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Male Long-tailed Duck overwintering on Lake Ontario in Toronto, February 2013. Photo by Marcel Gahbauer.

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Editor's Message

Rob Warnock and Marcel Gahbauer

Welcome to the first *Picoides* of 2013. In this issue, we introduce a new feature suggested by Spencer Sealy: *Photo Notes*. As shown through Spencer's contribution on Parakeet Auklets (*see pages 6-9*), this section is intended to be a photo essay with bits of text pulling the story together. We welcome suggestions for future *Photo Notes*.

As usual, we begin this issue with a bilingual President's message, including news about upcoming SCO-SOC meetings (*see pages 2-3*). We encourage members to submit nominations for the Doris Huestis Speirs Award (*see page 4*) and Jamie Smith Mentoring Award (*see page 5*), both due June 1, 2013. Also consider whether you know any budding young ornithologists who could benefit from the Doug Tarry Award (*see page 9*), or research that could qualify for a grant from Bird Protection Quebec (*see page 19*).

Student contributions comprise the heart of this issue of *Picoides*. We have reports on the 2010 Junco Technologies Award (*see pages 10-11*), 2011 James L. Baillie Award (*see pages 11-12*), and 2012 Taverner Award (*see pages 13-14*), as well as a student research report on Smooth-billed Anis (*see pages 15-17*), and abstracts from two recent Canadian ornithological theses (*see pages 17-18*). Please keep this material coming for future issues – brief content guidelines are provided on page 18.

Rounding out this issue of *Picoides* is a review of the book *More than birds* (*see page 19*), and brief summaries of recent news items on the importance of cat predation on bird populations and the launch of a significant new research program on migratory birds through the Canada Foundation for Innovation (*see page 18*). In related news, an article on the impact of cats on birds in Canada will be published in SCO-SOC's journal *Avian Conservation and Ecology* in the coming months.

Your feedback and suggestions for Picoides are always welcome – we receive very little input from our readers, and would love to get more. As always, we encourage submissions from SCO-SOC members, especially from students and ornithology labs – Picoides does not exist without your contributions of articles and photos. The next submission deadline is May 15, 2013. Until then, safely enjoy the rest of winter and the coming wonderful spring!

President's Message

The months before and after the New Year were rather quiet for the SCO-SOC, but not for Canada's environmental record. 2012 will always be the year that Bill C-38 (the omnibus budget bill) was enacted, and along with it came unprecedented slashes to environmental programs. These changes were never put forth before the Commons Environment Committee. Most notably, Bill C-38 dismantled the Experimental Lakes Area, a long-term research area that was one of Canada's scientific crown jewels. Further, restrictions on oil and gas exploration and drilling offshore were nearly done away with; Bill C-38 made sure that environmental assessments were no longer required for offshore drilling.

We begin 2013 with hope that things can only get better from here. Focussing on SCO-SOC news, I am happy to say that planning for the upcoming annual meeting in Winnipeg is coming along nicely. The local hosts, Nicky Koper and colleagues, are busy putting things in motion to ensure that everyone has a memorable time. The meeting is scheduled for August 12-14, which will include a trip to and banquet at the famous Oak Hammock Marsh. More details are forthcoming and will be posted online.

Message du président

Les mois qui ont précédé et suivi le Nouvel An ont été relativement tranquilles à la SCO-SOC, mais pas pour le bilan environnemental du Canada. L'année 2012 aura été marquée par l'adoption du projet de loi C-38 (ou projet de loi omnibus), ainsi que par les coupures sans précédent dans les programmes environnementaux qu'il contenait. Ces changements n'ont jamais été soumis au Comité de l'environnement des Communes. En particulier, le projet de loi C-38 a démantelé le dispositif de recherche à long terme connu sous le nom de la région des lac expérimentaux (Experimental Lakes Area), un des joyaux de la recherche canadienne. De plus, des restrictions sur l'exploitation pétrolière et gazière ainsi que sur le forage en haute-mer ont été pratiquement effacées; le projet de loi fait en sorte que les études d'impact environnemental portant sur le forage en haute-mer ne sont plus requises.

Nous commençons l'année 2013 en espérant que la situation ne pourra que s'améliorer. En ce qui concerne la SCO-SOC, je suis heureux de vous apprendre que la planification du prochain congrès annuel à Winnipeg avance à grands pas. Nos hôtes, Nicky Koper et ses collègues, sont à la tâche afin de s'assurer que toutes les personnes y participant auront un séjour mémorable. Le congrès est prévu du 12 au 14 août et il inclura un voyage et un banquet au

Concurrent with planning for this year's meeting is early planning for a joint meeting with the Wilson Ornithological Society in 2015. The exact date for this meeting has yet to be decided, although it will take place at Acadia University in Wolfville, Nova Scotia. The local hosts, Dave Shutler and colleagues, assure us that facilities at Acadia are more than ample to handle a joint meeting. Field trip destinations could include Kejimkujik National Park, Acadia's field station on Bon Portage Island, and whale-watching tours from Brier Island.

Many members may not be aware of this, but the Ornithological Council steadily works on behalf of all North American ornithological societies, including the SCO-SOC. Their role is to ensure that ornithologists and their work are linked to legislative, regulatory, and management action and agencies. An important endeavour on which they have embarked is producing a navigational tool for the myriad of permitting requirements for ornithological research in Canada. This guide is undergoing its final round of review and, when completed, will be posted on BIRDNET.

A male House Finch with an alphanumeric leg band, part of a study on movements of House Finches and American Goldfinches at McGill Bird Observatory. Sightings of any such birds are welcome at http://www.migrationresearch.org/mbo/feederbirds.html (Photo by Simon Duval)

Our Society continues to be active on many levels. As an example, one of our members, Nick Bartok, has stepped up to volunteer to be our representative to the North American Banding Council. Nick brings a wealth of experience to this position, such as extensive banding experience from years as a certified trainer. Our life memberships have recently increased by two, with Dr. J. Bruce Falls and Dr. Andrea Pomeroy signing on as life members – thank you both for your generosity and foresight.

Lastly, it is with regret that I bring the news of the passing of Thomas S. Parsons. Dr. Parsons was a member of the SCO since 1986, and he had a long and fulfilling career studying integrative and comparative biology (particularly of reptiles) at the University of Toronto. He will be missed by many.
With hope for a bright 2013,

marais Oak Hammock. Plus de details à venir sur notre site internet.

En plus de planifier le congrès annuel, nous sommes actuellement dans les préparatifs du congrès de 2015, qui sera tenu conjointement avec la Wilson Ornithological Society. La date exacte de ce congrès est à venir mais nous savons qu'il aura lieu à l'Université Acadia, à Wolfville, en Nouvelle-Écosse. Nos hôtes, Dave Shutler et ses collègues, nous assurent que les installations seront amplement suffisantes pour accueillir un tel congrès. Les visites sur le terrain incluront le Parc national Kejimkujik, la station de recherche de l'Université Acadia sur l'île de Bon Portage et des croisières d'observation de baleines à partir de l'île Brier.

