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A Mourning Warbler collects a spider to feed to hungry mouths in Saskatchewan // Une Paruline triste ramasse une araignée pour nourrir les bouches affamées en Saskatchewan. Photo: Sean Fitzgerald.

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Editors' Message

Rob Warnock and Barbara Bleho

Welcome to the second issue of *Picoides* in 2021. We hope everyone is having a good spring and staying safe during the pandemic.

In Nicola Koper's latest President's Report, she discusses the strangeness of the field season due to the pandemic, the activities of the Equity, Diversity, and Inclusion (EDI) committee and Society and efforts to attract, support and retain members of all diversity groups in SCO-SOC. We welcome and support highlighting the work of all young ornithologists in *Picoides*, especially members of minority groups. Increased diversity will strengthen SCO-SOC and ornithology in Canada. Nicola concludes her report with announcement of the recipients of seven SCO-SOC awards. Her report is on page 2.

We congratulate the following SCO-SOC award recipients: Dr. Kathy Martin (UBC)- Jamie Smith Memorial Mentorship Award, Ryan Leys (University of Waterloo) and Kiirsti Owen (University of New Brunswick) - Taverner awards, Elora Graham (University of Guelph) - James L. Baillie Award, Don-Jean Leandri-Breton (McGill University) - Fred Cooke Award, Dr. Ryan Germain - Early Career Researcher Award (ECRA) and Dr. Mariana Villegas won the "Birds of Many Feathers Flock Together" ECRA award. Check out the award citations for Kiirsti Owen and Don-Jean Leandri-Breton. We hope to have the announcement of the 2021 Huestis Speirs Award recipient and the remaining award citations in the next issue.

Please consider becoming a candidate for Vice President or Councillor in the upcoming SCO-SOC election in August 2022.

Part three of the five-part series on Brown-headed Cowbird brood parasitism on the Canadian prairies by Spencer Sealy is in this issue. Thank you Spencer for preparing this series! Tony Diamond reflects on his amazing 60-year experience with bird banding. Also in this issue, the table of contents from the latest issue of *Avian Conservation and Ecology*.

Finally, don't forget to mark your calendars for the next SCO-SOC virtual conference in conjunction with the American Ornithological Society on 9-14 August 2021. Early conference details are in this issue. We hope to have in person SCO-SOC conferences again in future years.

The next *Picoides* deadline is October 15, 2021. We look forward to your next submission. Without submissions, there is no *Picoides*. We also welcome your feedback as it your publication and we wish everyone a safe, healthy summer and start to autumn.

FRANÇAIS—Message des éditeurs – Rob Warnock et Barbara Bleho

Bienvenue au deuxième numéro de *Picoides* en 2021. Nous espérons que tout le monde passe un bon printemps et que vous continuez de faire attention à vous pendant la pandémie.

Dans le dernier message de la présidente, Nicola Koper évoque l'étrangeté d'une saison de terrain en temps de pandémie, les activités du comité sur l'équité, la diversité et l'inclusion (EDI) et des efforts de la société pour attirer, soutenir et retenir les membres de tous les groupes issus de la diversité au sein de la SCO-SOC. Nous accueillons et encourageons la valorisation et la présentation du travail de jeunes ornithologistes dans *Picoides*, particulièrement les membres issu.e.s de groupes sous-représentés. Une diversité accrue au sein de la SCO-SOC renforcera notre société et l'ornithologie au Canada. Nicola conclut son rapport en annonçant les récipiendaires de sept prix de la SCO-SOC. Son rapport se trouve à la page 2.

Nous félicitons les récipiendaires des prix SCO-SOC suivants : Dr. Kathy Martin (UBC)- Prix Jamie Smith, Ryan Leys (Waterloo University) et Kiirsti Owen (Université du Nouveau-Brunswick) - Prix Taverner, Elora Graham (Guelph University) - Prix James L. Baillie, Don-Jean Leandri-Breton (Université McGill) - Prix Fred Cooke, Dr. Ryan Germain - Prix de début de carrière en recherche ornithologique et Dr. Mariana Villegas a gagné le prix de début de carrière "Birds of Many Feathers Flock Together". Consultez les biographies des récipiendaires

Kiirsti Owen et Don-Jean qui ont remporté respectivement les prix Taverner et Fred Cooke. Nous espérons pouvoir annoncer le ou la lauréat.e du prix Huestis Speirs 2021 et les biographies restantes dans le prochain numéro.

Veuillez envisager de vous porter candidat aux postes de vice-président.e ou de conseiller.ère lors de la prochaine élection de la SCO-SOC en août 2022.

Vous trouverez dans ce numéro la troisième partie d'une série de cinq articles sur le parasitisme de couvées des Vachers à tête brune dans les prairies canadiennes par Spencer Sealy. Merci à Spencer d'avoir préparé cette série ! Tony Diamond se penche aussi sur son incroyable expérience de 60 ans dans le domaine du baguage d'oiseaux. Également dans ce numéro, la table des matières du dernier numéro d'Écologie et Conservation des Oiseaux.

Enfin, n'oubliez pas d'ajouter à vos calendriers la prochaine conférence virtuelle SCO-SOC, réalisée en conjonction avec l'American Ornithological Society du 9 au 14 août 2021. Les premiers détails de la conférence sont dans ce numéro. Nous espérons pouvoir recommencer à organiser des conférences SCO-SOC en personne dans les années à venir.

La prochaine date limite pour *Picoides* est le 15 octobre 2021. Nous attendons avec impatience votre prochaine soumission. Sans soumissions, il n'y a pas de *Picoides*. Nous vous invitons également à nous faire part de vos commentaires sur votre publication et nous souhaitons à tous de passer un bon été et début d'automne.



Follow SCO on Twitter! Follow us @SCO_SOC for news, exciting research, updates from members, and more!
Suivez SOC sur Twitter! Suivez-nous @SCO_SOC pour les nouvelles, la recherche passionnante, mises à jour des membres, et plus encore!



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Aimez SOC sur Facebook!

Message de la présidente

Nicola Koper

Je trouve difficile de vous écrire une lettre sur les progrès réalisés par la SCO-SOC au cours des derniers mois, étant donné que nous sommes tous encore confrontés à de nombreux défis. Certains d'entre vous débutent enfin leur saison de recherche sur le terrain, mais cette fois, avec de nouvelles restrictions et conditions qui changent la façon dont le travail doit être effectué. Certains d'entre vous se sont résignés - ou non - à manquer une autre année d'ornithologie de terrain. Dans mon cas, je suis soulagé d'avoir six étudiants aux études supérieures sur le terrain ce mois-ci, ainsi qu'une foule d'étudiants au bac pour les assister. Cependant, je ne me joindrai pas à eux cette année. Hier, j'ai eu l'expérience très étrange d'essayer d'enseigner des méthodes de recherche de terrain au téléphone, avec des étudiants qui me parlaient depuis leurs sites de recherche, tandis que moi j'étais assise dans mon bureau à domicile. Le fait d'être assise ici me pousse à réfléchir et à souhaiter le meilleur à tous les autres ornithologistes confrontés à des défis similaires.

Malgré les difficultés auxquelles nous avons tous été confrontés cette année, la SCO-SOC a fait de merveilleux progrès dans de nombreux domaines. Nous nous sommes particulièrement engagés à promouvoir l'équité, la diversité et l'inclusion dans l'ensemble de notre société. Notre outil le plus important pour y parvenir a été notre nouveau comité pour l'Équité, la Diversité et l'Inclusion, qui a été incroyablement actif. La SCO-SOC est très reconnaissante envers ses membres, Leanne Grieves et Cesar Estavo (co-présidents), Janet Ng, Alana Westwood, Lesley Howes et Roxanne Chicalo. Cette équipe a accompli un travail considérable pour accroître la diversité au sein de notre organisation et pour les membres de groupes sous-représentés. Nous avons été ravis du succès de notre campagne visant à offrir une adhésion gratuite aux personnes issues de groupes sous-représentés, qui a permis d'attirer un nombre important de nouveaux membres. Merci à tous nos nouveaux membres de nous donner la chance de vous représenter. Le conseil de la SCO-SOC a proposé un certain nombre d'idées de collecte de fonds pour aider à soutenir les initiatives de l'EDI, notamment en faisant de notre vente aux enchères de séminaires, d'ateliers

et d'articles ornithologiques un événement annuel. Personnellement, j'ai hâte de tenter à nouveau de gagner la présentation sur les kiwis ! Gardez l'œil ouvert pour d'autres occasions de contribuer à cette initiative au cours de l'année prochaine.

Grâce à Taylor Brown et Leanne Grieves, nos médias sociaux ont été actifs et ont eu un grand impact. Depuis août 2020, elles ont publié plus de 90 messages sur Facebook, 160 Tweets et attiré plus de 200 nouveaux abonnés. Elles ont aussi lancé un profil Instagram qui compte maintenant plus de 800 abonnés. Parmi de nombreux sujets intéressants, nos médias sociaux ont poursuivi leur campagne visant à présenter des ornithologistes canadiens appartenant à des groupes sous-représentés. Taylor et Leanne ont connu un énorme succès en faisant connaître le travail de notre société à un plus large public.

Nous félicitons également nos nombreux lauréats de cette année. Le prix commémoratif Jamie Smith a été décerné à la Dr Kathy Martin de l'UBC, qui a eu un impact considérable sur les personnes pour qui elle a été une mentore et sur l'ornithologie en général. Nos lauréats étudiants sont : Ryan Leys (Université de Waterloo) et Kiirsti Owen (Université du Nouveau-Brunswick ; prix Taverner), Elora Graham (Université de Guelph), qui a remporté le prix James L. Baillie, et Don-Jean Leandri-Breton (Université McGill), qui a remporté le prix Fred Cooke. Nous avons également choisi de décerner deux prix pour chercheur.e.s en début de carrière en 2021, pour deux raisons : d'abord, la nature virtuelle de notre prochaine conférence nous a donné une certaine flexibilité que nous n'avons pas la plupart du temps, et ensuite, nous voulions célébrer le thème « Birds of Many Feathers Flock Together (Oiseaux d'origines diverses s'assemblent), » de la conférence de cette année en mettant en vedette un.e scientifique travaillant dans les Néotropiques ou en Amérique du Sud. Le Dr Ryan Germain a remporté le prix de début de carrière de cette année, et la Dr Mariana Villega, le prix de début de carrière « Birds of Many Feathers Flock Together ». J'ai hâte d'assister à leurs présentations, ainsi que celui de notre lauréate 2020, la Dr Barbara Frei, lors de notre conférence d'août.

Je vous souhaite tout ce qu'il y a de meilleur pour le printemps et l'été, peu importe les circonstances de l'endroit où vous vous trouvez.

ENGLISH— President's Message – Nicola Koper

I find it hard to write a letter to you all about SCO-SOC's progress over the last few months, given how many challenges I know you are facing right now. Some of you are heading off into the field, finally, for a much-anticipated field season, but with new restrictions and conditions that change how work must be done. Some of you are resigned – or not – to missing yet another year of field ornithology. In my case, I'm relieved to have 6 grad students in the field this month, along with a host of undergraduate assistants – but I won't be joining them. Yesterday, I had the very strange experience of trying to teach field research methods to students joining me from their field sites over their cellphones, while I sat in my home office. Sitting here again makes me reflect on, and wish the best to, all of the other ornithologists facing similar challenges.

