaviour supports the notion that males compete and advertise their quality to females. Preliminary paternity data show that in a single cluster, 3/5 broods contained 100% extra-pair young. Vegetation characteristics do not explain clustering in Least Flycatchers. Insect data are currently being analyzed. That clusters are ephemeral further supports the idea that clustering is not a response to habitat features. I have observed over 20 instances of neighbours co-operating with focal pairs in predator mobbing, which suggests that clustering may help to reduce nest predation.

Preliminary results are most consistent with the hidden lek hypothesis; however, clustering may also serve to reduce predation. I have submitted one manuscript, on partnership and copulation behaviour, that is currently being revised. Some future considerations we are exploring as part of this project include a detailed comparison of clustered vs. solitary males with respect to morphology, age, song performance and fighting ability, and how migrating individuals detect clusters. I anticipate completing my dissertation project during fall 2000. The results of this study will have important implications for our understanding of avian ecology, and will also be valuable in helping to explain clustering in other socially monogamous passerines such as Cerulean Warblers or Red-eyed Vireos.

I gratefully acknowledge research funding I received from the Frank M. Chapman Memorial Fund, the American Ornithologists' Union, and the John K. Cooper Foundation in 1998, and from the Society of Canadian Ornithologists and Frank M. Chapman Memorial Fund in 1999. I also thank the Natural Sciences and Engineering Research Council of Canada and the Ontario Graduate Scholarship in Science and Technology council for scholarship funding. In addition, I am grateful to many individuals who provided excellent assistance both in the field and in the molecular lab.

(b) Percy A. Taverner Awards

(i) **“Energy constraints on incubating arctic Common Eiders (*Somateria mollissima*)”**, Grace E. Bottitta, Trent University.

A key component of eider reproductive ecology is the influence of body reserves on reproduction. Energy reserves are particularly important for eiders nesting in the Arctic due to short breeding seasons and extreme environmental conditions. These constrain the ability of eiders to establish energy reserves necessary for egg laying, fasting during incubation (24 days), and subsequent brood rearing. They rely on fat and muscle reserves accrued prior to laying, and the weight loss of the female during incubation is often 40% of gross pre-incubation body weight. My project examined the costs of incubation among arctic Common Eiders: specifically, how variation in energy reserves and annual environmental conditions (e.g. temperature, precipitation) influence female incubation behaviour and reproductive success.

Mitivik Island, East Bay, Southampton Island, Nunavut (64°02'N, 81°47'W), supports one of the highest densities of breeding Common Eiders in the Canadian Arctic. The colony, located on a low-lying island 800-m long and 200-m in width, annually supports about 4500 Common Eider nests.

I examined the cost of reproduction by manipulating length of the incubation period. Body condition and behaviour of experimental and control females were compared particularly during the critical last five days of the incubation period. To determine the influence of body condition on incubation behaviour and nest outcome, I manipulated clutch ages in June-August in 1998 and 1999. During incubation (exclusively by females), clutches were switched pairwise between nests to shorten or prolong the length of incubation by an average of five days (1998, n=30; 1999, n=40). In addition, behaviour and reproductive success of unmanipulated females were also monitored (1998, n= 182; 1999, n=180). I predicted that females with 5-days-extended incubation period would have a lower body condition at the end of incubation than

females with shortened or controlled incubation. This lower body condition would cause females to

- 1) take more incubation breaks (to drink or eat),
- 2) take longer breaks than the population mean,
- 3) defend nests weakly from predator attack,
- 4) experience a higher nest predation rate (associated with an increase of time spent off the nest) and
- 5) more frequently abandon the nest (due to starvation or dehydration).

Body condition at beginning of incubation affects nest attendance, nest abandonment and depredation. Incubating eiders possessing “good” body condition should not need to take frequent or lengthy incubation breaks and rely solely on their large energy reserves. Conversely, females in poor condition early in incubation should take frequent and/or longer breaks (perhaps to drink or eat). I predicted that Common Eider females with low energy reserves prior to incubation would be less likely to incubate their clutch to hatch than females in good condition at laying.

A sample of incubating females was weighed 1-3 times during various stages of incubation to determine individual rate of mass loss (1998, n=40; 1999, n=69). Body condition was inferred from body mass controlled for body size. This allowed me to compare females using body condition as an index. Manipulated (1998, n=36, 1999, n=30) and control females (1998, n=182; 1999, n=180+) were also observed during the incubation period to compare nest attendance patterns. Length and frequency of incubation breaks were monitored using 1) daily behavioural observations from blinds in 1998 and 1999 (3-6 h), 2) several continuous 24- and 48-h behavioural watches and 3) by electronic devices (Remote Incubation Monitoring Systems, aka RIMS) placed in individual nests (1999 only, n=39). The RIMS provided means for continuous and remote monitoring of nest attendance. They consisted of a pressure-sensitive microswitch covered by an artificial egg. The activity of the female on the nest was transmitted to a receiver and then downloaded onto a laptop computer. I also observed incubation

behaviours of females on RIMS nests to confirm that the RIMS generated data were accurate.

Informal interpretation of RIMS data indicated the majority of incubation recesses occurred during a 2-h period prior to and just after sunset. Recess breaks ranged from 3 to 90 minutes. As predicted, almost all avian predation occurred when females were taking recess breaks from their nests. This indicated there is a clear cost to incubation recesses. Other preliminary results include a nonlinear trend in decrease of body mass through incubation in both 1998 and 1999.

Clutch manipulations helped to determine the correlation between physiological condition and incubation behaviours of incubating females with nest outcome. As predicted, females with shortened incubation experienced highest nest success (including protection from predators and incubation breaks/recesses). Extended females had poorer body condition and demonstrated a greater tendency to abandon in the final days before hatch than either shortened or control hens. Behavioural observations indicated that abandonment during the late stages of incubation was caused either by starvation or inability of females in poor body condition to cope with persistent predator attacks. As expected, the length of incubation recesses increased for extended females during the last five days before hatch.