Plusieurs membres ne sont peut-être pas au courant mais l'Ornithological Council travaille constamment pour toutes les sociétés ornithologiques nord américaines, incluant la SCO-SOC. Son rôle est de s'assurer que les travaux des ornithologues se traduisent par des actions législatives, des règlementations et des mesures de gestion appropriées auprès des institutions responsables. L'un des projets entrepris par le Conseil est le développement d'un outil de navigation à travers la myriade de permis requis pour faire de la recherche en ornithologie au Canada. Ce guide, qui subit actuellement sa dernière ronde de révisions, sera disponible sur BIRDNET lorsque complété.

Notre Société continue d'être active à plusieurs niveaux. Par exemple, l'un de nos membres, Nick Bartok, s'est porté volontaire pour nous représenter au North American Banding Council. Nick possède une expérience considérable pour occuper ce poste, notamment plusieurs années de baguage en tant que formateur certifié. Deux membres à vie se sont récemment ajoutés à la SCO-SOC, soit le Dr. J. Bruce Falls et le Dr. Andrea Pomeroy – merci à vous deux pour votre générosité et votre vision.

Enfin, c'est avec regret que je vous apprends la nouvelle du décès de Thomas S. Parsons. Le Dr. Parsons était membre de la SCO-SOC depuis 1986 et il a eu une longue et brillante carrière à l'Université de Toronto, où il a étudié la biologie comparative (en particulier chez les reptiles). Le Dr. Parsons nous manquera beaucoup.
Avec mes meilleurs vœux pour 2013,

Joe Nocera, Ontario Ministry of Natural Resources
Environmental Life Sciences Graduate Program, Trent University

News from SCO-SOC

D.H. Speirs Award – Call for Nominations / Appel de Candidatures

The Doris Huestis Speirs Award is the most prestigious award given by the Society of Canadian Ornithologists and is presented annually to an individual who has made outstanding lifetime contributions to Canadian ornithology. Past awardees include professionals who work at museums, government agencies, private companies and universities, as well as amateur ornithologists.

To nominate a candidate for the Speirs Award please provide the Chair of the award committee with the name of the nominee and supporting information that describes the nature and scope of the nominee's contributions and impact in Canadian ornithology. This could include their efforts to advance conservation, science, public education, or some combination of these or other contribution(s). Please note that selection of the winner will be largely based on the strength of the nomination package and supporting documentation. Over the years we have received numerous nominations of worthy candidates that did not receive the award the year they were nominated, but these candidates were not re-nominated in subsequent years. We encourage the re-submission of previous nominations, but nominators should be prepared to put forward updated nomination packages in future years.

Nominations for the 2013 award should be sent to:

Dr. Greg Robertson
Wildlife Research Division
Environment Canada
Mount Pearl, NL A1N 4T3
Phone: 709-772-2778; Fax: 709-772-5097
E-mail: greg.robertson@ec.gc.ca

Nominations will be accepted until 1 June 2013. For more information on the award and previous award winners go to: http://www.sco-soc.ca/speirs_award.htm

Le Prix Doris Huestis Speirs est le prix le plus prestigieux décerné par la Société des ornithologistes du Canada. Ce prix est remis annuellement à une personne en reconnaissance pour sa contribution au développement de l'ornithologie au Canada. Les récipiendaires des années passées sont des professionnels et amateurs ayant travaillé dans les musées, l'administration publique, des compagnies privées ou le milieu universitaire.

Pour soumettre une candidature, vous êtes priés de faire parvenir à la présidente du comité le nom de la ou du candidat accompagné d'informations décrivant la nature, l'importance et l'impact de sa contribution à l'ornithologie au Canada. Ceci devra préciser ses efforts pour faire avancer la conservation, la science, l'éducation du grand public, ou une combinaison de ces éléments, et toute autre contribution digne de mention. Nous encourageons aussi les resoumissions de candidatures passées.

Veuillez soumettre les candidatures pour le prix 2013 à :

Dr. Greg Robertson
Wildlife Research Division
Environment Canada
Mount Pearl, NL A1N 4T3
Tél. : 709-772-2778; Fax: 709-772-5097
Courriel: greg.robertson@ec.gc.ca

Les candidatures seront acceptées jusqu'au 1er juin 2013. Pour plus d'information au sujet de ce prix et des récipiendaires passés, aller à http://www.sco-soc.ca/speirs_award_fr.html

Western Grebe at Radisson Lake Important Bird Area, Saskatchewan (Photo by Shelly Fisher)

Jamie Smith Award – Call for Nominations / Appel de Candidatures

Eligibility and Qualities of the Candidates:

To be eligible, the candidate must have contributed to the training and fostering of Canadian ornithologists. There are no requirements that the candidate work in a specific field; individuals in academia, public sector, industry, conservation agencies and government are eligible, providing they exhibit the desired qualities of Jamie Smith himself.

The candidate must be recognized by those trained as being a consistent motivator, as well as being diligent in pushing students/colleagues to excel. The candidate should demonstrate a passion for his/her discipline that is transferred to those that he/she has trained. The candidate should also instil a sense of integrity in those that he/she mentors.

Nomination Process:

Former/current students, colleagues and/or peers nominate candidates. There is no formal nomination form, but the nominator should provide a nomination letter addressed to the chair of the committee that includes a short statement (max. 1000 words) indicating how the nominee has influenced the development of other ornithologists through mentoring.

Nomination letters should be in either Word or PDF format, and e-mailed to the Chair of the committee to allow for distribution to other committee members. In the nomination letter or the accompanying email, full contact information for the candidate should be provided. The nomination must be accompanied by at least two additional letters of support from others (these can be in the form of separately submitted e-mails). Support letters should not exceed 500 words, and should indicate that authors have seen and endorse the nomination letter; they may then add their own comments on the nominee.

If a candidate is not chosen to receive the award in the first year nominated, the nominee will be automatically considered for next year's competition. The nominator may update the file in the second year if they so choose, otherwise the existing file will be reconsidered.

This year's nominations are due by **1 June 2013** to:

Andrea Pomeroy, Ph.D, R.P.Bio
Chair, Jamie Smith Memorial Mentoring Award Committee
Wildlife Biologist, Environmental Service – Stantec
4370 Dominion Street, 5th Floor
Burnaby BC V5G 4L7
Phone: 778-331-0201; Cell: 778-229-3643; Fax: 604-436-3752
E-mail: andrea.pomeroy@stantec.com

For more information on the award and previous award winners: http://www.sco-soc.ca/jamie_smith/jsma_award.htm

Éligibilité et qualité des candidats:

Pour être éligible pour le prix commémoratif Jamie Smith pour le mentorat en ornithologie, la/le candidat doit avoir contribué à l'apprentissage et au développement d'ornithologistes canadiens. Il n'est pas nécessaire que la/le candidat travaille dans un domaine particulier; les individus du milieu académique, d'organismes de conservation et du gouvernement sont éligibles s'ils ont les qualités reliées au prix. Cette personne doit être reconnue comme un motivateur accompli par ceux et celles qu'elle a formés et aussi comme étant diligent en encourageant étudiantes/ étudiants/collègues à exceller. Elle doit démontrer une passion pour sa discipline, passion qui est transférée à ceux et celles qu'elle a formés. Elle doit aussi avoir transmis un sens d'intégrité à ceux pour qui elle a été mentor.