Despite the difficulties we have all faced this year, SCO-SOC has made wonderful progress in many areas. Our special focus has been on promoting equity, diversity and inclusion throughout our society. The most important mechanism we have had for doing this has been our new Equity, Diversity and Inclusivity Committee, which has been incredibly active. The SCO-SOC is so grateful to its members, Leanne Grieves and Cesar Estavo (co-chairs), Janet Ng, Alana Westwood, Lesley Howes, and Roxanne Chicalo. That team has been doing a huge amount of work to increase the diversity of our organization and give opportunities to members of underrepresented groups. We have been delighted at the success of our campaign to provide free membership to individuals from underrepresented groups, which has brought in a significant number of new members. Thank you to all our new members for giving us the chance to represent you. The SCO-SOC council has come up with a number of fundraising ideas to help support EDI initiatives, including making our very successful December lectures-and-items auction an annual event. I'm personally looking forward to having another try at winning that kiwi presentation! Keep an eye out for other opportunities to contribute to this initiative over the next year.

Thanks to Taylor Brown and Leanne Grieves, our social media has been active and impactful. Since August 2020, they've put out over 90 Facebook posts, 160 Tweets and attracted more than 200 new followers, and started an Instagram profile that has more than 800 followers. Among many interesting topics, our social media has continued a campaign to feature Canadian ornithologists belonging to underrepresented groups. Taylor and Leanne have been tremendously successful in bringing the work of our society to a wider audience.

We also congratulate our many award-winners this year. The Jamie Smith Memorial Mentorship Award was given to Dr. Kathy Martin at UBC, who has had a tremendous impact on individuals she has mentored and ornithology in general. Our student award winners include Ryan Leys (University of Waterloo) and Kiirsti Owen (University of New Brunswick; Taverner awards), Elora Graham (University of Guelph), who won the James L. Baillie Award, and Don-Jean Leandri-Breton (McGill University), who won the Fred Cooke Award. We also chose to give out two Early Career Researcher Awards in 2021, for two reasons – one, the virtual nature of our upcoming conference gave us some flexibility that we don't have in most years, and two, we wanted to celebrate the "Birds of Many Feathers Flock Together" theme of this year's conference by featuring a scientist working in the Neotropics or South America. Dr. Ryan Germain won this year's ECRA award, and Dr. Mariana Villegas won the "Birds of Many Feathers Flock Together" ECRA award. I can't wait to see their plenaries, as well as that of our 2020 award winner, Dr. Barbara Frei, at our August conference.

I wish the very best to you in the spring and summer, whatever that looks like from where you are.


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.


We also 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 1,000 words long, again preferably accompanied by one or two photos. See page 31 for submission details.

Calling ALL early career ornithologists in Canada who identify as Black, Indigenous, a person of colour, LGBTQ+, +/or disabled!

SCO-SOC wants to showcase you & your work on social media!



Send 280-char blurb, social @handle & 1-2 pics to: taylorbrown@trentu.ca



Sp Adobe Spark

Appel à tous les ornithologistes canadiennes s'identifiant comme étant Noire, Autochtone, personne racisée, LGBTQ+, et/ou comme personne ayant un handicap!

La SCO-SOC voudrait vous mettre en valeur ainsi que votre travail sur ses réseaux sociaux!



Envoyez un texte de 280 caractères, nom d'utilisateur & 1-2 photos à: taylorbrown@trentu.ca



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Announcements



9-14 AUGUST 2021
AOS & SCO-SOC 2021 MEETING

Feathers Flock Together

Please join us for the AOS & SCO-SOC 2021 Virtual Meeting!

Dear Colleagues:

On behalf of the Meeting Coordination Committee, we invite you to join us 9–14 August 2021 for the virtual joint meeting of the American Ornithological Society (AOS) and the Society of Canadian Ornithologists-Société des ornithologistes du Canada (SCO-SOC). We are pleased to be able to convene what will be the 139th annual meeting of AOS and the 39th annual meeting of SCO-SOC. Although we are sad to not be able to meet in person, we are buoyed by last year’s success of the Virtual NAOC 2020 where ornithologists from around the globe were able to meet and share their science. The virtual meeting exceeded our expectations in terms of attendance and the functionality of the online format. This year, we aim to continue on this path to bring you another memorable experience.

The past year has been difficult to say the least. It has exposed centuries-old societal wounds rooted in systemic racism and violence against Black, Indigenous and brown communities. We had to confront the grief and the heartbreaks of a brutal pandemic, while still facing an uncertain future. In reckoning these wounds and coping with these challenges, the need to nurture our communities became obvious, and our reliance on human connections bloomed. Thankfully, online tools have increased our ability to connect with more people and over a wider distance. So even though we are living the age of social distance, often working alone in our homes, we are connected in a way that we have never been before.

We are hopeful for a brighter tomorrow. Rebuilding and healing our society will take work, time, patience, and creativity. As we plan this fully virtual conference, we strive to bring together ornithologists from diverse backgrounds with varied interests but sharing the unified goal of advancing science and conservation of birds, and supporting the next generation of ornithologists. Our meeting theme “Birds of

“Many Feathers Flock Together” is particularly meaningful in today’s world as we make every effort to celebrate and promote diversity and collaboration. We are working towards a meeting that will further the reach of ornithology and build a stronger and more diverse community of scientists, conservationists, managers, and educators, who are guided by principles of equity, inclusion, and justice.

The online meeting format will have something for everyone. Using the EventPilot platform, we will organize a diverse set of events to promote both science and socializing. Workshops will be held during the week before the scientific program, from 2–6 August. The scientific program will span five days and include plenaries, symposia, roundtable discussions, contributed papers, and virtual posters. Additionally, we are meticulously planning networking, outreach, and social activities to give everyone a chance to meet new and old friends.

A virtual conference allows us to be more creative and inclusive. We have adapted many of the much-loved traditions from past meetings and carefully selected new and innovative formats to promote engagement in a virtual setting. As we have in the past, we do our best to keep costs low and create the greatest value for attendees. Last year, through a generous grant, we were able to keep the registration fees low. We were delighted that this resulted in an overwhelming number of new participants from around the globe. Our Societies are committed to chipping away at these types of barriers to participation. For the first time ever, this year’s meeting organization includes an advisory Accessibility Committee.

As American and Canadian Societies, we hope to strengthen the vibrant tradition of hosting a meeting that brings the best of professional ornithology. We enthusiastically extend this invitation to the global community of ornithologists and particularly those in Mexico, Central and South America, and the Caribbean. We hope you will join us to network with other professional and amateur ornithologists, students, educators, government officials and policy-makers, researchers, and vendors. So stay tuned for more details as we continue our planning of what we are sure will be a phenomenal meeting. We will be posting updates here and on social media, where you can follow our announcements using the hashtag #2021AOS_SCO.

We look forward to seeing you on our screens even as we continue to hope to meet again in person in 2022. Please register to attend and submit an abstract to present your work. Students—don’t miss out on your opportunity to compete for prestigious AOS and SCO-SOC student presentation awards open to student members!

In gratitude,

Co-Chairs of the AOS & SCO-SOC 2021 Virtual Meeting Coordination Committee
Sushma Reddy, Ph.D. Associate Professor and Curator, University of Minnesota
Letícia Soares, Ph.D. Postdoctoral Associate, Western University

Lettre de Bienvenue

SVP rejoignez-nous pour la Réunion virtuelle AOS & SCO-SOC 2021!

Chers Collègues,

Au nom du Comité de Coordination de la Réunion, nous vous invitons à nous rejoindre du 9 au 15 août, 2021 pour la réunion virtuelle combinée de la Société de Ornithologie Américaine (AOS) et la Société des ornithologistes du Canada-Society of Canadian Ornithologists (SCO-SOC). Nous sommes heureux d’organiser ce qui sera la 139^{ième} réunion annuelle de l’AOS et la 39^{ième} réunion annuelle de la SCO-SOC. Bien que nous regrettions de pouvoir ne nous réunir en personne, nous sommes extrêmement encouragées par le succès de la réunion virtuelle NAOC 2020 pendant laquelle les ornithologistes du monde entier ont été capable de se réunir pour partager leurs projets scientifiques. La réunion a dépassé toutes nos attentes, tant au niveau de la participation qu’au niveau de la fonctionnalité du format virtuel. Cette année, nous voulons continuer sur notre lancée en vous offrant une autre expérience mémorable.

Pour le moins, l'année écoulée a été difficile. Elle a révélé les blessures sociétales d'un racisme systématique et de la violence contre les communautés noire, autochtone, et autres ethnies. Nous avons dû subir la douleur et les souffrances de cette pandémie, tout en étant confronté à un futur incertain. En évaluant ces blessures et notre besoin de gérer ces défis, le besoin de prendre soin de nos communautés est devenu évident, et notre dépendance aux relations humaines s'est épanouie. Heureusement, les outils virtuels ont augmenté notre capacité à nous connecter avec plus de gens à travers le monde. Même si nous vivons actuellement dans un monde privilégiant la distanciation physique, travaillant souvent seul à la maison, nous n'avons jamais été aussi mieux connectés qu'aujourd'hui.

Nous sommes optimistes sur le futur. Reconstruire et guérir notre société prendra du travail, du temps, de la patience, et de la créativité. En planifiant cette réunion virtuelle, nous visons à réunir des ornithologistes d'origine divers avec des intérêts variés mais partageant tous le but commun de faire avancer la science et la conservation des oiseaux. Nous souhaitons aussi encourager la nouvelle génération d'ornithologistes. Le thème de notre réunion, « Les oiseaux, même au plumage différent, se rassemblent » est particulièrement important par les temps qui courent et nous mettons tout en œuvre pour célébrer et promouvoir autant la diversité que la collaboration. Nous planifions une réunion qui fera avancer les limites de l'ornithologie et va contribuer à bâtir une communauté plus forte et diverse, avec des scientifiques, conservationnistes, gestionnaires, et éducateurs tous guidés par les mêmes principes d'équité, d'inclusion, et de justice.

Le format de la réunion en ligne aura quelque chose pour tout le monde. À l'aide de la plateforme EventPilot, nous organiserons un ensemble diversifié d'événements afin de promouvoir à la fois la science et la socialisation. Des ateliers seront organisés pendant la semaine précédant le programme scientifique, du 2 au 6 août. Le programme scientifique s'étendra sur cinq jours et comprendra des plénières, des symposiums, des tables rondes, des articles soumis et des posters virtuels. En outre, nous planifions méticuleusement les activités de réseautage, de sensibilisation et les activités sociales afin de donner à chacun une chance de rencontrer de nouveaux et d'anciens amis.