Information from this project generated the first experimental and behavioural data on influence of energy reserves levels on Common Eider annual fecundity in the Canadian Arctic. These data will provide baseline information for long-term population monitoring at East Bay, and also an opportunity to compare reproductive characteristics of Common Eiders in northern Hudson Bay with other eider duck populations.

Acknowledgements

I am honoured to be recipient of a Society of Canadian Ornithologists 1999 Taverner Award. I also received funding from: Canadian Wildlife Service - Northern Conservation Division, Arctic Institute of North America - Jennifer Robinson Memorial Scholarship and Grants in Aid, John K. Cooper Foundation, and Erica Nol - Trent University. Logistic support was provided by Polar Continental

Shelf Project and Nunavut Research Center in Iqaluit. The Hunters and Trappers Association of Coral Harbour, as well as the community of Coral Harbour, provided project support.

(ii) **"The effect of forest fragmentation on the extra-pair mating system of the Hooded Warbler (*Wilsonia citrina*)"**, Ryan Norris, York University.

Behavioral data on movement and landscape use is critical in understanding the dynamics and persistence of forest-interior bird populations living in fragmented landscapes. I used radio-tracking to follow continuously male Hooded Warblers (*Wilsonia citrina*) that held breeding territories in small, isolated forest fragments (<2 ha). The objectives of this study were to determine

- 1) whether daily movements were restricted within forest fragments,
- 2) the purpose of these movements (if they existed), and
- 3) whether forested corridors were important for movement between fragments.

I radio-tracked males (n=20) May-July 1998-1999 (n=258 hours) in Crawford County, northwest Pennsylvania, U.S.A.. Territorial males were caught, banded with U.S.F.W.S. bands and fitted with Holohil BD-2B (0.67 g) radio transmitters (Holohil Systems, Ltd). Radio-tagged males were ground-tracked with a receiver and a hand-held Yagi antenna for two-hour sessions between 06:00 and 14:00, and followed quietly at a distance of about 30 to 40m.

Most radio-tagged males were the sole occupants of a fragment (n=15); the remaining five males had a single neighbor. Fifteen males were mated and 5 were unmated. Mean distance to nearest forest was 110m (s.e.=23m, range=40-250) in all fragments studied. Size of fragments ranged from 0.7 to 2.0 ha, similar to breeding male territory size in continuous forest. Territories always occurred within a single forest fragment and any forays outside the fragment were considered 'extra-territorial'.

Eighty-five percent of males (17/20) left their territories at least once to move between forest fragments, for a total of 106 forays. Males traveled

40m to 2.5km away from their own fragment (mean=405m, s.e.=62), and all forays involved a portion of travel across open field habitat to adjacent forests.

Males left their isolated forest fragment more than once every 2 hours, and spent an average of 16.5% of time outside of their fragment; 4 (20%) individuals spent more than one-third of time off territory. Foray rate (n/hr) was not correlated with distance to each woodlot visited ($r_s=0.153$, $n=20$, $p>0.50$). No mortality resulted from movements between fragments.

Forays occurred throughout the breeding season, even when the male had an incubating female or was feeding nestlings on his own territory ($F=1.031$, $d.f.=5,129$, $p=0.402$). Mean foray duration was 29.4 minutes but some males left their fragments for over an hour at a time. More than half of the forays (55/106) were to forest fragments occupied by other Hooded Warbler pairs, and males were usually silent (91%) during these territorial intrusions. During silent intrusions, males often (71%) visited the nest vicinity while neighboring females were fertile.

Most forays (77%, 82/106) occurred despite the absence of corridors connecting forest fragments. For forays where males had the opportunity to use corridors to travel between fragments ($n=24$), the majority used corridors when leaving ($n=15$) but not when returning to their territories ($n=4$), resulting in a significant difference in corridor use between departures and arrivals ($X^2=10.54$, $p<0.005$).

Movement between fragments occurred throughout the breeding season, and therefore was not solely associated with initial territory acquisition or dispersal at the end of the season. Forays between fragments likely occur because males are seeking

extra-pair copulations (EPCs). Males made forays even when they had a nesting female on their own territory, and made only silent forays to territories where females were nesting. Both these behaviors are typical of males seeking EPCs in this species.

In continuous forest, males spend only 5% of their time off-territory, forays average only 7 minutes in duration, and males travel through forest to adjacent territories only 50-250 m away. The added time and energetic cost of making forays in a fragmented landscape could help to explain why so few isolated fragments are occupied by territorial males. In this study only 19% of isolated forest fragments between 0.5 and 5 ha in size were occupied by territorial Hooded Warblers.

Forays between forest fragments occurred despite the absence of corridors connecting isolated fragments (86%, 91/106 forays). Even where males had an immediate opportunity to use corridors, 38% of forays involved direct flight over open fields. Therefore, the protection of corridors linking forest patches may not be as important as conserving the degree of isolation between forested areas.

The maximum distance traveled over open fields did not exceed 500m. Greater distances between forest fragments likely would impede movements and create isolated breeding pairs. This occurrence could deter breeding altogether if territory settlement by males and females depends on availability of neighboring extra-pair mating partners over the local landscape. The ability to travel between forest patches in fragmented landscapes is likely more important than previously thought, particularly because many Neotropical migrants have high rates of extra-pair fertilizations. This study suggests a new link between social behaviour and habitat choice in fragmented landscapes.

REPORTS FROM S.C.O. REPRESENTATIVE TO NORTH AMERICAN BANDING COUNCIL (N.A.B.C.)

The first Canadian Banding Trainers' Workshop was held at University of Manitoba Delta field station 21-23 September 1999, just before the Canadian Migration Monitoring Network meeting. Sponsored by C.W.S., the workshop included lecture and slides on moults and plumages, interpretation of text and diagrams in Pyle's 1997 manual (on identification), independent aging and sexing of specimens - with discussion, and some real banding. The same pattern had been used at prairie workshops since 1994.