Processus de nomination:

Les candidats sont nominés par leurs étudiants/étudiantes (présents ou passés), collègues ou pairs. Il n'y a pas de formulaire de nomination. Cependant la mise en candidature doit être accompagnée d'une lettre adressée au président du comité. Cette lettre doit inclure un court énoncé (max. 1000 mots) qui indique comment la/le candidat a influencé le développement d'autres ornithologistes avec son mentorat.

Les lettres de candidatures doivent être en formats Word ou PDF et doivent être envoyées par courriel au président du comité pour permettre leur distribution aux autres membres du comité. La lettre de nomination doit contenir les informations complètes pour contacter le candidat, et doit être accompagnée d'au moins deux autres lettres de support d'autres personnes (celles-ci peuvent être sous forme de courriels séparés). Ces lettres ne doivent pas excéder 500 mots et doivent indiquer que leur auteur a lu et supporte la lettre de nomination. Ils/elles peuvent alors ajouter leurs propres commentaires au sujet du candidat.

Si la/le candidat n'a pas été choisi pour recevoir le prix dans l'année où elle/il a été nominé, sa candidature sera automatiquement considérée dans les années subséquentes. La personne ayant soumise la candidature peut alors, si elle le désire, mettre à jour la candidature, sinon le dossier original sera considéré.

Les nominations seront acceptées jusqu'au **1er juin 2013** par:

Andrea Pomeroy, Ph.D, R.P.Bio
Présidente du comité pour le prix commémoratif Jamie Smith
Stantec – Wildlife Biologist, Environmental Services
4370 Dominion Street, 5th Floor
Burnaby BC V5G 4L7
Phone: 778-331-0201; Cell: 778-229-3643; Fax: 604-436-3752
E-mail: andrea.pomeroy@stantec.com

Pour plus d'information sur ce prix et des récipiendaires précédents: http://www.sco-soc.ca/jamie_smith/jsma_award_fr.htm

Photo Notes: Parakeet Auklet (*Aethia psittacula*)

Spencer G. Sealy, Department of Biological Sciences, University of Manitoba, Winnipeg, MB R3T 2N2

Parakeet Auklets (*Aethia psittacula*) – all photographs by Spencer G. Sealy

Parakeet Auklet is a species of marine bird in the family Alcidae (auklets, guillemots, murrelets, murres, puffins) whose breeding range includes several islands of the Aleutian Islands and western Prince William Sound, and islands in the Bering Sea and the western Pacific coast of Russia (Gaston and Jones 1998, Gibson and Byrd 2007). Although the Parakeet Auklet is a small alcid, weighing about 300 g, it is one of the largest auklets (Gaston and Jones 1998). Although not a long-distance migrant in the usual sense, Parakeet Auklets occasionally move widely at sea during the non-breeding season in search of food, irregularly reaching distances well south of their breeding colonies, occasionally as far south as tropical waters and to coastal California and Japan (Sealy and Carter 2012). This species is not prone to long-distance vagrancy, although there is a record of a Parakeet Auklet taken in Sweden in the 1860s (Sealy and Carter 2012).

Figure 1. Sevuokuk Mountain, St. Lawrence Island, Bering Sea, 25 June 1966. Six species of alcids nested in different rock formations from top to bottom of the talus slope; most Parakeet Auklets nested among the snow-free cliffs and boulders along the rim and under boulders in grassy areas of the slopes.

The Parakeet Auklet's peculiar bill, with the convex shape of the cutting edges, or tomia, of the upper bill and the upturned lower mandible, apparently facilitate capture of gelatinous prey such as jellyfish and hyperiid amphipods on which this species specializes (Bédard 1969a, Harrison 1990). As in other auklets, however, Parakeet Auklets take a variety of other crustaceans and larval fishes when they become available (Bédard 1969a). This flexibility in the use of prey by Parakeet Auklets probably accounts for the ingestion of plastic particles that float around the world's oceans (Robards et al. 1995, Jones et al. 2001).

I studied the breeding biology of plankton-feeding auklets on St. Lawrence Island in 1966 and 1967, in the northern region of the Bering Sea (Sealy 1968). Parakeet Auklets nested on the talus slopes of Sevuokuk Mountain (Figure 1), but were neither as numerous nor as gregarious as the Crested Auklet (*A. cristatella*) and Least Auklet (*A. pusilla*) that nested in different rock formations on the same slopes.

Most Parakeet Auklet nests were located along the upper reaches of the slope, in cracks and crevices in rocky cliff faces (Figure 2A) and under boulders scattered over vegetated sections of the talus slope (Figure 2B; also see Bédard 1969b, Sealy and Bédard 1973, Sealy 1975). The single eggs are laid on a layer of earth or small pebbles and were generally inaccessible, as a hedge against predation by foxes and gulls (Sealy and Bédard 1973); however, some nests were vulnerable to depredation by voles on adults and chicks (Sealy 1982).

Figure 2. Most Parakeet Auklet nests were in crevices between two boulders (A) or under boulders in grassy areas of the talus slope (B). (Nest sites photographed on 4 September 1966.)

Figure 3. An alert 18-day-old Parakeet Auklet chick, removed from the nest for the photograph (14 August 1966).

Hatching occurs after about 35 days of incubation (Sealy and Bédard 1973). Chicks (Figure 3) are fed planktivorous prey collected at sea by both parents and transported in neck pouches to the young (Bédard 1969a). After about 36 days in the nest sites, young fledge in the nearly complete juvenile plumage (Figure 4) and begin their lives at sea, apparently independent of the adults (Sealy and Bédard 1973). The ecology of the Parakeet Auklet is not well known, especially at sea in winter (Sealy and Bédard 1973, Hipfner and Byrd 1993, Jones et al. 2001). Use of tracking devices may eventually reveal patterns of the movements of Parakeet Auklets and the other auklets that nest in the North Pacific Ocean.

Funding for the work on St. Lawrence Island was provided by a grant from the National Research Council of Canada, to M.D.F. Udvardy at the University of British Columbia, and a Louis Agassiz Fuertes Award from the Wilson Ornithological Society.

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Figure 4. At 32 days of age, down still adhered to the back of the chick's head and neck, 31 August 1967; the chick fledged 4 days later.