Une conférence virtuelle nous permet d'être plus créatifs et plus ouverts. Nous avons adapté de nombreuses traditions très appréciées des réunions précédentes et avons soigneusement sélectionné des formats nouveaux et innovants pour promouvoir l'engagement dans un cadre virtuel. Comme par le passé, nous faisons de notre mieux pour maintenir les coûts au plus bas et créer la plus grande valeur pour les participants. L'année dernière, grâce à une généreuse subvention, nous avons pu maintenir des frais d'inscription peu élevés. Nous avons été ravis que cela se traduise par un nombre impressionnant de nouveaux participants venus du monde entier. Nos sociétés se sont engagées à éliminer ce type d'obstacles à la participation. Pour la toute première fois, l'organisation de la réunion de cette année comprend un comité consultatif sur l'accessibilité.

En tant que sociétés américaines et canadiennes, nous espérons renforcer la tradition dynamique d'organiser une réunion qui rassemble le meilleur de l'ornithologie professionnelle. C'est avec enthousiasme que nous lançons cette invitation à la communauté mondiale des ornithologues, en particulier ceux du Mexique, d'Amérique centrale et du Sud, et des Caraïbes. Nous espérons que vous vous joindrez à nous pour nouer des liens avec d'autres ornithologues professionnels et amateurs, des étudiants, des éducateurs, des fonctionnaires et des responsables politiques, des chercheurs et des vendeurs. Restez donc à l'écoute pour plus de détails alors que nous poursuivons la planification de ce qui sera, nous en sommes sûrs, une réunion phénoménale. Nous publierons des mises à jour ici et sur les médias sociaux, où vous pourrez suivre nos annonces en utilisant le hashtag #2021AOS_SCO.

Nous nous réjouissons de vous voir sur nos écrans, même si nous continuons à espérer nous ne retrouver en personne en 2022. Veuillez vous inscrire pour participer et soumettre un résumé pour présenter votre travail. Étudiants : ne manquez pas l'occasion de compétitionner pour les prestigieux prix de présentation de la AOS et de la SCO-SCO ouverts aux membres étudiants !

Nous vous remercions,

Les coprésidents du comité de coordination de la réunion #AOS_SCO 2021
Sushma Reddy, Ph.D. Professeur associé et Curatrice, Université du Minnesota
Letícia Soares, Ph.D. Associée postdoctorale, Université de Western Ontario

SCO-SOC Council Nominations Nominations au Conseil SCO-SOC

Call for SCO-SOC Council Nominations

The SCO-SOC is soliciting invitations from members interested in serving on Council. Members of council serve for two years and serve up to two consecutive terms. Becoming a member of council is a wonderful way to support the SCO-SOC and help add your voice in shaping the direction of Canadian ornithology. The SCO-SOC is particularly interested in diversifying our council, so we strongly encourage applications from people that identify as being from underrepresented communities. If you are interested in becoming a member of council, please submit a short paragraph about yourself, including why you would like to be on the SCO-SOC council and what you hope to bring to the position, along with a photo. These will be published in *Picoides* prior to the election. Please send your applications and any questions or concerns to Matt Reudink at mreudink@tru.ca by **July 1, 2021**.

Appel de Nominations au Conseil SCO-SOC

La SCO-SOC lance un appel de candidatures pour les membres qui seraient intéressé.e.s à siéger au Conseil. Les membres du conseil siègent pendant deux ans et peuvent effectuer jusqu'à deux mandats consécutifs. Devenir membre du conseil est une merveilleuse façon de soutenir la SCO-SOC et d'ajouter votre voix à l'orientation de l'ornithologie canadienne. La SCO-SOC est particulièrement intéressée à diversifier son conseil, c'est pourquoi nous encourageons fortement les candidatures de personnes qui s'identifient comme appartenant à des communautés sous-représentées. Si vous êtes intéressé.e à devenir membre du conseil, veuillez soumettre un court paragraphe sur vous-même, incluant les raisons pour lesquelles vous aimeriez faire partie du conseil de la SCO-SOC et ce que vous espérez apporter à ce poste, ainsi qu'une photo. Ces documents seront publiés dans *Picoides* avant l'élection. Veuillez envoyer vos candidatures et toutes questions ou préoccupations à Matt Reudink à l'adresse mreudink@tru.ca avant le **1er juillet 2021**.



Society of Canadian Ornithologists
Société des ornithologistes du Canada

2021 Student Research Award Recipients

Récipiendaires des bourses de recherche étudiante 2021

Kiirsti Owen – Taverner Award // Prix Taverner

Kiirsti Owen, from the University of New Brunswick and Acadia University, won a Taverner Award for her work investigating how the Acadian subspecies of Nelson's Sparrows (*Ammodramus nelsoni subvirgatus*) uses human-created landscapes during the breeding season.

*Kiirsti Owen, de l'Université du Nouveau-Brunswick et de Acadia University, a remporté un prix Taverner pour ses travaux visant à étudier comment la sous-espèce acadienne du bruant de Nelson (*Ammodramus nelsoni subvirgatus*) utilise des habitats créés par l'homme pendant la saison de reproduction."*



Kiirsti Owen. Photo courtesy of Kiirsti Owen.

Don-Jean Léandri-Breton – Fred Cooke Award // Prix Fred Cooke

My institution: McGill University

My program: Natural Resource Sciences - Wildlife Biology

My research: Carry-over effects on winter movement behaviour mediated by the breeding energy investment and the stress physiology in a sub-Arctic seabird, the black-legged kittiwake (*Rissa tridactyla*)

Mon institution : Université McGill

Mon programme : Sciences des ressources naturelles - Biologie de la faune

Mes recherches : Effets de transfert sur le comportement de déplacement hivernal médiés par l'investissement énergétique de reproduction et la physiologie du stress chez un oiseau marin subarctique, la mouette tridactyle ([Rissa tridactyla](#)).



Don-Jean Léandri-Breton. Photo courtesy of Don-Jean Léandri-Breton.

We will have additional details on the other 2021 Student Research Award recipients and the 2021 Early Career Research Awards recipients in the next issue.

Nous aurons plus de détails sur les autres lauréats des bourses de recherche pour étudiants 2021 et les lauréats des bourses de recherche en début de carrière 2021 dans le prochain numéro.

Feature Articles and Reports

A Naturalist's and an Oologist's Observations of Cowbird Hosts in the Cypress Hills, Saskatchewan¹

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Introduction

The Cypress Hills and surrounding region of southeastern Alberta and southwestern Saskatchewan attracted oologists, naturalists and ornithologists during the early decades of the 1900s. Most of the collecting trips lasted only a few days or weeks, and among the field workers were Arthur Cleveland Bent, Frank M. Chapman, Louis A. Fuertes, John Macoun, James A. Munro, J. Dewey Soper, William Spreadborough, and Percy A. Taverner, to name a few. Their observations and collections contributed information used in treatises on the birds of the region. Mitchell's *Birds of Saskatchewan* (1924) was followed by Rand's *Birds of Southern Alberta* (1948) and Godfrey's *Birds of the Cypress Hills and Flotten Lake Regions, Saskatchewan* (1950). Observations of Brown-headed Cowbirds (*Molothrus ater*) and host identities made incidentally by many of the early workers will be highlighted in a later instalment of this series. Laurence B. Potter and Solomon J. Darcus observed birds and collected eggs of several species, including host species, during several decades and several months spent in the region, respectively. Their contributions are the focus of this instalment and, as in previous instalments in this series, and in ones that follow, so as not to forget the contributions of early naturalists, their observations are placed in the context of current

knowledge and ongoing research on the interactions between avian brood parasites and their hosts.

Laurence Bedford Potter

Potter was one of the four pioneer rancher-naturalists of the Cypress Hills area in the early decades of the 20th century, arriving in the area in 1901. He became well known through his notes on birds published in newspapers and journals of the day, and for his concern for the rapidly changing landscape around him (see Wetherell 2016). Potter's life-time contributions to the natural history and ornithology of the region, and his family history, have been thoroughly chronicled by Soper (1944), Houston and Houston (1979) and Adamsom (2017). Potter worked primarily from a base at Gower Ranch near Knollys Siding, about 8 km west of Eastend, on the southeastern portion of the Cypress Hills (Figure 1).

An early egg-manipulation experiment: Cowbird egg versus shrike

Potter corresponded widely with ornithologists of the day, and at the behest of American ornithologist, Herbert Friedmann, who pioneered the study of interactions between cowbirds and their hosts, conducted an early experiment to record the response of a host species to the



Laurence B. Potter, painting by Julia Adamson. Photo reference, courtesy of Eastend Historical Museum.

introduction of a cowbird egg to its nest, a means of simulating natural parasitism. Among the many birds about which Potter wrote was the Loggerhead Shrike (*Lanius ludovicianus*), which he correctly noted is one of the few small passerines rarely parasitized by the Brown-headed Cowbird.

¹ Third in a series on historic observations of cowbird parasitism on the Canadian Prairies.

Friedmann was immersed in the lengthy process of updating his catalogue of cowbird hosts, which was eventually published in 1963, and had encouraged Potter to test the suitability of the Loggerhead Shrike as a potential foster-parent of the cowbird. On June 8, 1938, Potter found a shrike's nest with six eggs and, later, the nest of a Brewer's Blackbird (*Euphagus cyanocephalus*) that contained five host eggs and one cowbird egg (Potter 1939). He removed the slightly incubated cowbird's egg and placed it in the shrike's nest, from which he removed "one of the six to make the number as before." He did this to test whether removal, or ejection, of cowbird eggs by shrikes explains the lack of parasitism recorded on this species. By ejecting a cowbird egg before an observer discovers a nest, or between inspections, parasitism on the shrike, and other potential host species, may be overlooked. Potter's experiment was one of the first to simulate cowbird parasitism, a technique that has become the hallmark of experimental studies of the responses of known and potential host species to parasitism by avian brood parasites worldwide (e.g., Rothstein 1975, Davies and Brooke 1988).

The shrikes had accepted the cowbird's egg and within six days following its introduction into the shrike's nest, the cowbird hatched, followed several days later by the shrikes, which soon perished. Potter assumed that the shrikes fed the newly fledged cowbird, "which was very wild", but its eventual fate was not determined. He suggested another possible reason for the dearth of records of cowbird parasitism on the Loggerhead Shrike, noting that "It would seem, then, that if a cowbird could steal unobserved into a shrike's nest and lay her egg, it would be accepted; but the vigilance and aggressive nature of the shrikes would prevent this happening. Potter's thinking was intuitive, as the nature of this "frontline defence" and its effectiveness is currently under study.

To that end, three records of cowbird parasitism on the Loggerhead Shrike in Iowa (De Geus and Best 1991) are noteworthy, and remain the only documented cases of cowbird parasitism on this species, and in the family. The authors monitored 261 shrike nests initiated by 110 pairs in southwestern Iowa, in 1987-1989. The first record was of a cowbird egg laid in an empty nest, five days after the shrikes' original five-egg clutch was depredated. A cowbird fledged from the second nest several days before the only shrike chick fledged. At the



Brewer's Blackbird nest and clutch of five host eggs and one Brown-headed Cowbird egg (top row, middle), Delta Marsh, Manitoba. Photo credit: S.G. Sealy.

third nest, a single shrike fledged, whereas the cowbird egg did not hatch. The authors referred to the possibility of additional parasitism on this species based on observations of the shrike's aggressiveness towards cowbirds near their nests, behaviour to which Potter had alluded and which suggests recognition of the threat cowbirds pose. Many species recognize cowbirds as a threat, and the level of aggression directed towards the cowbird is positively correlated with the frequency of parasitism (Robertson and Norman 1976). Subsequent tests on additional acceptor and rejector species naturally parasitized at different frequencies have generally supported this (Sealy et al. 1998), but tests of Loggerhead Shrike nests are required to confirm whether this species recognizes the cowbird specifically as a threat.