The N.A.B.C. annual meeting was held in Arizona 27-29 January 2000, with Canadians present including Brenda Dale (S.C.O.), Lucie Métras (Banding Office), Norm North & Randy Hicks (Int. Waterfowl Assn.), Heidi den Haan (Delta Marsh Bird Obs'y). The Pacific Seabird Group was added to Council. Manuals for passerines, near-passerines, and hummingbirds, plus guides for banders and trainers, are nearly ready for final editing; others are in preparation. Procedures and protocols for training and certification of banders are gradually being developed. Next year's meeting will be in Pennsylvania or Texas, that in fall 2002 at Delta Marsh, Manitoba.

condensed by Editor from
reports by Brenda Dale

RECENT LITERATURE

1999 Journal Publications - Birds in Canada

- Abraham, C.L., Evans, R.M. 1999. The development of endothermy in American White Pelicans. *Condor* 101: 832-841.
- Abraham, K.F., Leafloor, J.O., Lumsden, H.G. 1999. Establishment and growth of the Lesser Snow Goose, *Chen caerulescens caerulescens*, nesting colony on Akimiski Island, James Bay, Northwest Territories. *Can. Field-Nat.* 113: 245-250.
- Abraham, K.F., Leafloor, J.O., Rusch, D.H. 1999. Molt migrant Canada geese in northern Ontario and western James Bay. *J. Wildl. Manage.* 63: 649-655.
- Alderson, G.W., Gibbs, H.L., Sealy, S.G. 1999. Determining the reproductive behaviour of individual brown-headed cowbirds using microsatellite DNA markers. *Anim. Behav.* 58: 895-905.
- Arnold, T.W. 1999. What limits clutch size in waders? *J. Avian Biol.* 30: 216-220.
- Barber, C.A., Robertson, R.J. 1999. Floater males engage in extrapair copulations with resident female Tree Swallows. *Auk* 116: 264-269.
- Bayne, E.M., Hobson, K.A. 1999. Do clay eggs attract predators to artificial nests? *J. Field Ornithol.* 70: 1-7.
- Beauchamp, W.D., Cooke, F., Loughheed, C., Loughheed, L.W., Ralph, C.J., Courtney, S. 1999. Seasonal movements of Marbled Murrelets: evidence from banded birds. *Condor* 101: 671-674.
- Beaulieu, R. 1999. The new Porcupine Forest flock of Trumpeter Swans, *Cygnus buccinator*, in Saskatchewan. *Can. Field-Nat.* 113: 269-272.
- Berezanski, D.J. 1999. Turkey Vulture nests in abandoned buildings in SW Manitoba. *Blue Jay* 57: 28-33.
- Bertram, D.F., Cowen, L., Burger, A.E. 1999. Use of radar for monitoring colonial burrow-nesting seabirds. *J. Field Ornithol.* 70: 145-157.
- Blight, L.K., Ryder, J.L., Bertram, D.F. 1999. Predation of Rhinoceros Auklet eggs by a native population of *Peromyscus*. *Condor* 101: 871-876.
- Blouin, F., Giroux, J.-F., Ferron, J., Gauthier, G., Doucet, G.J. 1999. The use of satellite telemetry to track Greater Snow Geese. *J. Field Ornithol.* 70: 187-199.
- Boon, L.A., Ankney, C.D. 1999. Body size, nest initiation date, and egg production in Ruddy Ducks. *Auk* 116: 228-231.
- Borowik, O.A., McLennan, D.A. 1999. Phylogenetic patterns of parental care in Calidridine sandpipers. *Auk* 116: 1107-1117.
- Bottita, G.E. 1999. Energy constraints on incubating Common Eiders in the Canadian Arctic (East Bay, Southampton Island, Nunavut). *Arctic* 52: 425-429.
- Boutin, C., Freemark, K.E., Kirk, D.A. 1999. Spatial and temporal patterns of bird use of farmland in southern Ontario. *Can. Field-Nat.* 113: 430-460.
- Briskie, J.V. 1999. Song variation and the structure of local song dialects in the polygynandrous Smith's Longspur. *Can. J. Zool.* 77: 1587-1594.
- Brua, R.B. 1999. Ruddy Duck nesting success: do nest characteristics deter nest predation? *Condor* 101: 867-870.
- Bryant, R., Jones, I.L., Hipfner, J.M. 1999. Responses in changes in prey availability by Common Murres and Thick-billed Murres at the Gannet Islands, Labrador. *Can. J. Zool.* 77: 1278-1287.
- Bugden, S.C., Evans, R.M. 1999. The development of a vocal thermoregulatory response to temperature in embryos of the domestic chicken. *Wilson Bull.* 111: 188-194.
- Burnett, J.A. 1999. A passion for wildlife: A history of the Canadian Wildlife Service, 1947-1997. *Can. Field-Nat.* 113(Spec. Issue): 1-183 [supplemented by: Selected publications... from work by the Canadian Wildlife Service... (compiled by A.J. Erskine) *Can. Field-Nat.* 113: 184-214].
- Butler, R.W. 1999. Winter abundance and distribution of shorebirds and songbirds in farmlands on the Fraser River delta, British Columbia, 1989-1991. *Can. Field-Nat.* 113: 390-395.
- Carrière, S., Bromley, R.G., Gauthier, G. 1999. Comparative spring habitat and food use by two Arctic nesting geese. *Wilson Bull.* 111: 166-180.