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Parakeet Auklets

Announcement

2013 Doug Tarry Young Ornithologists' Workshop

http://www.bsc-eoc.org/longpoint/index.jsp?targetpg=lpboyow&lang=EN

The Long Point Bird Observatory (LPBO) and Bird Studies Canada are pleased to announce that the 2013 Doug Tarry Young Ornithologists' Workshop will be held at Long Point near Port Rowan, Ontario, from Saturday, August 3 to Sunday, August 11. Participants will receive hands-on training in field ornithology including bird banding, censusing, field identification, birding trips, preparing museum specimens, guest lectures, and more! Six of Canada's most promising ornithologists between the ages of 13-17 will be selected to attend, and will receive the Doug Tarry Bird Study Award to cover all on-site expenses. Applications are due April 30, 2013. For more information and to download an application form, contact LPBO at lpbo@birdscanada.org, or visit the link above.

The 2012 YOWs studying Acadian Flycatchers in the heart of Carolinian Canada. Photo by Ana Gonzalez.

2010 Junco Technologies Award Report

The Dynamic Lives of Tree Cavities: Factors Influencing Persistence and Longevity

Amanda Edworthy, University of British Columbia, Forest Sciences (amanda.edworthy@anu.edu.au)

Globally, ten to forty percent of bird species use tree hollows for nesting or roosting (Cockle et al. 2011). In many systems cavities are a limiting resource, especially in human-modified landscapes (Newton 1994, Wiebe 2011). Tree cavities are typically formed in mature trees by woodpeckers or natural decay processes, and may be used by secondary cavity nesters in subsequent years (Figure 1). Cavities are vulnerable to depletion in harvested landscapes because they form in large trees and can be slow to regenerate (Lindenmayer et al. 2012). We know that long-lived tree cavities are important contributors to cavity availability, but the factors influencing cavity persistence are uncertain. In the context of forest harvesting, retention of cavity-bearing trees and smaller trees for future recruitment can help to maintain cavity-nester communities (Lance and Phinney 2001). However, retained trees may have increased rates of windthrow when freshly exposed by surrounding harvests (Scott and Mitchell 2005). In this study, I investigated the factors influencing longevity of tree cavities in unharvested forest, and tested for a decrease in cavity persistence in harvested forests.

Figure 1. Black-capped Chickadee using an old tree cavity in trembling aspen. (Photo by Amanda Edworthy)

My project was part of a 16-year study (1995–2010) in the interior of British Columbia (Edworthy et al 2012, Edworthy and Martin in press). This area supports more than 32 species of cavity-nesting birds, including 7 woodpeckers and 2 other excavators (Black-capped Chickadee and Red-breasted Nuthatch; Martin et al. 2004). Ninety percent of cavities were formed in trembling aspen trees (*Populus tremuloides*; Aitken and Martin 2004). Variable retention of aspen trees was used at our harvested sites as a strategy to maintain the richness and abundance of cavity-nesters. I spent four summers in the field, checking cavities every year to determine if they were still usable, whether they were used or not, and to measure their characteristics (Figure 2). I modeled survival of more than 1300 nesting cavities over a time span of 16 years to examine factors influencing cavity persistence.

Sources of cavity loss were tree stem blowdown and breakage (90%), chamber decay (7%), and the tree healing over the cavity entrance (3%). The level of tree decay was the most important factor determining cavity persistence; cavities in live trees lasted 2.7 times longer than those in dead trees with advanced decay. Comparison of hazard of loss for cavities in harvested and unharvested stands showed that hazard of loss increased by 70% for cavities in clear-cut treatments (44–95% removal of basal area) compared with those in uncut forest, while cavities in wildlife reserves (retention patches; ~1 ha) had a 48% increase in hazard of loss relative to uncut forest.

Although dead trees are a major substrate for excavation in some forests, woodpeckers most frequently excavate in living trees in aspen-dominated systems (Blanc and Martin 2012). Cavities formed in living trees also last much longer than those in dead trees. Thus, the emphasis on dead and decaying trees as prime wildlife habitat should be expanded to include live cavity-bearing trees. In harvested forests, these large aspen trees should be retained, as well as a supply of younger trees for future cavity recruitment. While the survival of cavities is reduced where surrounding forests are harvested, this effect may be mitigated by retaining groups of trees as wildlife patches or reserves. Overall, retention of a wide range of trees, especially living aspen, will help to maintain the abundance of tree cavities and protect cavity-nester communities.

Figure 2. Field crew checking a tree cavity in interior British Columbia. Photo by Katie Aitken.

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2011 James L. Baillie Award Report

First direct identification of a migratory divide between songbirds

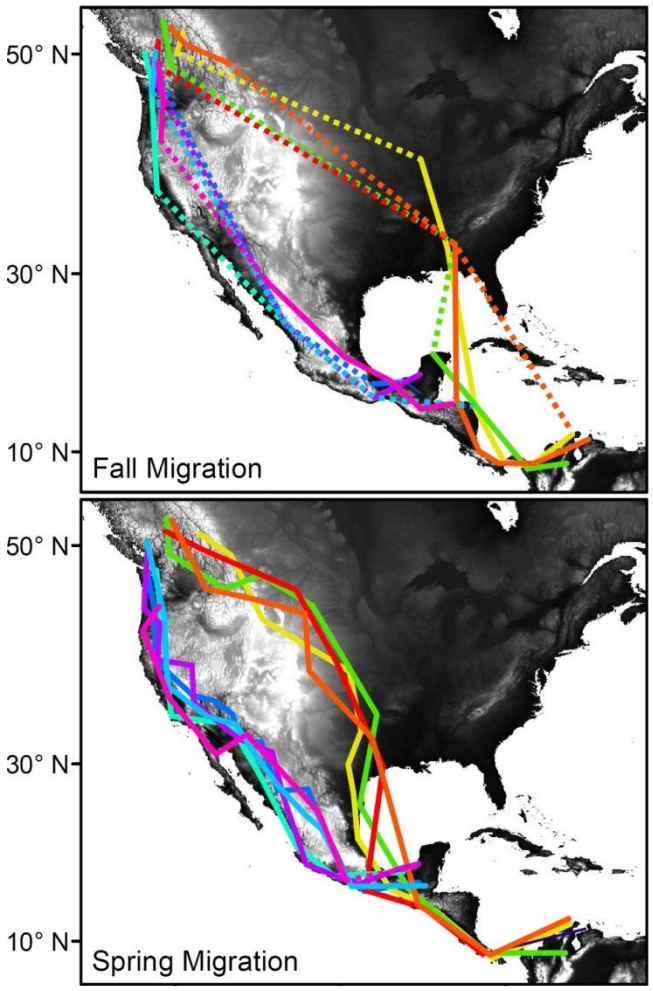
Kira E. Delmore, University of British Columbia

Migratory divides are contact zones between divergent populations that breed adjacent to one another but use different routes to reach their wintering grounds (Helbig 1996; Bensch et al. 1999; Irwin and Irwin 2005). These contact zones appear to be relatively common among songbirds (Irwin and Irwin 2004; Møller et al. 2011; Rohwer and Irwin 2011) and are relevant to our understanding of their ecology, conservation and evolution. For example, differences in migratory routes contribute to the maintenance of genetic variation within species and play a role in both local adaptation and reproductive isolation (e.g., Rolshausen et al. 2009).