It became apparent years later that Potter's reported acceptance of the cowbird's egg at a Loggerhead Shrike's nest was unusual. Simulated natural parasitism revealed that shrikes eject the similarly looking cowbird eggs (Figure 2) from their nests, despite infrequent natural parasitism (Rothstein 1982, 2001). In one of

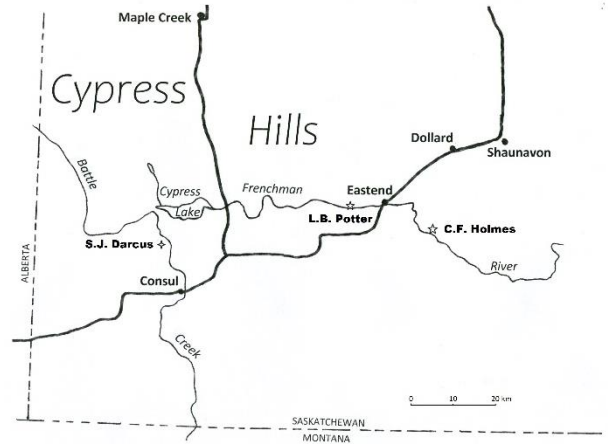


Figure 1. Locations of L.B. Potter's ranch, along the Frenchman River east of Eastend, C.F. Holmes's ranch, southwest of Dollard, and the ranch out of which S.J. Darcus worked, west of Cypress Lake.

circumpolar Northern Shrike (*L. excubitor*), which is a common host of cuckoos in the Old World, ejects foreign eggs (Nakamura 1990, Moksnes and Røskaft 1995), and is a likely sister species of the Loggerhead Shrike, implying that recognition was retained through a speciation event.

Host records

Yellow-breasted Chat. Although not the first to document the occurrence of the Yellow-breasted Chat (*Icteria virens*) in Saskatchewan, Potter's observation of cowbird parasitism on this species is shrouded in mystery. The first record of occurrence of the Yellow-breasted Chat in Saskatchewan was a specimen taken on June 4, 1921, and included at least one other individual seen or heard in the days following, on the shore of Cypress Lake, about 40 km west of Eastend (Taverner 1927). Taverner's records of the chat in Saskatchewan were made during a field expedition he organized that began in southwestern Saskatchewan in the summer of 1921, assisted by Hamilton Mack Laing and D. Alan Sampson. Leaving Cypress Lake (Figure 3), the group made its way to Potter's ranch near Eastend where they set up camp and continued to collect birds for the National Museum (Cranmer-Byng 1996, p. 117). Potter remained friends with Laing and corresponded with Taverner. Writing to Taverner on July 10, 1922, Potter noted, "... [the discovery of] a pair of Chats [on July 7, 1922], which are most certainly nesting just outside my east fence" (Mitchell 1924, also see Potter 1923). He heard individuals there again in 1924 and 1925, and in 1926 recorded possibly four pairs of chats between Gower Ranch and Eastend (Potter 1927). These records convinced Taverner (1927) that his observations were "... probably more than accidental stragglers." Potter discovered a nest in 1935 that was reported as the first nest of this species for Saskatchewan, but apparently another nest was found about two weeks earlier, apparently unbeknownst to Potter, which clouded the issue (see below).

Potter (1935) discovered the nest on June 21, 1935, which contained one chat egg. Well-informed, he realized this species is prone to desert nests when disturbed, particularly when the clutch is incomplete. He immediately left the area, but returned "eight days later", on June 29, when there were three "well-incubated" eggs of the host and one of the cowbird. Accompanied this time by Charles F. Holmes,

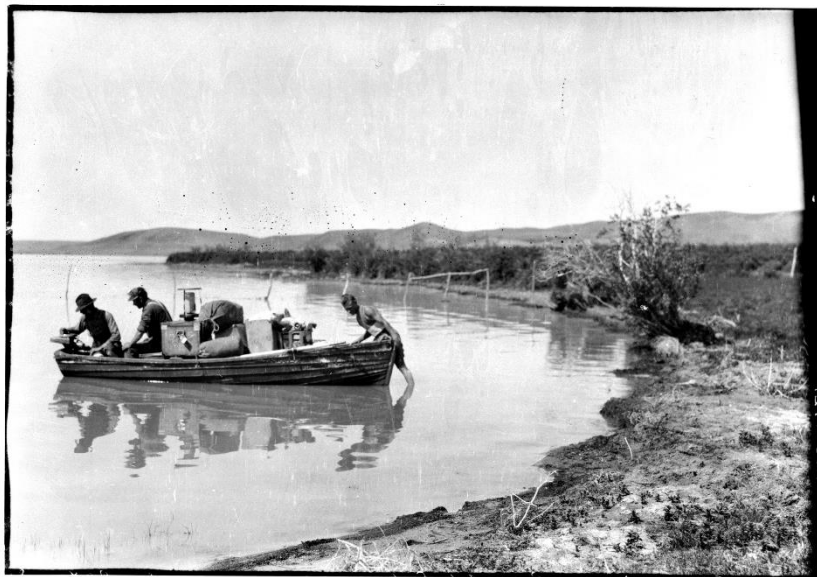


Figure 3. Departing camp at Cypress Lake, Saskatchewan, summer 1921. Left to right: Percy A. Taverner, Hamilton Mack Laing and D. Alan Sampson. Image g-03644, courtesy of the Royal British Columbia Museum.



Figure 2. Loggerhead Shrike eggs (four) side by side with Brown-headed Cowbird eggs (two). Eggs are from two different sets, both collected in Saskatchewan: WFVZ E14321, June 2, 1898 (shrike); WFVZ E13759, June 3, 1896 (cowbird). Photo credit: Mimi Damryk, courtesy of the Western Foundation of Vertebrate Zoology.

another rancher-naturalist of the Cypress Hills area (Houston and Houston 1979), and his son, Paul, the clutch and adult female were collected, thus confirming this as a record of nesting and of cowbird parasitism on the Yellow-breasted Chat in Saskatchewan. With this discovery, Potter (1935) claimed, "So far as can be ascertained, this is the first recorded nesting of the Yellow-breasted Chat anywhere in the three prairie provinces."

Potter (1935) did not mention the disposition of this egg-set or the adult female, in this or a subsequent paper, and it remains unclear the fate of these specimens. He submitted other specimens and observations of rare species to the Provincial Museum in Regina (e.g., Mitchell 1924, Potter 1928), encouraged by H. Hedley Mitchell, taxidermist and naturalist at the Museum from 1913 to 1933 (Nelson and Houston 2015). I contacted the Royal Saskatchewan Museum to determine whether this egg-set and specimen of Yellow-breasted Chat were eventually

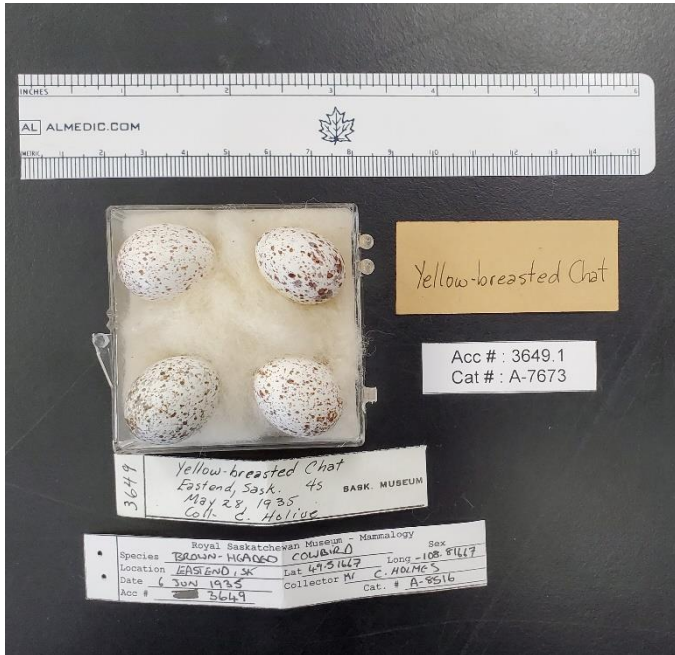


Figure 4. Set of Yellow-breasted Chat eggs (RSKM_BIRD_A-7673 [catalogue]; #3649.1 [accession]) with three host eggs host and one of the Brown-headed Cowbird (lower left), near Eastend, Saskatchewan. On one label, the collector's name was recorded, in error, as C. "Holive" (Charles F. Holmes) but correct on the other label. The collection date is confusing: June 6, 1935 for the cowbird egg, but recorded as May 28 for the chat eggs, but to what the latter date refers is not known (see text). Photo credit: Danae Frier, courtesy of the Royal Saskatchewan Museum.

deposited there. They apparently were not (D. Frier, *e-mail*, June 2, 2020), but on the label of another egg-set of this species registered in that collection, taken about 2 weeks earlier, C.F. Holmes was named as collector. The whereabouts of Potter's egg-set, therefore, is unknown; it may not have been deposited in a museum collection. Looking farther afield, I contacted the Royal Alberta Museum, as most of Holmes's collection was deposited there in 1980 (Houston and Houston 2012), because Potter's egg-set and specimen may have been submitted with Holmes's collection, but that was not the case (J. Hudon, *e-mail*, August 6, 2020). I received a similar response from the Canadian Museum of Nature (G. Rand, *e-mail*, August 3, 2020), to which Potter and Holmes sent specimens of rare species. A broader, online search among egg collections did not turn up Potter's egg-set.

A set of the Yellow-breasted Chat eggs allegedly was taken by Holmes in the Frenchman River valley south of the Gergovia post office, just west of Eastend, on June 6, 1935. In *Birds of Saskatchewan*, information pertaining to this nest was sourced from the Provincial Museum's annual report for 1936, which was submitted by Fred Bradshaw, director of the Provincial Museum through 1935 (Dunk 1936, p. 4; also see Wapple and Sielski 2019). The meagre entry in the report read: "Yellow-breasted Chat - a female with nest and two eggs was taken at Eastend on June 6th [1935] by Mr. Chas. F. Homes. (Our first nesting record.) The nest also contained one Cowbird egg." This is the only egg-set of this species collected in 1935 that was catalogued in the Provincial Museum (now Royal Saskatchewan Museum, as RSKM_BIRD_A-7673), and although Holmes was named as

collector on the data slip, the set contains three chat eggs, not two as indicated in the report, plus the single cowbird egg (Figure 4). Were two chat nests discovered in 1935?