- Clark, R.G., Shutler, D. 1999. Avian habitat selection: pattern from process in nest-site use by ducks. *Ecology* 80: 272-287.
- Clayton, K.M., Schmutz, J.K. 1999. Is the decline of Burrowing Owls *Speotyto cunicularia* in prairie Canada linked to changes in Great Plains ecosystems? *Bird Cons. Internat.* 9: 163-185.
- Collins, C.E., Houtman, A.M. 1999. Tan and white color morphs of White-throated Sparrows differ in their non-song vocal responses to territorial intrusion. *Condor* 101: 842-845.
- Cooch, E.G., Dzubin, A., Rockwell, R.F. 1999. Using body size to estimate gosling age. *J. Field Ornithol.* 70: 214-229.
- Cooch, E.G., Lank, D.B., Rockwell, R.F., Cooke, F. 1999. Body size and age of recruitment in Snow Geese. *Bird Study* 46(suppl.): S112-S119.
- Copley, D., Fraser, D., Finlay, J.C. 1999. Purple Martins, *Progne subis*: a British Columbian success story. *Can. Field-Nat.* 113: 226-229.
- Corser, J.D., Amaral, M., Martin, C.J., Rimmer, C.C. 1999. Recovery of a cliff-nesting Peregrine Falcon, *Falco peregrinus*, population in northern New York and New England, 1984-1996. *Can. Field-Nat.* 113: 472-480.
- Cotter, R.C. 1999. The reproductive biology of Rock Ptarmigan (*Lagopus mutus*) in the central Canadian Arctic. *Arctic* 52: 23-32.
- Dale, J., Montgomerie, R., Michaud, D., Boag, P. 1999. Frequency and timing of extrapair fertilization in the polyandrous red phalarope (*Phalaropus fulicaria*). *Behav. Ecol. Sociobiol.* 46: 50-56.
- Davis, S.K., Duncan, D.C., Skeel, M. 1999. Distribution and habitat associations of three endemic grassland songbirds in southern Saskatchewan. *Wilson Bull.* 111: 389-396.
- Davoren, G.K., Burger, A.E. 1999. Differences in prey selection and behaviour during self-feeding and chick provisioning in rhinoceros auklets. *Anim. Behav.* 58: 853-863.
- Dawson, R.D., Bortolotti, G.R. 1999. Prevalence and intensity of hematozoan infections in a population of American kestrels. *Can. J. Zool.* 77: 162-170.
- Dion, N., Hobson, K.A., Larivière, S. 1999. Effects of removing duck-nest predators on nesting success of grassland songbirds. *Can. J. Zool.* 77: 1801-1806.
- Drapeau, P., Leduc, A., McNeil, R. 1999. Refining the use of point counts at the scale of individual points in studies of bird-habitat relationships. *J. Avian Biol.* 30: 367-382.
- Drolet, B., Desrochers, A., Fortin, M.-J. 1999. Effects of landscape structure on nesting songbird distribution in a harvested boreal forest. *Condor* 101: 699-704.
- Dunn, E.H., Hunsell, D.J.T., Welsh, D.A. 1999. Priority-setting tool applied to Canada's landbirds based on concern and responsibility for species. *Cons. Biol.* 13: 1404-1415.
- Fernie, K.J., Bird, D.M. 1999. Effects of electromagnetic fields on body mass and food-intake of American Kestrels. *Condor* 101: 616-621.
- Flemming, S.P., Holloway, G.L., Watts, E.J., Lawrance, P.S. 1999. Characteristics of foraging trees selected by pileated woodpeckers in New Brunswick. *J. Wildl. Manage.* 63: 461-469.
- Flynn, L., Nol, E., Zharikov, Y. 1999. Philopatry, nest-site tenacity, and mate fidelity of Semipalmated Plovers. *J. Avian Biol.* 30: 47-55.
- Freeman-Gallant, C.R., Rothstein, M.D. 1999. Apparent heritability of parental care in Savannah Sparrows. *Auk* 116: 1132-1136.
- Friesen, L., Cadman, M.D., MacKay, R.J. 1999. Nesting success of Neotropical migrant songbirds in a highly fragmented landscape. *Cons. Biol.* 13: 338-346.
- Gass, C.L., Romich, M.T., Suarez, R.K. 1999. Energetics of hummingbird foraging at low ambient temperature. *Can. J. Zool.* 77: 314-320.
- Gilchrist, H.G., Robertson, G.J. 1999. Population trends of gulls and Arctic Terns nesting in the Belcher Islands, Nunavut. *Arctic* 52: 325-331.
- Gingras, B.A., Paszkowski, C.A. 1999. Breeding patterns of Common Loons on lakes with three different fish assemblages in north-central Alberta. *Can. J. Zool.* 77: 600-609.
- Glaser, L.C., Barker, I.K., Weseloh, D.V.C., Ludwig, J., Windingstad, R.M., Key, D.W., Bollinger, T.K. 1999. The 1992 epizootic of Newcastle disease in double-crested cormorants in North America. *J. Wildl. Dis.* 35: 319-330.
- Glenn, T.C., Stephan, W., Braun, M.J. 1999. Effects of a population bottleneck on Whooping Crane mitochondrial DNA variation. *Cons. Biol.* 13: 1097-1107.
- Gloutney, M.L., Alisauskas, R.T., Hobson, K.A., Afton, A.D. 1999. Use of supplemental food by breeding Ross's Geese and Lesser Snow Geese: evidence for variable anorexia. *Auk* 116: 97-108.
- Greenberg, R., Droege, S. 1999. On the decline of the Rusty Blackbird and the use of ornithological literature to document long-term population trends. *Cons. Biol.* 13: 553-559.
- Greenberg, R., Pravosudov, V., Sterling, J., Kozlenko, A., Kontorshchikov, V. 1999. Tits, warblers, and finches: foliage-gleaning birds of nearctic and palearctic boreal forests. *Condor* 101: 299-310.
- Guyn, K.L., Clark, R.G. 1999a. Factors affecting survival of Northern Pintail ducklings in Alberta. *Condor* 101: 369-377.
- Guyn, K.L., Clark, R.G. 1999b. Decoy trap bias and effects of markers on reproduction of Northern Pintails. *J. Field Ornithol.* 70: 504-513.
- Hamilton, D.J., Nudds, T.D., Neate, J. 1999. Size-selective predation of blue mussels (*Mytilus edulis*) by Common Eiders (*Somateria mollissima*) under controlled field conditions. *Auk* 116: 403-416.
- Hébert, P.N., McNeil, R. 1999. Hatching asynchrony and food stress in Ring-billed Gulls: an experimental study. *Can. J. Zool.* 77: 515-523.
- Hipfner, J.M., Gaston, A.J. 1999a. Timing of nest departure in the Thick-billed Murre and Razorbill: tests of Ydenberg's model. *Ecology* 80: 587-596.