To date, migratory divides have been described using band recovery data and/or biological markers (e.g., Boulet et al. 2006). Band recovery data are often limited by sample size and can fail to include individuals from the area of interest (e.g., directly adjacent to a migratory divide). Biological markers are often restricted to describing broad-scale patterns and are indirect; individuals are not followed over the entire annual cycle. Accordingly, the objective of this study was to confirm the existence of a migratory divide using a more direct method.

We used light-level geolocators to reach this objective and focused on the Swainson's Thrush (*Catharus ustulatus*). Geolocators are miniature archival tags that are attached to birds on the breeding grounds and retrieved the following year. These devices record light intensity at specific time intervals and can be used to calculate daily latitude and longitude. The Swainson's Thrush is a Neotropical migrant with two subspecies groups: the russet-backed, coastal group and olive-backed, inland group (Ruegg and Smith 2002). These subspecies groups hybridize along the Coast and Cascade Mountains of western North America (Ruegg 2008) and data from band recoveries and mitochondrial haplotypes suggested that these groups form a migratory divide (Ruegg and Smith 2002).

We attached 39 geolocators to birds at the edges of the hybrid zone between inland and coastal Swainson's Thrushes and recovered 9 of these devices. Coastal birds migrated along the western coast of North America on autumn and spring migration and wintered in southern Mexico and Central America (Guatemala and Honduras). Inland birds used more eastern routes, passing over the Rocky Mountains and through the central United States. These birds migrated over the Gulf of Mexico on autumn migration, wintered in South



Fall and spring migration of nine Swainson's thrushes. Routes for thrushes from the inland subspecies group are shown in warm colours; routes for thrushes from coastal subspecies group shown in cool colours. Dashed lines link locations where latitude could not be estimated around the equinox periods. Modified from Delmore et al. 2012.

America (Colombia and Venezuela), and migrated around the Gulf through Central America and Mexico on spring migration (Figure 1).

Birds from each of the subspecies groups employed similar long-term stopover sites. For example, all inland birds stopped at sites north and south of the Gulf of Mexico on both autumn and spring migration. They spent between 3 and 29 days at these sites. Three of the coastal birds used two distinct sites on the wintering grounds, moving from their first site at the end of December. Two birds moved east from Honduras to Guatemala and southern Mexico, one bird moved west from southern Mexico to Guatemala. At least two inland birds flew over the Gulf of Mexico on autumn migration, leaving from Alabama and arriving in Honduras. These birds flew around the Gulf on spring migration, taking a land route through Central America and Mexico.

To the best of our knowledge, this is the first study in which data from individual birds over their entire annual cycle have been used to characterize a migratory divide. We discuss the relevance of our results to understanding the evolution, ecology and conservation of migratory species in Delmore et al (2012). One area our research contributes to is songbird conservation. For example, the long-term stopover sites we identified are probably important for completing migration along eastern and western routes; all of the birds from each group stopped at these sites and spent more than a week there. Accordingly, we can use these data to establish sets of stopover sites along these routes that should be the focus of conservation efforts. In addition, migratory connectivity appears to be relatively high within subspecies groups: inland birds migrated to sites within 2° longitude in Colombia and Venezuela; coastal birds migrated to sites within 8° longitude in southern Mexico, Honduras and Guatemala. If a decline is observed in one group, we can focus management efforts on the specific breeding, wintering and stopover sites used by individuals from this group.

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2012 Taverner Award Report

Parental care strategies and fledgling survival of northern flickers

Elizabeth A. Gow, Department of Biology, University of Saskatchewan

Parental care is necessary in many animals to ensure the survival of offspring (Clutton-Brock 1991). Deciding how much care to provide is critical because resources are limited and increased care can negatively affect future reproductive effort (Akçay and Roughgarden 2009), survival (Bryant 1979), and timing of moult and migration (Stutchbury et al. 2011). Life history theory suggests that parents optimally balance investments in current breeding activities with their future survival and reproductive success (Williams 1966). There are a number of cues that parents may use to make decisions on how much effort to invest in the brood and these may differ between males and females. These potential cues can include food availability (e.g. Dawson and Bortolotti 2002; Low et al. 2011); brood size (Dawson and Bortolotti 2003; Low et al. 2011); response to changes in provisioning rate of their partner (sexual conflict; Trivers 1972); potential alternative mating opportunities (Clutton-Brock 1991); and the current relationship between effort and survival (e.g. physiological condition of the parent; Horton and Holberton 2009).

Mortality of juvenile birds is often high during the first few weeks after leaving the nest but the length of parental care may reduce this mortality risk to fledglings (Grüebler and Naef-Daenzer 2010). Understanding the decisions that parents make when caring for fledglings is important because the effort expended in care is part of the life-history trade-offs parents must make (Reznick 1985).

I studied the Northern Flicker, a woodpecker, in central British Columbia. Flickers are an interesting species to study sex roles because females are facultatively polyandrous (Wiebe 2005). Males provision nestlings slightly more than females (Gow et al. 2012), and males primarily brood the nestlings at night (Wiebe and Elchuk 2003). Males are single-brooded and there are no extra-pair matings (Wiebe and Kempanaers 2009). I conducted a brood manipulation experiment to test the flexibility of male and female parental care in response to temporarily (24h) increased brood demands. I measured provisioning rate, and using simultaneous radio-tracking of a pair I measured several other aspects of parental care including time at the nest (nest defence), nest sanitation (fecal sac removal), and trade-offs with individual maintenance and safety during foraging (e.g. time budgets, distance to cover and distance to nest site). I measured the length of time males and females spent caring for their fledglings, and I attached radio-tags to fledglings to measure fledgling survival.

Preliminary results:

Brood Manipulation: In response to increased brood demands, females increased their feeding rate, but males did not. This implies that males and females may be responding to different cues from the brood, or males may already be working at their physiological maximum and unable to respond to the increase in brood demands. The amount of time males and females spent at the nest did not decrease when brood demands increased.