Curiously, neither Potter (1935) nor Soper (1942), who assessed the chat's status in Saskatchewan, referred to the earlier nest. It is puzzling to think they were not aware of it, particularly in Potter's case, as Holmes accompanied him when the nest was collected, or, were the two nests one and the same? Was a clerical error made in the original report (Dunk 1936), with the contents given as two instead of three chat eggs (both "nests" contained one cowbird egg)? In addition, the Museum's accession catalogue lists egg-set A-7673 with three chat eggs and one cowbird egg (Figure 5), as Potter (1935) reported, but the date of collection was given by Bradshaw as June 6, 1935 (Dunk 1936). The date inscribed on one of the labels, May 28, 1935, also must be in error, as this clutch probably would have been initiated on June 5, if the incomplete clutch of two eggs was collected the following day, or June 4, if it contained three eggs; either way this was an early date of clutch-initiation for this generally late-nesting species. Regardless, egg-set RSM_A-7673 provided confirmation of cowbird parasitism on the Yellow-breasted Chat on the Canadian Prairies. Two additional cases of parasitism on this species have since

3648	Long-tailed Chat	Nest	C. Holmes	Eastend
3649	" " "	4 eggs	"	"
"	C. Holmes	Eastend	June 6/35	F. taken, badly shot; nest contained 3 eggs and 1 cowbird's egg
"	5.00	"	"	"

been recorded in Saskatchewan: Fort Qu'Appelle, June 27, 1953 (Callin 1980) and Saskatchewan River valley south of Easton, June 12, 1961 (Wapple and Sielski 2019). Callin's nest contained four chat eggs and one cowbird egg, which was removed. On July 6, the nest was active despite the

Figure 5. Entries in ledger for Yellow-breasted Chat egg-set (RSKM_BIRDA-7673 [catalogue]; #3649 (accession)). Top two rows (left-hand page of ledger): four eggs collected by Charles Holmes, June 6, 1935. Bottom rows (right-hand page of ledger): three chat eggs plus one cowbird egg, C. Holmes, June 6, 1935. Courtesy of the Royal Saskatchewan Museum.

abrupt reduction in clutch volume with the removal of the cowbird egg, and contained three young chats and an unhatched host egg. In Alberta, a nest with three chat eggs and two cowbird eggs was recorded at Medicine Hat on June 23, 1962 (Salt 1973).

Listing Holmes's notable bird sightings and specimens, Houston (2012) acknowledged two parasitized chat nests taken in 1935, but Houston and Houston (1979) previously noted only Potter's collected in late June. This suggests knowledge of Holmes's original nest reached them much later. In this species' account in *Birds of Saskatchewan*, only the earlier chat's nest was noted, not Potter's, but two additional nests Potter found in 1937 were mentioned (Wapple and Sielski 2019, see also Soper 1942). In his account of the birds of Cypress Hills, Godfrey (1950) credited Soper (1942) who "... [gave] an excellent history of this species in Saskatchewan," but Soper referred only to Potter's 1935 nest, not an earlier one apparently found that year. Adding to the confusion, Friedmann (1963) cited only Potter's (1935) record of parasitism for Saskatchewan, without details, in an early update of cowbird hosts.

Friedmann (1929, pp. 249-250) commented, "The eggs of the Chat are very similar to those of the Cowbird, but nevertheless, the nest is almost invariably deserted if a parasitic egg is laid in it. This is doubtless due to the extreme shyness and nervousness of the Chat, rather than to any superior ability to distinguish the strange eggs from those of its own ... Nevertheless, on at least two occasions Chats have hatched and reared Cowbirds, but these are exceptional cases." Friedmann (1929) was justifiably cautious in his explanation of nest desertion. Results of controlled experiments on other host species have shown it is not the cowbird's egg in the nest that elicits nest desertion, but rather a stimulus such as detection of an intruder near the nest, cowbird or otherwise, or egg removal by a cowbird or a predator (Hill and Sealy 1994, Guigueno and Sealy 2011). Species that eject the cowbird's egg have been confirmed experimentally to discriminate between it and their own eggs, and target the different egg for removal (Sealy and Underwood 2012).

In a study in Missouri, Yellow-breasted Chats ejected immaculate "eggs", i.e., model eggs painted white, thus differing from the spotted eggs of the cowbird and the chat's own eggs; however, the similar sizes and patterns of real eggs (Figure 2) apparently rendered ejection of cowbird eggs infrequent (Burhans and Freeman 1997). In southern Arizona, two nests parasitized by both Brown-headed Cowbird and the immaculate bluish-green eggs laid by the Bronzed Cowbird (*M. aeneus*) suggest but do not confirm the chat as an acceptor, because outcomes of these nests were not recorded (Friedmann et al. 1977). In the southern Okanagan Valley, British Columbia, single cowbird eggs laid in the first and second nests of the season, each containing unusual clutches of white eggs laid by a Yellow-breasted Chat, were accepted, and both cowbirds and chats fledged (McKibbin and Bishop 2008).

Red-winged Blackbird. In 1931, Potter (1939) recorded two cases of cowbird parasitism on the Red-winged Blackbird (*Agelaius phoeniceus*). One cowbird fledged from one nest, and two cowbirds were reared at the other nest. He wondered "How was it that the vigilance and extremely aggressive nature of the Red-winged Blackbirds did not suffice to keep the cowbirds out, as the [Loggerhead] Shrikes appear to do?" In the case of the Red-winged Blackbird, the answer may lie in the hour at which cowbirds parasitize nests. Brown-headed Cowbirds take just a few seconds to lay their eggs (Sealy et al. 1995), in the minutes before sunrise (Scott 1991), when adults of many potential host species, including the Red-winged Blackbird, do not closely guard nests or roost in them overnight during the laying period (Neudorf and Sealy 1994). Despite reacting aggressively towards the observer, or other potential intruders at the nest during the day, the unguarded nest in the dim light of sunrise is vulnerable to parasitism. Recalling Potter's observations of shrikes reacting aggressively to the presence of cowbirds, which suggest recognition, a controlled experiment is required to determine whether the response is to a generalized threat, cowbird or predator, or is directed specifically toward the cowbird (Neudorf and Sealy 1992). Observations at shrike nests at sunrise during the laying period will determine whether nests are similarly vulnerable, whether shrikes guard them at that time or roost in them overnight; daytime aggression (Figure 6) may thwart cowbirds bent on removing an egg or attempts on their nests by predators.

Brewer's Blackbird. Potter's only mention of parasitism on Brewer's Blackbird was the nest from which he removed the cowbird egg and placed into the shrike's nest; Darcus recorded parasitism in the region 18 years earlier (see below).



Figure 6. Loggerhead Shrike perched within 1 m of a human intruder near a nest that contained eight eggs in a shelterbelt south of Kindersley, Saskatchewan. Photo credit: S.G. Sealy.

A lasting legacy

Many of Potter's contributions were first records for Saskatchewan and Canada (Houston and Houston 1979), all made when time permitted during the busy life of a cattle rancher. Potter published nine Christmas bird counts between 1919 and 1935 and recorded details of his observations in 29 other articles and notes: 19 in *Condor*, eight in *Canadian Field-Naturalist*, one in *Auk* and one in *Blue Jay* (citations in Houston and Houston 1979). He attended the first Canadian meeting of the American Ornithologists' Union in Ottawa, in 1926 (fourth from left in a group photograph of Canadian attendees, Cranmer-Byng 1996, p. 135). In addition to being highlighted extensively in early treatises of the birds of the region and of Saskatchewan, Potter's work was cited by authors of several accounts in the recently published *Birds of Saskatchewan* (Smith et al. 2019). Godfrey (1950) described Potter as a "discerning observer" who documented many changes in the status of the local bird populations during 40 years of residence along the Frenchman River. Indeed, Potter (1930) became dismayed as he noted the decline in bird populations as settlement, agriculture and ranching extended their reach into the native grasslands of the southwestern prairies, and that was nearly 100 years ago!

A final tribute came from J. Dewy Soper, who had travelled widely across the southern Prairies and was a frequent visitor to the Potter ranch. Soper (1944) praised the self-taught naturalist: "[i]n 1906 he began to methodically write up his observations on the local avifauna, a habit which he continued faithfully thereafter. His journals are replete with interest and occupy a unique place in the annals of Saskatchewan ornithology ... In the end he was generally regarded as an authority on the birds of southwestern Saskatchewan where he established many notable 'firsts' for the provincial bird list."

Solomon John Darcus

Darcus's contributions as an oologist are not as well known. He experienced the birdlife of the Cypress Hills during a break in a protracted move from New Brunswick to take up permanent residence in British Columbia, first on the west coast of Vancouver Island, then eventually settling in the southern Okanagan Valley. On his way, his year in the hills spent working on his sister and brother-in-law's ranch in the northern reaches of the hills provided an opportunity to see new birds amid landscapes very different from what he had experienced and what is found today. His field notes and egg-sets collected reveal a work ethic characteristic of pioneer naturalists on the Prairies, whose activities were carried out when time could be spared from heavy workloads.

Darcus was born in Killiney, Ireland in 1886 and like many naturalists of the day developed an interest in birds at an early age. His practice of keeping notes on his observations continued in the ensuing years. He emigrated to Canada in the early 1900s and enlisted with the Canadian Expeditionary Force in 1914, serving in France during WWI. He observed birds wherever possible. His diary revealed he sailed from Liverpool on June 26, 1919 and arrived in Halifax on July 4, where he was discharged from the army. He left the following day for his home in Fredericton, New Brunswick, to visit family and friends. On July 12, 1919, he boarded a train destined for his sister May (née Darcus) and brother-in-law, Ernest W. Allen's homestead in the southern reaches of the Cypress Hills, along Battle Creek west of Cypress Lake (Figure 1). He arrived at Maple Creek on July 16 and his final destination on July 20. He resided there for a little more than one year, observing birds throughout the winter and during the following spring searched for nests and collected eggs, many sets of which became permanently held in museums. By the end of October 1920, he was back in Fredericton where he spent the next several months before moving to British Columbia. Most egg-sets were taken in British Columbia over several decades, but a few were collected during periodic visits to New Brunswick between 1910 and 1921. Information that accompanies a set of Song Sparrow eggs (*Melospiza melodia*) collected near Fredericton in 1921 (Figure 7) showed his current address as Penticton, British Columbia.



Solomon John Darcus, in hiking gear at Canyon Ranch, southern Okanagan Valley, 1926. Courtesy of Penticton Museum & Archives, number 3243; photographer unknown.

Little is known of Darcus's work in the Cypress Hills. He did not publish observations of birds or details of eggs collected, as he did following his later work on Haida Gwaii (see below). In the first comprehensive treatment of the birds of the Cypress Hills, Godfrey (1950) noted more than a dozen field parties had collected birds in the hills and on the plains to the north between 1890 and the 1930s, but Darcus's work was not mentioned, despite having spent more than a year in the area. Darcus's field notes and egg-sets were held privately before observations were eventually made known through correspondence with naturalists and ornithologists, and in newspaper reports. Included were records of parasitism from Cypress Hills and British Columbia communicated to Herbert Friedmann, author of *The Cowbirds: A Study in the Biology of Social Parasitism* (1929), for inclusion in catalogues that updated new information on cowbird hosts. Egg-sets collected in the Cypress Hills (Figure 8) and photographs provide dates of collection and notes on habitat, as well as a chronology of his activities. These were critical sources because some of the crucial months of the breeding season of 1920 are missing from Darcus's otherwise detailed field notes, a digital copy of which was made available by his family. The notes also provided a sense of the conditions under which Darcus worked.