- Hipfner, J.M., Gaston, A.J. 1999b. The relationship between egg size and posthatching development in the Thick-billed Murre. *Ecology* 80: 1289-1297.
- Hipfner, J.M., Gaston, A.J., Martin, D.L., Jones, I.L. 1999. Seasonal declines in replacement egg-layings in a long-lived, Arctic seabird: costs of late breeding or variation in female quality? *J. Anim. Ecol.* 68: 988-998.
- Hobson, K.A. 1999. Stable-carbon and nitrogen isotope ratios of songbird feathers grown in two terrestrial biomes: Implications for evaluating trophic relationships and breeding origins. *Condor* 101: 799-805.
- Hobson, K.A., Drever, M.C., Kaiser, G.W. 1999. Norway rats as predators of burrow-nesting seabirds: insights from a stable isotope analysis. *J. Wildl. Manage.* 63: 14-25.
- Hobson, K.A., Schieck, J. 1999. Changes in bird communities in boreal mixedwood forest: harvest and wildfire effects over 30 years. *Ecol. Appl.* 9: 849-863.
- Hochachka, W.M., Wells, J.V., Rosenberg, K.V., Tessaglia-Hymes, D.L., Dhondt, A.A. 1999. Irruptive migration of Common Redpolls. *Condor* 101: 195-204.
- Holder, K., Montgomerie, R., Friesen, V.L. 1999. A test of the glacial refugium hypothesis using patterns of mitochondrial and nuclear DNA sequence variation in rock ptarmigan (*Lagopus mutus*). *Evolution* 53: 1936-1950.
- Holroyd, G., Duxbury, J. 1999. Travels of Peregrine #5735. *Blue Jay* 57: 146-149.
- Houston, C.S. 1999a. Dispersal of Great Horned Owls banded in Saskatchewan and Alberta. *J. Field Ornithol.* 70: 343-350.
- Houston, C.S. 1999b. Decline in Upland Sandpiper populations: history and interpretations. *Blue Jay* 57: 136-142.
- Houston, C.S., Fung, K.I. 1999. Saskatchewan's first Swainson's Hawk with satellite radio. *Blue Jay* 57: 69-72.
- Houston, C.S., McGowan, K.J. 1999. The westward spread of the Barred Owl. *Blue Jay* 57: 190-195.
- Hurly, A.T., Oseen, M.D. 1999. Context-dependent, risk-sensitive foraging preferences in wild rufous hummingbirds. *Anim. Behav.* 58: 59-66.
- Keller, C.M.E., Scallan, J.T. 1999. Potential roadside biases due to habitat changes along Breeding Bird Survey routes. *Condor* 101: 50-57.
- Klicka, J., Zink, R.M., Barlow, J.C., McGillivray, W.B., Doyle, T.J. 1999. Evidence supporting the recent origin and species status of the Timberline Sparrow. *Condor* 101: 577-588.
- Kuiken, T., Fox, G.A., Danesik, K.L. 1999. Bill malformations in double-crested cormorants with low exposure to organochlorines. *Env. Toxicol. Chem.* 18: 2908-2913.
- Kuiken, T., Leighton, F.A., Wobeser, G., Wagner, B. 1999. Causes of morbidity and mortality and their effect on reproductive success in double-crested cormorants from Saskatchewan. *J. Wildl. Dis.* 35: 331-346.
- Kuiken, T., Wobeser, G., Leighton, F.A., Haines, D.M., Chelack, B., Bogdan, J., Hassard, L., Heckert, R.A., Riva, J. 1999. Pathology of Newcastle disease in double-crested cormorants from Saskatchewan, with comparison of diagnostic methods. *J. Wildl. Dis.* 35: 8-23.
- Lang, A.L., Andress, R.A., Martin, P.A. 1999. Prey remains in Bald Eagle, *Haliaeetus leucocephalus*, pellets from a winter roost in the upper St. Lawrence River, 1996 and 1997. *Can. Field-Nat.* 113: 621-626.
- Lavoie, M., Mikaelian, I., Sterner, M., Villeneuve, A., Fitzgerald, G., McLaughlin J.D., Lair, S., Martineau, D. 1999. Respiratory nematodiasis in raptors in Quebec. *J. Wildl. Dis.* 35: 375-380.
- Lepage, D., Desrochers, A., Gauthier, G. 1999. Seasonal decline of growth and fledging success in Snow Geese *Anser caerulescens*: an effect of date or parental quality? *J. Avian Biol.* 30: 72-78.
- Lougheed, L.W., Breault, A., Lank, D.B. 1999. Estimating statistical power to evaluate ongoing waterfowl population monitoring. *J. Wildl. Manage.* 63: 1359-1369.
- Lozano, G.A., Lemon, R.E. 1999. Effects of prior residence and age on breeding performance in Yellow Warblers. *Wilson Bull.* 111: 381-388.
- MacCluskie, M.C., Sedinger, J.S. 1999. Incubation behavior of Northern Shovelers in the subarctic: a contrast to the prairies. *Condor* 101: 417-421.
- Martinez, R., Wobeser, G. 1999. Immunization of ducks for type C botulism. *J. Wildl. Dis.* 35: 710-715.
- Mawhinney, K., Diamond, T. 1999a. Sex determination of Great Black-backed Gulls using morphometric characters. *J. Field Ornithol.* 70: 206-210.
- Mawhinney, K., Diamond, A.W. 1999b. Using radio-transmitters to improve estimates of gull predation on Common Eider ducklings. *Condor* 101: 824-831.
- Mawhinney, K., Diamond, A.W., Kehoe, F.P. 1999. The use of energy, fat, and protein reserves by breeding Great Black-backed Gulls. *Can. J. Zool.* 77: 1459-1464.
- Mawhinney, K., Diamond, A.W., Kehoe, P., Benjamin, N. 1999. Status and productivity of Common Eiders in relation to the status of Great Black-backed Gulls and Herring Gulls in the southern Bay of Fundy and the northern Gulf of Maine. *Waterbirds* 22: 253-262.
- McKinnon, D.T., Duncan, D.C. 1999. Effectiveness of dense nesting cover for increasing duck production in Saskatchewan. *J. Wildl. Manage.* 63: 382-389.
- McLaren, M.A., Cadman, M.D. 1999. Can novice volunteers provide credible data for bird surveys requiring song identification? *J. Field Ornithol.* 70: 481-490.
- McMaster, D.G., Sealy, S.G. 1999. Do Brown-headed Cowbird hatchlings alter adult Yellow Warbler behavior during the hatching period? *J. Field Ornithol.* 70: 365-373.
- McMaster, D.G., Sealy, S.G., Gill, S.A., Neudorf, D.L. 1999. Timing of egg laying in Yellow Warblers. *Auk* 116: 236-240; & Erratum, *Auk* 116: 855.
- Miller, E.H., Walters, E.L., Ouellet, H. 1999. Plumage, size, and sexual dimorphism in the Queen Charlotte Islands Hairy Woodpecker. *Condor* 101: 86-95.