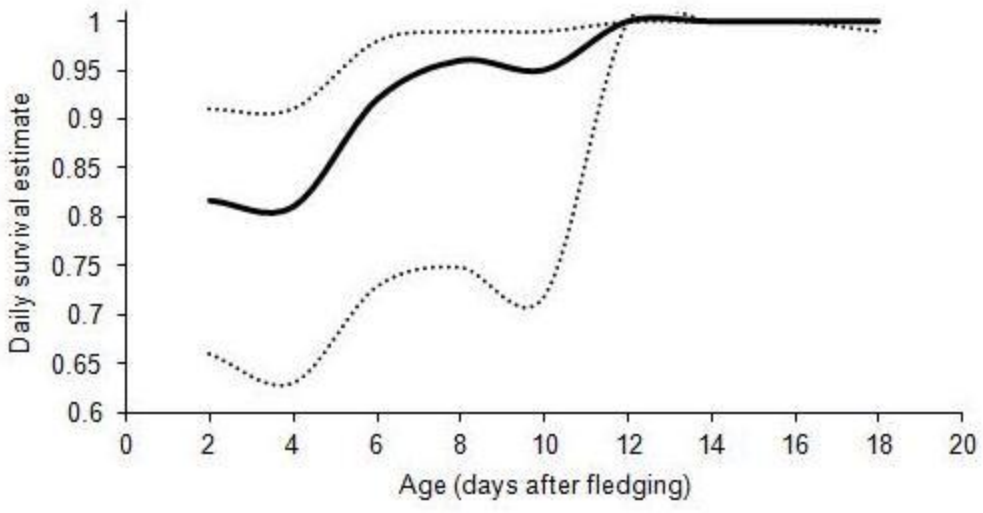

Figure 1. Daily survival of flicker fledglings over the first 18 days after leaving the nest. Overall 55% of fledglings survive the first 18 days, with most dying within the first few days after leaving the nest.

Both parents did not sacrifice their own survival when foraging by increasing the distance of foraging points from edges or escape cover. Neither sex foraged closer to the nest when brood demands increased. This lack of change in foraging behavior by both sexes in response to increased brood demands suggests that parents may be unwilling to sacrifice their own survival for the survival of their brood. Post-fledgling parental care and fledgling survival: males typically cared for the fledglings longer than females. Fledgling survival was very low the first few days following fledging (Fig. 1). Overall, ~50% of the 38 radio-tagged fledglings died within the first 11 days.

Future direction:

I am currently measuring corticosterone, a 'stress' hormone, from feathers sampled from parents and nestlings (Bortolotti et al. 2008). I will use feather corticosterone to determine if males are of a lower physiological condition than females and if physiological condition is a determinant of a male's ability to increase feeding rates when broods are enlarged. Additionally, I am investigating what factors influence flicker fledgling survival, such as: habitat around the nesting site, parental investment, or body condition prior to fledging.

Acknowledgements:

In addition to the Taverner Award, funding was provided by the Kenneth Molson Foundation, NSERC and the University of Saskatchewan Department of Biology.

Fledgling Northern Flicker. (Photo by Elizabeth Gow).

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Student Research

Smooth-billed Ani (*Crotophaga ani*) research in Puerto Rico

Leanne Grieves. 2013. M.Sc. Candidate, McMaster University, Hamilton, Ontario, Canada.

The Smooth-billed Ani (*Crotophaga ani*) is a highly social cooperatively breeding bird; more than two individuals raise young at a single nest (Brown 1987). The Smooth-billed Ani is a joint-nesting species. In contrast to the more common helper-at-the-nest system in which a dominant breeding pair would have non-breeding helpers, joint nesting occurs when two or more females contribute eggs to the same nest. This rare breeding system is limited to only 15 species worldwide (Vehrencamp and Quinn 2004). In *C. ani*, socially monogamous pairs form groups of two to ≥17 usually unrelated individuals and all group members provide parental care (Quinn and Startek-Foote 2000). Breeding groups have multiple diurnal incubators but only one nocturnal incubator. Dominance is not well understood in *C. ani* but the nocturnal incubator, a male, may be the dominant bird (J. Quinn, pers. comm.). Within-group conflict, including tossing eggs from the nest and burying eggs under a new nest floor, is high (Schmaltz et al. 2008), indicating costly reproductive competition. However, the benefits of group living and joint-nesting in this species remain unclear and long-term studies on the breeding biology of Smooth-billed Anis are needed.

After taking morphometric measurements and a small blood sample, trapped birds are banded and marked. Photo by Nicolette Roach.

I am combining field and molecular techniques to explore group dynamics and breeding biology in Smooth-billed Anis. I will include historical records from banded birds dating back to 1998 to address questions about the reproductive success of individuals and look for patterns in group membership. Specifically, I predict the nocturnal incubator and its social mate will have greater reproductive success than other group members. The same territories are used from year to year (J. Quinn, pers. comm.) but group membership and structure changes; territories will be used by different groups of individuals each year. Recently, some groups have remained on a territory over multiple breeding seasons. To explore these changes I will use rainfall data, reflecting insect food abundance, to look for correlations between territory use and group membership, and rainfall.

I am also interested in exploring benefits of group living in anis that may not directly relate to their breeding biology. Many social species use an early warning system to alert group members to predators or other danger. Generic alarms announcing danger are common and well-studied among birds. Less studied are referential alarm calls that convey specific information about the type of danger. These calls have stimulus specificity, meaning a call is elicited only by stimuli of a common category, and context independence, meaning the call alone should elicit an appropriate response in signal receivers (Macedonia and Evans 1993).

Some species not only differentiate alarms given by heterospecifics, but respond selectively by ignoring calls made in response to predators that pose no threat (Rainey et al. 2004; Platzen and Magrath 2005; Magrath et al. 2009). These birds might also produce referential signals. To date, avian studies of referential alarm calling have been limited to only a few orders (e.g. Galliformes, Evans et al. 1993; Coraciformes, Rainey et al. 2004; Passeriformes, Platzen and Magrath 2005) despite the level of complexity already demonstrated in these few studies and that the diversity of these orders suggests referential communication may be widespread among birds.

Our field observations and those of Davis (1940) indicate that Smooth-billed Anis use two distinct alarms, one for terrestrial and one for aerial predators, coupled with appropriate antipredator responses. Observations suggest call type and response are correlated, but whether this would be the case in the absence of both a caller and a source of danger (context independence) has not been tested. I conducted controlled playback experiments in 2011 and 2012 with J.S. Quinn and D.L. Logue to test these responses and to show the responses are not based on observing a predator or alarm caller behaviour. Our results indicate that Smooth-billed Ani alarms are functionally referential.

Methods:

Molecular work: In 2011 and 2012 I studied anis at Cabo Rojo National Wildlife Refuge in Puerto Rico during their breeding season (September to January) and collected blood samples from adults (N=55) and chicks (N=189). I will use microsatellite genotyping along with KINSHIP software to determine the pairwise relatedness of adult group members and CERVUS software to determine parentage within broods.

Playback experiments: Experiments took place at Cabo Rojo NWR between November and December 2011 and 2012. We selected 18 groups for playback in each year. Field recordings of alarms were high-pass filtered at 350Hz and a noise reduction filter was used to remove sample-specific noise from playback stimuli (Baker and Logue 2007). One of three stimulus types (aerial alarm, terrestrial alarm or control) was played per trial in a predetermined order using a balanced design. Control stimuli were bursts of white noise of equal duration and amplitude to aerial (2011) or terrestrial (2012) alarms. Playbacks to each group were spaced 5 to 10 days apart. A stimulus was played after a 1 min pre-trial observation period starting when: 1) at least one bird was perched atop a tree in an exposed position (2011); or 2) when 1.5 m from the ground or lower (2012). Responses within 5 s after playback were recorded. Trials were postponed for at least 1 h if predators were detected within 500 m or if birds were interacting with another group. We avoided playback to groups with chicks younger than 30 days of age and only included adult responses in our analyses.