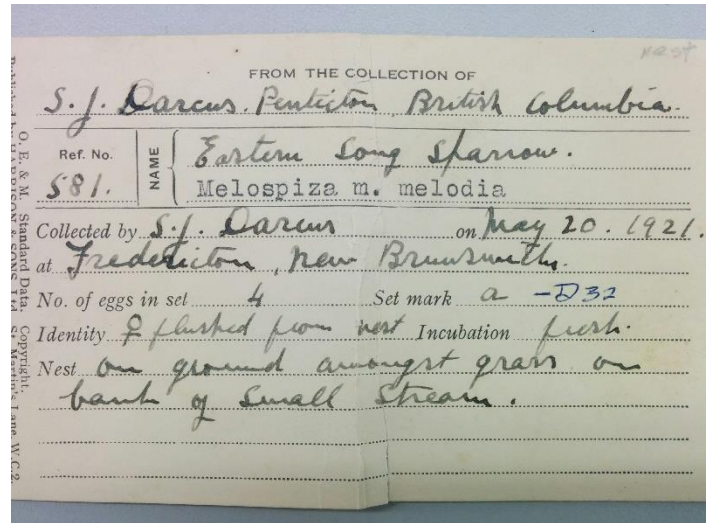


Figure 7. Data slip penned by S.J. Darcus for set of Song Sparrow eggs catalogued in the Canadian Museum of Nature (CMNAV E5601) taken near Fredericton, New Brunswick, May 20, 1921; this followed Darcus's time in the Cypress Hills, Saskatchewan. Note address given as Penticton, British Columbia, where he eventually assumed residence. Photo credit: Gregory Rand.

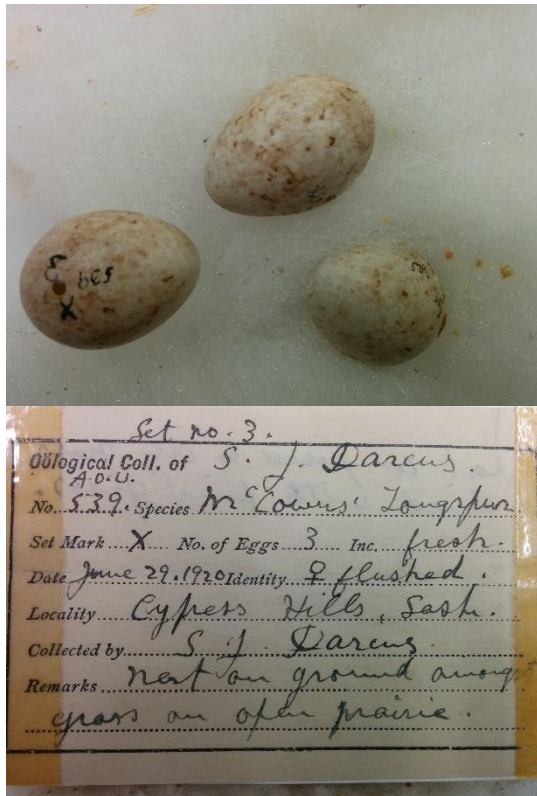


Figure 8. Unparasitized set of Thick-billed (formerly McCown's) Longspur eggs (CMNAV E5591) collected by S.J. Darcus in the Cypress Hills, Saskatchewan, June 29, 1920. Photo credit: Gregory Rand.

Host records

Darcus sent 12 host records for inclusion in Friedmann's (1934, 1963) updated lists of hosts parasitized by the Brown-headed Cowbird: three records were from British Columbia, five from Saskatchewan and four from New Brunswick (Table 1). None of these records was traced to egg-sets catalogued in museums. Single records of parasitism on Bullock's Oriole, recorded in the Okanagan Valley, and Brewer's Blackbird in the Cypress Hills, are represented by egg-sets (see below, Table 1) but neither was recorded by Friedmann. I derived dates of collection of some host records in Table 1 from Friedmann (1934, 1963) and from Darcus's field notes and data-slips that accompanied egg-sets.

Searching for information to augment Darcus's cowbird host records revealed that long ago, C. Stuart Houston contacted Friedmann with the same intent, to obtain clarification of four host records from Saskatchewan. At the time, Houston (1966) was preparing a review of Friedmann's second comprehensive compilation of cowbird hosts, *Host Relations of the Parasitic Cowbirds*, published in 1963. Friedmann reported records from Saskatchewan of Eastern Kingbird (*Tyrannus tyrannus*), American Goldfinch (*Spinus trichas*), Common Yellowthroat (*Geothlypis trichas*), and Rufous-sided Towhee (*Pipilo erythrophthalmus*) in an updated catalogue but the information given for some records was inconclusive. To Houston's inquiry of October 11, 1965, Friedmann responded (October 19, 1965) that "I no longer have the older files which I had to reduce very greatly when moving from Washington, D.C., to Los Angeles early in 1961, and I am afraid that it is impossible for me at this time to attempt to trace some of them. However, at least two of the records (eastern kingbird and American goldfinch) were sent to me in letters by S.J. Darcus of Penticton and F.

Bradshaw of the Saskatchewan Museum. It may be that the other two records also were sent to me by one or the other of these two men.” Correspondence and additional details were not uncovered.

Table 1. Egg-sets and other records of cowbird parasitism obtained by S.J. Darcus in British Columbia, Saskatchewan and New Brunswick.

Species	Provenance and notes ^{1,2}
British Columbia ³	
Bullock’s Oriole (<i>Icterus bullockii</i>)	RAM Z97.33.963; Z07.33.999: June 12, 1943; 3 h + 1 c (Figure 4); not recorded in Friedmann (1963) or Cannings et al. (1987)
Yellow Warbler (<i>Setophaga petechia</i>)	No date; recorded as a host in Friedmann (1934)
Chipping Sparrow (<i>Spizella passerina</i>)	No date; recorded in Friedmann (1934)
MacGillivray’s Warbler (<i>Geothlypis tolmiei</i>)	July 3, 1928; 1 h + 2 c (Friedmann (1934); the only record of parasitism in British Columbia at the time (Cannings et al. 1987)
Saskatchewan ³	
Eastern Kingbird (<i>Tyrannus tyrannus</i>)	1920 and “Saskatchewan”, inferred from letter, H. Friedmann to C.S. Houston (October 19, 1965; see text, also Friedmann 1934)
Horned Lark (<i>Eremophila alpestris</i>)	June 8, 1920; 3 h + 1 c; reported to Friedmann (1934), who identified the host as subspecies <i>leucolaema</i> (Desert Horned Lark), but later as <i>enthymia</i> , without explanation (Friedmann 1963; also see Houston 1966)
Vesper Sparrow (<i>Pooecetes gramineus</i>)	June 1920; parasitized but nest contents unknown (Friedmann 1963)
Chestnut-collared Longspur (<i>Calcarius ornatus</i>)	June 1, 1920; parasitized but nest contents unknown (Friedmann 1963); not recorded in field notes ⁴
McCown’s (Thick-billed) Longspur (<i>Rhynchophanes mccownii</i>)	June 7, 1920 ⁵ ; parasitized but nest contents unknown (recorded by Friedmann 1963)
Brewer’s Blackbird (<i>Euphagus cyanocephalus</i>)	RBCM E178A, E179B: June 26, 1920; 2 h + 2 c (Figure 3); not recorded in Friedmann (1934)
New Brunswick ³	
Trail’s (Alder) Flycatcher (<i>Empidonax traillii</i>)	June 14, 1912; 4 h + 1 c (Friedmann 1934); not recorded in field notes
Red-eyed Vireo (<i>Vireo olivaceus</i>)	No date, but recorded in Friedmann (1934)
Common Yellowthroat (<i>Geothlypis trichas</i>)	No date, but recorded in Friedmann (1934)
Canada Warbler (<i>Cardellina canadensis</i>)	June 10, 1910 (Friedmann 1934); not recorded in field notes

¹ Canadian Museum of Nature (CMNAV), Royal Alberta Museum (RAM), Royal British Columbia Museum (RBCM), Western Foundation for Vertebrate Zoology (WFVZ).

² h (= host eggs) + c = (cowbird egg(s)).

³ British Columbia: all egg-sets and host records from Penticton; Saskatchewan: Cypress Hills; and New Brunswick: near Fredericton.

⁴ S.J. Darcus field notes, Cypress Hills, Saskatchewan, 1920.

⁵ Darcus’s field notes are missing for these dates.

Brewer’s Blackbird. Darcus found at least two Brewer’s Blackbird nests, the first containing six eggs on May 28 (if collected, egg-set not located), and a nest with two blackbird eggs plus two cowbird eggs, deposited in the Royal British Columbia Museum (RBCM E178A, E179B) taken along Battle Creek on June 26, 1920 (Figure 9). Darcus described this creek, “to the south of the Cypress [Hills] is quite a large stream with marshes in places.” His field notes for the latter date were missing, but the record was confirmed from the inscription that accompanied the photograph of the nest in a family album and data associated with the egg-set. Records of parasitism on Brewer’s

Blackbird on the Canadian Prairies emerged slowly, beginning with Darcus's and Potter's, but eventually observations confirmed this species as an important cowbird host on the Canadian Prairies.

Potter's record of parasitism on Brewer's Blackbird was included in the first major update of hosts of the Brown-headed Cowbird (Friedmann 1963). Darcus's earlier record, however, was not communicated to Friedmann, although several records of parasitism on other species were sent to him for inclusion in an earlier catalogue update (Friedmann 1934). Blakiston (1863) observed cowbirds and collected two unparasitized clutches of Brewer's Blackbird near Fort Carlton, but Raine (1892, p. 159), surprisingly, did not observe this species, writing "I did not find the nest of Brewer's