- Miller, M.R., Duncan, D.C. 1999. The northern pintail in North America: status and conservation needs of a struggling population. *Wildl. Soc. Bull.* 27: 788-800.
- Mineau, P., Fletcher, M.R., Glaser, L.C., Thomas, N.J., Brassard, C., Wilson, L.K., Elliott, J.E., Lyon, L.A., Henny, C.J., Bollinger, T., Porter, S.L. 1999. Poisoning of raptors with organophosphorus and carbamate pesticides with emphasis on Canada, U.S. and U.K. *J. Raptor Res.* 33: 1-37.
- Morneau, F., Doucet, G.J., Giguère, M., Laperle, M. 1999. Breeding bird species richness associated with a powerline right-of-way in a northern mixed forest landscape. *Can. Field-Nat.* 113: 598-604.
- Norment, C.J., Hall, A., Hendricks, P. 1999. Important bird and mammal records in the Thelon River valley, Northwest Territories: range expansions and possible causes. *Can. Field-Nat.* 113: 375-385.
- Otter, K., Ratcliffe, L. 1999. Relationship of bib size to age and sex in the Black-capped Chickadee. *J. Field Ornithol.* 70: 567-577.
- Otter, K., Ramsay, S.M., Ratcliffe, L. 1999. Enhanced reproductive success of female Black-capped Chickadees mated to high-ranking males. *Auk* 116: 345-354.
- Paterson, I.G., Snyder, M. 1999. Molecular genetic (RAPD) analysis of Leach's Storm-Petrels. *Auk* 116: 338-344.
- Ramsay, S.M., Otter, K., Ratcliffe, L.M. 1999. Nest-site selection by Black-capped Chickadees: settlement based on conspecific attraction? *Auk* 116: 604-617.
- Rangen, S.A., Clark, R.G., Hobson, K.A. 1999. Influence of nest-site vegetation and predator community on the success of artificial songbird nests. *Can. J. Zool.* 77: 1676-1681.
- Regehr, H.M., Rodway, M.S. 1999. Seabird breeding performance during two years of delayed capelin arrival in the northwest Atlantic: a multi-species comparison. *Waterbirds* 22: 60-67.
- Robert, M., Laporte, P. 1999. Numbers and movements of Yellow Rails along the St. Lawrence River, Quebec. *Condor* 101: 667-671.
- Robertson, G., Cooke, F. 1999. Winter philopatry in migratory waterfowl. *Auk* 116: 20-34.
- Robichaud, I., Villard, M.-A. 1999. Do Black-throated Green Warblers prefer conifers? Meso- and microhabitat use in a mixedwood forest. *Condor* 101: 262-271.
- Rodway, M.S., Regehr, H.M. 1999. Habitat selection and reproductive performance of food-stressed Herring Gulls. *Condor* 101: 566-576.
- Samelius, G., Alisauskas, R.T. 1999. Diet and growth of glaucous gulls at a large Arctic goose colony. *Can. J. Zool.* 77: 1327-1331.
- Samuel, M.D., Shadduck, D.J., Goldberg, D.R., Baranyuk, V., Sileo, L., Price, J.I. 1999. Antibodies against *Pasteurella multocida* in snow geese in the western Arctic. *J. Wildl. Dis.* 35: 440-449.
- Samuel, M.D., Takekawa, J.Y., Samelius, G., Goldberg, D.R. 1999. Avian cholera mortality in lesser snow geese nesting on Banks Island, Northwest Territories. *Wildl. Soc. Bull.* 27: 780-787.
- Sandercock, B.K., Lank, D.B., Cooke, F. 1999. Seasonal declines in the fecundity of arctic-breeding sandpipers: different tactics in two species with an invariant clutch size. *J. Avian Biol.* 30: 460-468.
- Sealy, S.G. 1999. Cowbird parasitism on Lark Buntings: frequency, acceptance, and fledging. *J. Field Ornithol.* 70: 182-186.
- Shepherd, P.C.F., Boates, S. 1999. Effects of a commercial baitworm harvest on Semipalmated Sandpipers and their prey in the Bay of Fundy Hemispheric Shorebird Reserve. *Cons. Biol.* 13: 347-356.
- Sherony, D.F. 1999. The fall migration of jaegers on Lake Ontario. *J. Field Ornithol.* 70: 33-41.
- Shutler, D., Alisauskas, R.T., McLaughlin, J.D. 1999. Mass dynamics of the spleen and other organs in geese: measures of immune relationships to helminths? *Can. J. Zool.* 77: 351-359.
- Shutler, D., Ankney, C.D., Mullie, A. 1999. Effects of the blood parasite *Leucocytozoon simondi* on growth rates of anatid ducklings. *Can. J. Zool.* 77: 1573-1578.
- Shutler, D., Clark, R.G., Rutherford, S.T., Mullie, A. 1999. Blood parasites, clutch volume, and condition of Gadwalls and Mallards. *J. Avian Biol.* 30: 295-301.
- Sodhi, N.S., Paszkowski, C.A., Keehn, S. 1999. Scale-dependent habitat selection by American Redstarts in aspen-dominated forest fragments. *Wilson Bull.* 111: 70-75.
- Sparks, T., Crick, H. 1999. Opinion: The times they are a-changing? *Bird Cons. Internat.* 9: 1-7. [Need for monitoring schemes that track changing phenology.]
- Stewart, L.M., Robertson, R.J. 1999. The role of cavity size in the evolution of clutch size in Tree Swallows. *Auk* 116: 553-556.
- Thompson, I.D., Hogan, H.A., Montevecchi, W.A. 1999. Avian communities of mature balsam fir forests in Newfoundland: age-dependence and implications for timber harvesting. *Condor* 101: 311-323.
- Thompson, J.E., Hill, M.R.J., Merendino, M.T., Ankney, C.D. 1999. Improving use of morphometric discrimination to identify Canada goose subspecies. *Wildl. Soc. Bull.* 27: 274-280.
- Timoney, K. 1999. The habitat of nesting whooping cranes. *Biol. Cons.* 89: 189-197.
- Tokaryk, T.T. 1999. A toothed bird *Hesperornis* sp. (Hesperornithiformes) from the Pierre Shale (Late Cretaceous) of Saskatchewan. *Can. Field-Nat.* 113: 670-672 (& refs. therein).
- Trzcinski, M.K., Fahrig, L., Merriam, G. 1999. Independent effects of forest-cover and fragmentation on the distribution of forest breeding birds. *Ecol. Appl.* 9: 586-593.
- Vanderkist, B.A., Xue, X.-H., Griffiths, R., Martin, K., Beauchamp, W., Williams, T.D. 1999. Evidence of male-bias in capture samples of Marbled Murrelets from genetic studies in British Columbia. *Condor* 101: 398-402.
- Villard, M.-A., Trzcinski, M.K., Merriam, G. 1999. Fragmentation effects on forest birds: relative influence of woodland cover and configuration on landscape occupancy. *Cons. Biol.* 13: 774-783.