Results:

In 2011 anis dove for cover in response to 50% (9/18) of aerial, but never for terrestrial alarm playbacks or controls. In 2012 at least 1 focal bird flew up from a low position in 67% of terrestrial alarm playbacks (12/18) and dove or hid in 61% (11/18) of aerial alarm call playbacks (Figure 1). Anis respond appropriately to aerial alarm call playback both when perched high and exposed and when low to the ground. Birds that were already in trees (2011) often did not respond to terrestrial alarm playbacks, but usually flew up out of reach when they were near the ground when tested (2012).

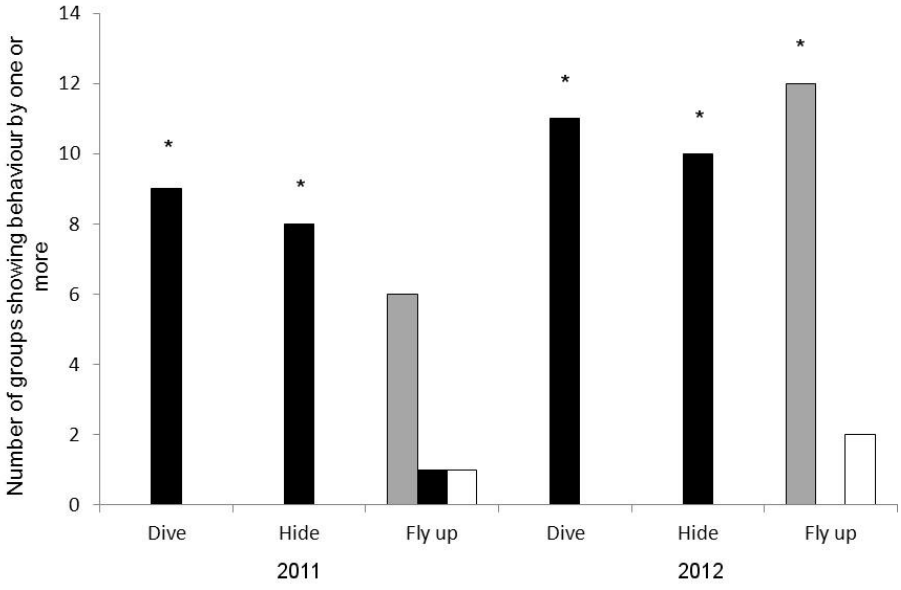

Figure 1. Responses of ani groups to aerial (black bars), terrestrial (grey bars) and white noise control (white bars) stimuli. Dives and hiding behaviours were seen only during aerial playbacks and responses marked by an asterisk (*) are significant at the 0.05 level (randomized G test).

Discussion:

Anis use two distinct alarm types to refer specifically to aerial or terrestrial predators. They respond to these types adaptively even in the absence of a predator. The potential benefits of alarm signaling may help maintain the Smooth-billed Ani's unique social behaviour. This novel research direction will complement my research on ani breeding biology and together, these studies will provide insight into the evolution and maintenance of cooperative joint-nesting, group living and sociality.

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Recent Canadian Ornithology Theses

Creasey, Melissa L. 2012. Black-throated Blue Warbler (*Setophaga caerulescens*) nesting success and nest site selection in the single-tree selection harvested forests of Algonquin Provincial Park, Canada. M.Sc. Thesis. Environmental and Life Science, Trent University, Peterborough, ON.

Loss of breeding habitat is thought to be a major contributor to the decline of bird species worldwide. Industrial activities, such as forest harvesting, can cause changes in bird habitat that reduce the amount of suitable nesting sites and nesting success. I examined the effects of single-tree selection harvesting on Black-throated Blue Warblers in Algonquin Provincial Park, Canada. A retrospective design was used to compare the effects of harvesting on their reproductive ecology, nest success, and nest site selection immediately post-harvest, in regenerating cuts, in old cuts ready for re-harvesting, and in unharvested stands.

Black-throated Blue Warbler nestlings. (Photo by Melissa Creasey)

I found that Algonquin's Black-throated Blue Warblers had longer incubation periods and higher nest attentiveness than previously observed elsewhere throughout their breeding range, but clutch size and nestling periods were similar to other studies. Harvesting created significant changes in habitat features across treatment categories, but this species was able to adjust its nest site selection to build nests in all treatments studied. Nest sites used by Black-throated Blue Warblers were characterized by low canopy cover, and a large amount of regeneration, particularly of eastern hemlock (*Tsuga canadensis*). Single-tree selection did not affect the daily survival rate of Black-throated Blue Warbler; instead, nest age best explained the change in daily survival rate, which decreased with nest age.

While single-tree selection has changed Algonquin's forests, there was no evidence that this negatively affected Black-throated Blue Warbler nesting success, indicating that this harvest method is sustainable with respect to this species.

Hentze, Nathan T. 2012. Characteristics of over-ocean flocking by Pacific dunlins (*Calidris alpina pacifica*). M.Sc. thesis. Simon Fraser University, Burnaby, BC.

In 'over-ocean flocking', shorebirds fly at high tide in place of traditional ground-based roosting. This flocking involves trade-offs between minimizing energy-expenditure and minimizing predation risk. I used radar, theodolite, and video to study over-ocean flocking by Pacific dunlins (*Calidris alpina pacifica*) wintering at Boundary Bay, British Columbia. Over-ocean flocking was performed by the majority of individuals present, occurred only during daytime high-tides, and did not occur in darkness. Its mean duration was 187 ± 80 (SD) min (range = 75-390 min). Temperature was the only environmental variable statistically found to influence flocking duration. No

over-ocean flocking took place during sub-zero temperatures when ice in the bay facilitated roosting far from shore. Flocks flew on average 666 ± 397 (SD) m from the nearest shoreline. Over-ocean flocking flight incorporated much gliding (14% of total flight time) and was close to the theoretical minimum-power speed, while transit flights between foraging sites had little gliding (1%) and were much faster than the theoretical maximum-range speed. I estimated daily energy expenditure based on published basal metabolic rate and daily energy expenditure data for dunlin and other congeneric species. At the average flight airspeed and duration, over-ocean flocking represented a ~10% increase to daily energy expenditure. Over-ocean flocking allowed dunlins to remain in close contact with their foraging grounds, providing access to high quality feeding opportunities as soon as mudflats were exposed. Flight energy savings were attained by altering flight characteristics relative to other flight types. These results support the hypothesis that over-ocean flocking is an anti-predator behaviour involving trade-offs between minimizing energy expenditure and maximizing safety from diurnal predators.

Dunlin performing over-ocean flocking at high-tide over Boundary Bay, BC. November 2009. Photo by Marinde Out.