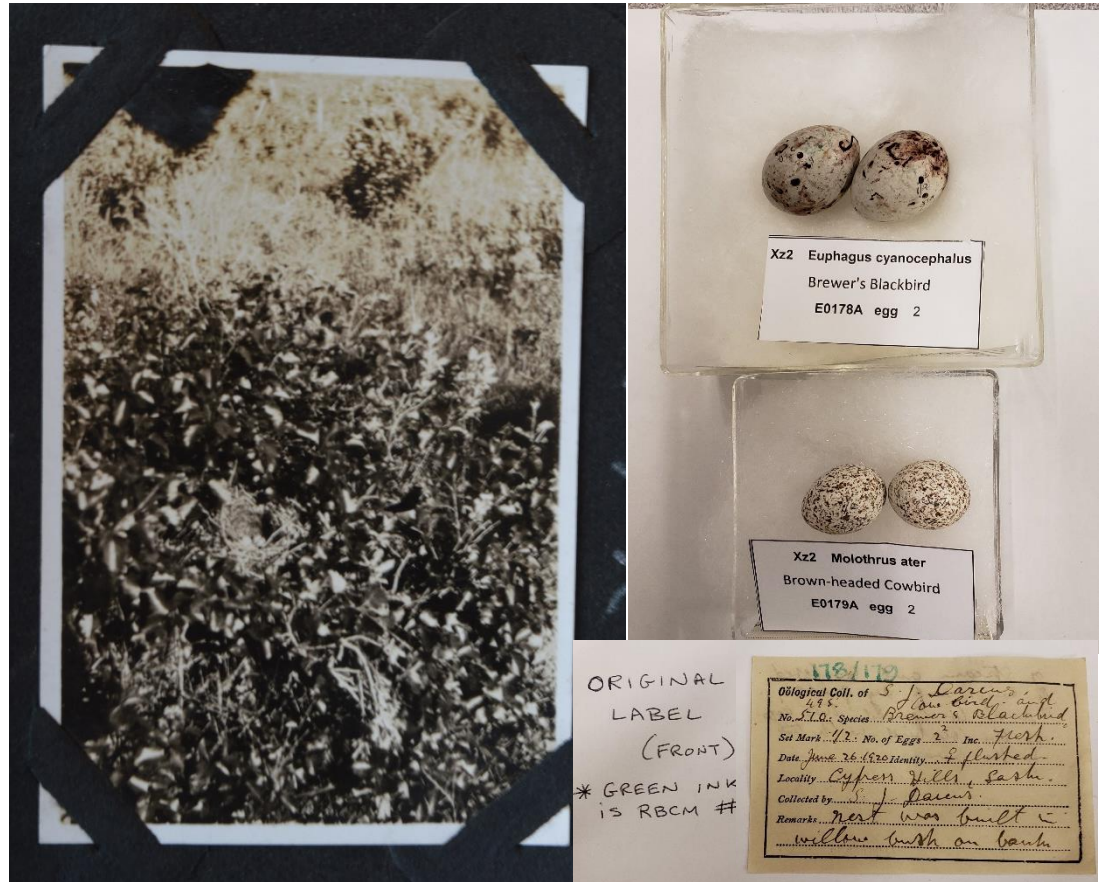


Figure 9. Nest of Brewer's Blackbird photographed by S.J. Darcus along Battle Creek, Cypress Hills, Saskatchewan, June 26, 1920. From this nest egg-set RBCM E0178A, E0179B was collected that contained two blackbird eggs and two cowbird eggs. Photo credit: Lesley Kennes.

blackbirds in the North-West, neither do I recollect seeing the bird, but rusty grackles and bronzed grackles, red-winged and yellow-headed blackbirds are plentiful everywhere ...” He later bartered or purchased an unparasitized set of Brewer's Blackbird eggs, now deposited in the Western Foundation of Vertebrate Zoology (WVZ E111676) collected at Fort Saskatchewan, Alberta, on June 5, 1898. Deacon (1894) noted this species' "association" with cowbirds and implied its use as a host, near Prince Albert, Saskatchewan. This species was formally added to the Saskatchewan host list based on details of "at least three parasitized nests" submitted to Friedmann (1963, p. 134) by K.D. Paton of Oxbow and, in Alberta, nests without details or traceable egg-sets, that came "to [Friedmann's] attention from [oologists] T.E. Randall and A.D. Henderson," whose work in Alberta will be noted in a later instalment. Brewer's Blackbird eventually became known among species frequently parasitized on the Canadian Prairies (Semenchuk 1992, Escott 2019), with many nests parasitized more than once (e.g., Kondla and Pinel 1971, Harper 1982) by the same or different females.

Bullock's Oriole. Darcus collected a clutch of Bullock's Oriole eggs with three host eggs and one cowbird egg, eventually deposited in the Royal Alberta Museum (RAM Z97.33.963; Z97.33.999), at Penticton on June 12, 1943 (Figure 10). Overlooked by previous authors (Friedmann et al. 1977, Cannings et al. 1987, Campbell et al. 2001), apparently this is the only confirmed record of parasitism on this oriole for British Columbia, although it was twice observed feeding fledgling cowbirds (Campbell et al. 2001). The latter observations suggest but do not confirm parasitism because species occasionally feed cowbirds they did not rear (Sealy and Lorenzana 1997). Natural parasitism on this species may be higher as experiments confirmed earlier suggestions (e.g., Bendire 1895) that Bullock's Orioles eject cowbird eggs (see Rohwer et al. 1989), which may obscure detection of parasitism if cowbird eggs are ejected before or between the observer's inspections. Male and female Baltimore Orioles (*I. galbula*) eject cowbird eggs (Sealy and Neudorf 1995), but most other species in the genus *Icterus* accept them (Sealy and Underwood 2004).

After the Cypress Hills

In a letter to the editor of a nature column of a Montreal newspaper, Darcus (1920) not only commented that he had been “a close student of ornithology for some twenty years and have always read the Natural History column with keen interest”, he provided a glimpse into his experiences with nature in Saskatchewan. On October 31, 1920, and on the following day, he observed a Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) associating with a flock of American Robins (*Turdus migratorius*) near Fredericton, shortly after returning from the Cypress Hills. Although the bird was far out of range, he was confident of his identification, stating “I was very familiar with the yellow-headed blackbird on the marshes in the Cypress Hills in Saskatchewan, but this is the first time I have met with it east of Manitoba.” The column’s editor, Ernest Ingersoll (1920), commented that “The presence of a yellow-headed blackbird in New Brunswick is the first instance on record, I think; but it has been observed occasionally as a straggler to Ontario and Quebec. Ornithologists will be glad to know of the abundance of birds in the Cypress Hills.”

Contributing to Darcus’s success in the field was the ability to work hard and independently, whether in the Cypress Hills and the years leading up to and during his work on Haida Gwaii (Queen Charlotte Islands), and later as a game guardian in the Okanagan Valley. On May 14, 1925, while preparing to assess the status of seabirds on a small islet near Tofino, off the west coast of Vancouver Island, British Columbia, Darcus wrote to James A. Munro, Chief Migratory Officer for the western provinces, stating, “I shall be taking my canoe up with me as I always row out to these places. I find a canoe more suitable than a launch as I usually can pull it ashore and I am usually alone” (Darcus 1925). Darcus’s desire was for this island to be made a permanent bird sanctuary, perhaps picturing himself as its guardian. The Cleland Island Ecological Reserve, which was established in 1971, was British Columbia’s first and one of many ecological reserves that afford protection to breeding seabirds (Campbell et al. 1990).

By the mid-1920s, the egg most sought-after by oologists in British Columbia was the Marbled Murrelet’s (*Brachyramphus marmoratus*), as only one indisputable egg, but no nest, had been described (Drent and Guiguet 1961). In the year following an exploratory visit to Haida Gwaii in 1926, Darcus collected four eggs claimed to have been laid by Marbled Murrelets in burrows on a small, rugged islet off Langara Island (Darcus 1927). The eggs were later determined to have been laid by the Ancient Murrelet (*Synthliboramphus antiquus*), a species that nested in colonies on Cox Island and around much of the periphery of Langara Island (Drent and Guiguet 1961). It was the “discovery” of the putative eggs of the Marbled Murrelet for which Darcus became best known, but not in the way he would have wished. Less heralded were eggs of other seabird species he collected on Haida Gwaii that provided records that strengthened the accounts of several species in Drent and Guiguet’s (1961) *A Catalogue of British Columbia Sea-bird Colonies*, and in status reports on other seabird species in British Columbia (e.g., Carter and Sealy 2011).

Darcus’s knowledge of the ornithology of the southern Okanagan Valley and coastal British Columbia grew in the decades following his sojourn in the Cypress Hills. He later became guardian of the Vaseaux Lake Bird Sanctuary (Anonymous 1932a), which was established in 1923 and remains today. He lectured on birds to local naturalists (Anonymous 1932b), and his expertise on a wide array of nature was sought by others, among them, naturalist H.J. Parham, whose book, *A Nature Lover in British Columbia* (1937), was a reminiscence of his

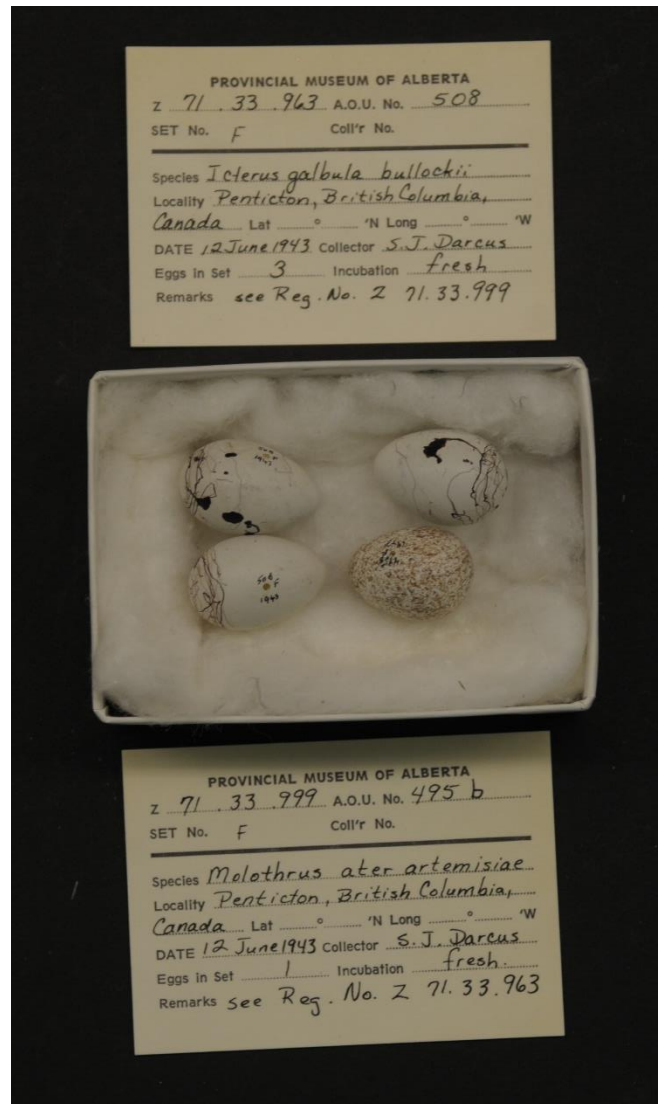


Figure 10. Set of Bullock’s Oriole eggs (RAM Z97.33.963; Z07.33.999): three eggs of the host plus one cowbird egg, Pentiction, British Columbia, June 12, 1943. Photo credit: Jocelyn Hudon.

years in residence in the South Okanagan. Parham championed the study of living birds in their natural habitats, and his disdain for collecting pitted him against many of the collectors of the day. He was more accepting of egg collecting, and described Darcus as an ‘Oologist’, or ‘a judicious egg collector’, but an unwilling bird-taker.” Darcus’s legacy places him among the pioneering field naturalists in British Columbia.

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Goodbye to all that

On resigning a permit to band birds after 60 years

A.W. (Tony) Diamond



Banding a Tui (*Prosthemadera novaeseelandiae*) in New Zealand.

I began my bird-marking career in Britain, where it is known as ringing, which translates as banding in North America; in this essay I will refer to it by the term appropriate to the geographic context. My growing teenage interest in birds became focused on learning to ring them, both with a friendly local ringer and at Portland Bird Observatory on the south coast of England. In Britain, ringing is run by the British Trust for Ornithology (BTO) under contract to the national government. The BTO certifies ringers at various levels, issues rings, and keeps centralized records, just as the Bird Banding Office in Canada does. Ringing can be an expensive hobby in the U.K. because the ringer has to pay for the rings as well as nets, pliers, rulers, and other equipment. At one point, some largely resident species yielded so many recoveries of little interest (e.g., found squashed on neighbourhood roads) that a ringer was fined for each bird we ringed, because of the cost of administering so many ring recoveries.