Wagner, R.H. 1999. Sexual size dimorphism and assortative mating in Razorbills (*Alca torda*). Auk 116: 542-544.

Wakelyn, L.A., Shank, C.C., Elkin, B.T., Dragon, D.C. 1999. Organochlorine contaminant levels in Willow Ptarmigans, *Lagopus lagopus*, from the western Canadian Arctic. Can. Field-Nat. 113: 215-220.

Wheeler, W.E., Gates, R.J. 1999. Spatial and temporal variation in lead levels related to body condition in the Mississippi Valley population of Canada Geese. J. Wildl. Dis. 35: 178-186.

Whitaker, D.M., Montevecchi, W.A. 1999. Breeding bird assemblages inhabiting riparian buffer strips in Newfoundland, Canada. J. Wildl. Manage. 63: 167-179.

Whittam, R.M., Leonard, M.L. 1999. Predation and breeding success in roseate terns (*Sterna dougallii*). Can. J. Zool. 77: 851-856.

Wiebe, M.O., Lein, M.R. 1999. Use of song types by Mountain Chickadees (*Poecile gambeli*). Wilson Bull. 111: 368-375.

Williams, T.D., Guglielmo, C.G., Egeler, O., Martyniuk, C.J. 1999. Plasma lipid metabolites provide information on mass change over several days in captive Western Sandpipers. Auk 116: 994-1000.

Wright, K.G. 1999. Bird observations from the McLeod River and its headwater tributaries, Alberta. Blue Jay 57: 78-82.

Yerkes, T., Kowalchuk, T. 1999. Use of artificial nesting structures by redheads. Wildl. Soc. Bull. 27: 91-94.

(Thanks to Darroch Whitaker and Ian Warkentin for assistance in scanning journals.)

NEWS ITEMS AND ANNOUNCEMENTS

XXIII I.O.C., Beijing, August 2002

Most of you already will have heard of what will be the first I.O.C. to be held in Asia (not counting those "Downunder"), despite my failure to note it in previous issues of *Picoides*. The Scientific Program Committee (SPC) will meet 6-11 June 2000 to select plenary speakers and symposia for the 2002 I.O.C.,

so proposals need to be submitted ASAP (by end April). For full details, contact Dr. Fernando Spina, SPC Chair, at:

Istituto Nazionale per la Fauna Selvatica,
Via Ca' Fornacetta, 9,
I-40064 Ozzana Emilia (BO), Italy
[Ph: +39 051 65 12 111; Fx: +39 051 79 66 28;
Em: infsioc@iperbole.bologna.it]

Canadian Ornithologist Honoured

Among those recently appointed to the Order of Canada was ornithologist Richard Fyfe, well-known to many of the older generation of S.C.O. members. As biologist and research scientist in Canadian Wildlife Service (1965-87), Richard spearheaded

both the investigation of toxic chemicals responsible for decline of Peregrine Falcons in Canada, and the captive breeding program that ultimately led to re-establishing breeding Peregrines in many parts of this country. Congratulations, Richard!