Recent ornithological news

A recent peer-reviewed study in *Nature Communications* reported that outdoor cats are the leading human-related source of mortality for birds and mammals in the US. By reviewing 90 previous studies, researchers S.R. Loss, T. Will, and P.P. Marra concluded that free-ranging cats kill an estimated 1.4 to 3.7 billion birds and 6.9 to 20.7 billion mammals annually (www.abcbirds.org/abcprograms/policy/cats/pdf/Loss_et_al_2013.pdf). Just last year, the *State of Canada's Birds* estimated that cats kill 100 million birds annually in Canada. Watch for more on this topic in an upcoming issue of *Avian Conservation Ecology* as part of an ongoing series on anthropogenic sources of bird mortality.

Meanwhile in more positive news, the Government of Canada announced a $1.37 million research program on migratory birds through the Canada Foundation for Innovation, which with matching funds is expected to reach a budget of $3.43 million over the next five years. The core effort will focus on using miniature satellite transmitters, dataloggers, stable isotope analysis, and other techniques to track the movements of Canadian birds. The overall goal is to understand linkages among breeding, migrating, and wintering locations for all Canadian bird species by 2030.

Student contributions wanted for *Picoides*!

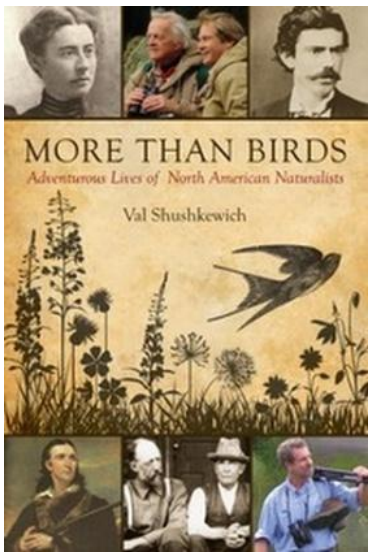
SCO-SOC encourages students to submit material for *Picoides*. In particular, we would like each issue to feature abstracts of at least one or two recently published theses. They must be from students at a Canadian university, but need not necessarily focus on Canadian birds. Abstracts should be 250-400 words long, preferably accompanied by one or two relevant photos.

In addition, we welcome articles describing aspects of student research in greater detail; these should focus on a subject relevant to Canadian ornithology, require references, and may be up to 1000 words long, again preferably accompanied by one or two photos. See page 20 for submission details.

Book Review

Shushkewich, Val. 2012. More than birds: Adventurous lives of North American naturalists. Dundurn Press, Toronto ON. 296 pages.

Softcover, 15.2 cm x 22.9 cm. $27.99 CDN. ISBN: 978-1-45970-558-6.



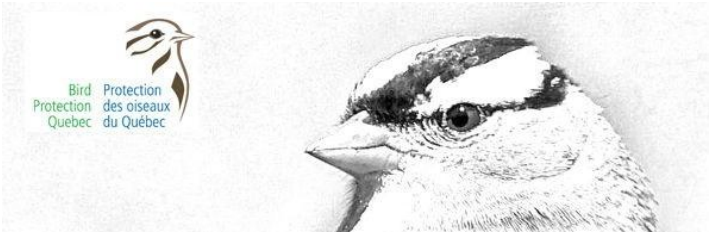
More than birds covers the history of North American ornithology and natural history study from the 18th century to today through brief biographies of 22 well-known naturalists. The book opens with a brief synopsis of the 22 chapters, followed by a 'family tree' chronology. The introduction would have been strengthened by the author explaining why these 22 naturalists were selected over other prominent North American naturalists.

The book is divided into six logical sections or eras: Early North American Naturalists, Smithsonian Collections and Classification, For the Love of Birds, Ornithology as a Science and Need for Protection, Thirst for Knowledge, and Conservation and Preservation of Species. Each section consists of three or four chapters. Each chapter discusses the important work, achievements and lasting legacy of the naturalist. It must have been a real challenge to limit each chapter to a maximum 12 pages. Therefore, minimal information on the other aspects of the lives of the selected naturalists is provided. The author has done impeccable research with primary and secondary sources and the text is well written and easy to read. In addition, black and white photos and illustrations also complement the chapter text.

Not just American men have contributed to ornithology and natural history in North America. I was pleased to see five women (Cordelia Stanwood, Florence Merriam Bailey, Margaret Morse Nice, Dorothy Huestis Speirs, and Louise de Kiriline Lawrence) and 11 Canadians (Allan Cyril Brooks, Jack Miner, Bob Nero, Percy A. Taverner, Joseph Dewey Soper, James Henry Fleming, Hans A. Hochbaum, Dorothy H. and Murray Speirs, Louise de Kiriline Lawrence and Robert Bateman) selected for this book. I learned more about each selected naturalist and their legacy to ornithology and natural history including those who have inspired two of the SCO-SOC awards: Percy A. Taverner and Doris Huestis Speirs.

The book concludes with numerous chapter footnotes and references that make it easier for readers to obtain more information about each naturalist and their contemporaries. There is also a handy index so you can find information in the book quickly and easily. I highly recommend this book to anyone who is interested in the history of ornithology and natural history investigation in North America.

Reviewed by Rob Warnock, E-mail: warnockr@accesscomm.ca



Announcement: BPQ Research Grants 2013

Bird Protection Quebec makes funds available each year for the support of research projects related to the avifauna of Quebec. The closing date for applications is 28 February but consideration will be given to late applications should they be sufficiently compelling and should funds remain available. A limit of $3000 per annum is normally imposed but in exceptional instances may be exceeded. Applicants might care to note that longer-term, multi-year projects are especially welcomed for consideration. Studies are to be conducted during 2013 and applicants should note that an end of year written summary of results and conclusions is a mandatory requirement of individuals or groups that we support. We are particularly interested in working with groups conducting long-term studies with established goals. Full details of the format in which applications are to be made are available at www.pqspb.org.

Richard Gregson, President of BPQ and Chair of the BPQ Grants Committee, birdprotectionquebec@gmail.com

SCO – SOC Information

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Membership Information
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SCO-SOC membership forms can be found at the link above. Current membership rates are as follows:

Student	$10.00 / year	
Regular	$25.00 / year	($35.00 / year outside Canada)
Sustaining	$50.00 / year	
Life	$500.00	

SCO-SOC Website
www.sco-soc.ca/index.html

The SCO-SOC website includes sections on membership, meetings, news, publications, awards, information for students, an overview of SCO-SOC, and links of interest to members and other visitors.

To suggest any additions or edits for the website, contact webmaster Hazel Wheeler at hazel.wheeler@gmail.com.

Submissions to *Picoides*:

Articles and photos relevant to Canadian ornithology are welcomed by the editors. If submitting photos, please save them in tiff or jpeg format with descriptive file names, and supply captions including common names of species, location, date, photographer, and any other notes of interest. Deadlines for submission are February 15, May 15, and October 15; issues are typically published 3-4 weeks later. Please send all submissions to Rob Warnock at warnockr@accesscomm.ca.

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