Editor (after message from Glen Fox)

North American Important Bird Areas (IBAs)

The recent publication (late 1999), by the Commission for Environmental Cooperation, of this summary of 150 "key conservation sites" (IBAs) in Canada, U.S., and Mexico may be the first substantive document from this initiative in this continent - previous releases mainly providing publicity for the designation process. Canadians should recognize that selection of the sample of

Canadian IBAs featured herein was influenced by information available and potential for protection, as much or more than prioritized importance for birds. The 50 Canadian sites certainly are important - but they almost certainly do not include all of those assigned greatest importance, when that can be done objectively. "Many more sites will be identified."

abstracted & interpreted (by Editor) from
introductory sections of the document

Effects of Noise on Wildlife

A conference "to review... the impact of noise on animals in their natural habitat" is to be held in Happy Valley-Goose Bay, Labrador, Newfoundland, Canada, 22-23 August 2000 (soon after, and only a short plane ride from, the Birds 2000 conference in St. John's). Contact for details:

Institute for Environmental Monitoring and Research,

P.O. Box 1859, Stn B, Happy Valley-Goose Bay, Labr., Nfld., Canada A0P 1E0 Phone: 709-896-3266; Fax: 709-896-3076

e-mail: iemrhvgb@cancom.net

<http://www.ucs.mun.ca/~iemr>

EDITOR'S MUSINGS: What if *Picoides* were on-line?

With *Picoides* on-line,

- lots more people could read whatever we put into it; we should be glad of that, anyhow;
- lots of potential - and some present - S.C.O. members could read all they'd get from S.C.O. (if they didn't go to meetings), so they would see no reason to join - or re-join - S.C.O.; we can't afford that - and without them we couldn't afford publishing *Picoides* (if we can now?)...

The above suggests that, unless content of *Picoides* stimulates readers to join/re-join S.C.O., it likely would not be in our interest to put it - as it now stands - on-line. Rather little of *Picoides*, as currently conceived, is planned as a deliberate "come-on" for S.C.O. recruitment; our present publication schedule also precludes using much time-sensitive material or that which needs frequent updating - both of which are strong arguments for on-line presentation.

From this, my impression is that an on-line "presentation" for S.C.O. calls for something quite different, rather than just putting *Picoides* (text) on-line. What is less clear is

- what would be needed?
- who would prepare it?
- would *Picoides* be needed - and affordable - as well?

My guesses on replies to these queries (others will have different ideas) are:

- needs (served better on-line) are for up-to-date news on "hot" issues and actions, updated (say) every month; notable recent findings; controversial arguments; in other words, the newspaper approach...
- the person to prepare such a document needs (i) ready access to those kinds of information, and (ii) time to produce literate copy from them. That person would have to "beat the bushes" for material much more than I do now for *Picoides*.

- some recent types of content in *Picoides* would still need circulation, but it might be hard to justify continuing publication in the current (costly) format - even as PR for S.C.O.? When/if S.C.O. achieves its own journal, *Picoides* presumably would shrink to a supplement, printed cheaply and circulated with the journal.

Twice previously I urged desirability of a round-table discussion, at an S.C.O. conference, to consider future directions for *Picoides*. These thoughts, assembled now while thinking about suggestions to put the latest *Picoides* on-line at the S.C.O. website, help make up for a scarcity of input to this issue of *Picoides*. They are not the last words on the subject; but S.C.O. membership needs a say in the matter - rather than leaving everything to the Editor. "The floor is yours." Responses - if any - may be included/excerpted in succeeding issues.

A.J. Erskine

Society of Canadian Ornithologists

Société des Ornithologistes du Canada

Standing Committees and Representatives

voice:

fax:

e-mail:

Doris Huestis Speirs Award Committee

(excellence in Canadian Ornithology)

David N. Nettleship (chair)	902-426-3274	902-426-4457	david.nettleship@ec.gc.ca
Tony Diamond	506-453-5006	506-453-3583	diamond@unb.ca
Spencer G. Sealy	204-474-9459	204-275-6352	sgsealy@cc.umanitoba.ca

Research Awards Committee

(James L. Baillie [1K\$] & 2 Taverner [0.5K\$] Research Awards)

Chair - David Bird	514-398-7760	514-398-7990	bird@nrs.mcgill.ca
--------------------	--------------	--------------	--------------------

Mandate: annual selection of candidates;

Actions: (a) fall call for applications, review, & announcement of awards 1 April each year; (b) membership appointment and maintenance of rotational committee structure.

Conservation Committee

David Bird			(Contact as above)
Rob Butler	604-940-4672	604-946-7022	rob.butler@ec.gc.ca
Mike Cadman	519-826-2094	519-826-2113	mike.cadman@ec.gc.ca
Keith Hobson (chair)	306-975-4102	306-975-4089	hobson@sask.usask.ca
David Nettleship			(Contact as above)

Publications Committee (*Picoides* and journal)

Tony Diamond			(Contact as above)
Raymond McNeil	514-343-6878	514-343-2293	mcneilr@ere.umontreal.ca
David N. Nettleship (a/chair)			(Contact as above)
Spencer G. Sealy			(Contact as above)

Finance and Investment Committee

Tom E. Dickinson	250-828-5447	250-828-5450	tdickinson@cariboo.bc.ca
------------------	--------------	--------------	--------------------------

Bird Studies Canada

André Cyr	819-821-7074	819-821-8049	acyr@courrier.usherb.ca
David N. Nettleship			(Contact as above)

Canadian Landbird Conservation Program

TBA

North American Banding Council

Jon McCracken	519-586-3531	519-586-3532	jmc@alpha.nornet.on.ca
Brenda Dale	403-951-8686	403-495-2615	brenda.dale@ec.gc.ca

TABLE OF CONTENTS

2000 S.C.O. Annual Meeting and Conference - St. John's, Nfld.	1
Report on S.C.O. Elections 1999	2
Publication of Fredericton Conference Symposium Proceedings	2
S.C.O. Student Awards - Reports from 1999 Awardees	2
Reports from S.C.O. Representative to North American Banding Council	6
Recent Literature: 1999 Journal Publications	7
News items and announcements	11
Editor's Musings: What if <i>Picoides</i> were on-line?	12

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 [Note increased fee]:

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 [Attention: Les frais sont augmentés!].

Published by:
The Society of Canadian Ornithologists.
c/o Canadian Wildlife Service, Atlantic Region,
P.O. Box 6227, Sackville, New Brunswick E4L 1G6

To advertise in *Picoides*,
please write to:
The address at left, with
Attention: A.J. Erskine