My own trajectory as a ringer started in my early teens in our back yard, colour-ringing garden birds to get to know individuals. When I started formal training under a licensed ringer, the minimum age for a master permit was 16, and I was determined to qualify as soon after my sixteenth birthday as I could. With a lot of help from my mentors I succeeded, and started ringing songbirds on my own in what would now be derided as "hobby ringing". Some of this ringing, though, for example at Chew Valley Lake in Somerset, has morphed into more focused

activity, in this case the establishment of a long-term ringing station which has contributed much to understanding inland migration of British birds (Vinicombe 2020). My 'A' ringing permit also helped me to be hired as assistant warden at the bird observatory on the island

of Skokholm in south Wales. The warden was Mike Harris, of puffin fame, who introduced me to the use of ringing not just to find out where birds went on migration, but as a tool for population research. I ringed a lot of seabirds that summer on Skokholm, and also a few migrants, of which the stand-out was the first Semi-palmated Sandpiper (*Calidris pusilla*) ringed in Europe and the third record for Wales. Through this experience, in the space of two years I was able to mature from hobby ringer to embryonic research ornithologist.

The basic techniques of the trade have not changed much in the ensuing 60 years; mist-nets became the trap of choice in the few years between ringing my first bird and going to Skokholm. Prior to that we used a variety of traps that we had to make out of chicken-wire, including the basic drop-trap used by little boys all over the world to catch birds to eat. The variety of methods people invented to catch birds in the centuries before the invention of mist-nets is quite remarkable (see especially Bub 1991), and there is a case to be made that the adoption of mist-nets as the default capture method has reduced the diversity of birds being ringed by reducing the diversity of trapping methods considered.

One development that made a huge improvement in the quality of data that could be collected by ringers was the invention of small reliable spring-balances. Well into the 1960s, to weigh birds that I caught, the spring balance was in the shape of a plastic tube about two feet long containing a thin spring that stretched during the course of a ringing session and had to be zeroed for every bird. We take for granted the convenience and quality of the robust metal spring balances we use now, but they really were an important innovation. Another development is the knowledge of moult, and its use in ageing and sexing, which has increased exponentially in the last 50 years. When I came to Canada in the early 1980s I was struck (not favorably) by the lack of interest in moult as an ageing character shown by North American banders compared to British ringers, but Peter Pyle has put paid to that apparently almost single-handed.

I did not stop hobby-ringing after the Skokholm experience, but added large-scale ringing of seabirds to my repertoire and spent many happy hours in colonies in the Hebrides, off western Scotland, in several subsequent summers. The great attraction of seabirds was their high encounter rate; you might ring hundreds of songbirds before learning of any being found at any distance, whereas a hundred gulls or Shags (*Phalacrocorax aristotelis*) might yield five or more notices of recovery. These notices came on thin pink paper so were known as "pinks", and an envelope in the mail from the BTO was a source of great excitement. Through these "pinks" I learned of:



Mist-netting in Bay of Fundy National Park, 2006.

- a Tree Sparrow (*Passer montanus*) "found dying" on a lightship in the North Sea, seven weeks after being ringed in Cambridge;
- Razorbills (*Alca torda*) from the Outer Hebrides wintering in France and Spain (one a victim of the Torrey Canyon oil spill in April 1967);
- Lesser Black-backed Gulls (*Larus fuscus*) from Outer and Inner Hebrides, and islands off County Kerry (Ireland) going to Spain, Portugal, and the Canary Islands;
- a Herring Gull (*Larus argentatus*) from the Outer Hebrides recovered on a beach near my home in Somerset;
- an unfortunate House Sparrow (*Passer domesticus*) that fell down the chimney of a domestic boiler nine years after being ringed;
- a Sand Martin (= Bank Swallow, *Riparia riparia*) caught at an autumn roost in south Wales and recaptured by another ringer in France, 545 miles southeast, eleven days later;
- a Reed Warbler (*Acrocephalus scirpaceus*) from a marsh in Norfolk, caught in fruit netting in France ten days later and 555 miles further south;
- a Ring Ouzel (*Turdus torquatus*) ringed in a fen near Cambridge in November, and trapped (no doubt for food) a thousand km south in the French Alps five years later;
- two (Northern) Wheatears (*Oenanthe oenanthe*) ringed in the Co. Kerry islands off SW Ireland, one recovered on the Bay of Biscay coast of France a year later, another in Spanish Morocco two years later;

- a Dunlin (*Calidris alpina*), 2,500 km from eastern England to Morocco in 18 days; and
- a Mute Swan (*Cygnus olor*) found with its head bitten off by a fox.

Every one of these "pinks" had me dreaming of the journey the bird might have taken, and was a lesson in geography as well as a window into the mysteries of migration. There were a few examples of longevity, too, that were not remarkable by present-day standards, but seemed impressive at the time; a Shag I ringed on a Scottish colony was recaptured there 16 years later, and several after 15 years; a swan was recovered 15 years later and released after being disentangled from fishing line around its leg; and a Herring Gull was found dead after 16 years and a Great-blacked Gull (*Larus marinus*) after 17².

Encounters occur when the marked bird interacts with a person, so the density of people must affect the proportion of birds encountered. Britain is a densely populated country, especially in comparison with Canada; compare 280 people per square kilometre with four. Yes, **four!** I or my students have banded many more songbirds here than I did in my few years ringing in Britain but we have had not a single long-distance recovery to compare with the seven listed above. The likelihood of a recovery of a bird ringed in the U.K. is much higher than in North America, and relative human population densities must be a good part of the reason.

I was taught how to ring swans by a fellow student at Cambridge, Chris Reynolds, whose passion for ringing exceeded mine. His technique with a family of swans on a canal was to lure the cygnets close with offers of bread, while the wary parents hovered anxiously nearby, hissing angrily, with their wings arched in aggressive display. Chris would then bend down and haul each cygnet out by the neck, and pass it back to me with instructions to "sit on that and start ringing." This infuriated the male swan – the "cob" - who would paddle hard to the other side of the canal, to provide enough runway for him



Retrieving a female black-headed trogon (*Trogon melanocephalus*) from a mist net in Belize.

to half-fly, half run over the water, furiously back towards us, clearing the bank in full flight only to be brought down to earth by a karate-chop from Chris who would then sit astride it in triumph and carry on ringing. Despite their long neck and angry hissing, the swan's head is not its most effective weapon; it might knock your glasses off but wouldn't usually draw blood. Their most dangerous weapon is the wings which, legend has it, can break your arm. Chris also taught me how to catch an adult swan on my own, with a long hook like a shepherd's crook, to catch it around the base of the neck. The important move, as the hooked swan pulled hard away from the ringer, was to pull it in fast to get inside the reach of the wings, like a shorter boxer getting inside the reach of a taller opponent. Then you could fold the wings to the body, set the bird on the ground and sit astride it while applying the ring.

I made my own swan-hook out of a broom-handle with a brass rod attached, the end of the rod bent around in a vice to assume the appropriate shape. Each swan successfully mastered was notched in the broom-handle. I ringed quite a lot of swans this way on lakes and rivers in various parts of the country, mostly in flocks of non-breeding birds in the summer. I met my match on a river near the town of Newbury, in the south of England, when I tried to catch the male of a pair with a nest; I got the hook around his neck alright, but when he pulled back against it, the brass hook straightened out with an ominous twanging sound and he came after me with murderous intent.

There was a legal consequence to my swan-catching trip to Newbury; I had neglected to pay attention to the fact that the river running through the town, the Kennet, runs into the Thames and so is in the Thames watershed (or catchment area). One of the medieval English traditions which a swan-ringer is supposed to bear in mind, is that all the Mute Swans on the river Thames and its tributaries belong to Her Majesty Queen Elizabeth II, and only her assigned agents are allowed to touch them.³ It came to the attention of the Warden of the

² Longevity records for these species in Britain are currently Shag 29.8, Mute Swan 29.1, Herring Gull 32.7 and Great Black-backed Gull 26.7 years.

³ It is actually a little more complicated than this; if you want to dig into it, the Wikipedia article on Swan Upping will tell you more than you might want to know.

Queen's Swans, Dr. Christopher Perrins⁴ of the Edward Grey Institute of Field Ornithology at Oxford, where I was based at the time, that I had laid hands and rings on some of Her Majesty's swans. Chris duly administered the required rap over the knuckles for this act of flagrant *lèse majesté*. But it was the swan that straightened out my swan-hook, not the prospect of internment in the Tower of London, which really brought my swan-catching days to an end.

After a university zoology degree, the gods⁵ smiled on my wanderlust and put me on a boat headed for Aldabra Atoll in the Indian Ocean with a scientific expedition. The goal was to rescue as much information as possible about this extraordinary island before it was to be turned into a military base. My brief was to study the seabirds, especially those big enough to damage low-flying military aircraft. I was



Banding a red-tailed tropicbird (*Phaethon rubricauda*) on Aldabra Atoll.

allowed to use British rings, as Aldabra was then a British overseas territory; such ringing as I did was intended mainly for possible future population studies, and I did not expect any long-distance recoveries from a very sparsely populated ocean. However, two "pinks" materialised; a Red-footed Booby (*Sula sula*) ringed as a chick crashed exhausted onto an oil tanker at sea 330 km south-west of Aldabra, and a juvenile Lesser Frigatebird (*Fregata ariel*) made it all the way to a beach near Bombay where it was found exhausted, 4400 km to the north, a year later. The frigatebird ended its days in the private zoo of the Maharajah of Jamnagar (Ali 1970), as only the third known to have reached the sub-continent.

Frigatebirds were a large focus of my work on Aldabra, but I discovered that the rings with the right diameter were much too tall to fit on the tiny tarsus of a frigatebird. Frigatebirds have tarsi that are as short, relative to body size, as those of a hummingbird and, like hummingbirds, need specially designed rings. I did have wing-tags though, and equipped several hundred frigates with individually numbered tags; it was wing-tag A04 that identified the frigatebird found in India as one I had marked.

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Several years later, on a post-doc in Jamaica, I banded⁶ both resident songbirds to study their seasonality and breeding biology, and migrants in the hope of some juicy recoveries in North America. A local resident friend had been banding regularly for some years, and shared his best sites with me, so we were able to document some interesting data on longevity and survival of both long-distance migrants and residents, that would not have been possible without his prior "hobby banding" (Diamond and Smith 1973). The only notable capture of a significant individual was a Bicknell's Thrush (*Catharus bicknelli*) on my very last day of banding; I had identified this as a Gray-cheeked Thrush (*C. minimus*) (which indeed was correct at that time) but the photo is clearly of what we now know as Bicknell's, and seems to be the last known record of the species in Jamaica.

While in Jamaica I was able to also start a side project on the biology of Magnificent Frigatebirds (*Fregata magnificens*) on the island of Barbuda (in the northern Lesser Antilles), using U.S. bands; fortunately, an American biologist, Betty Anne Schreiber, had worked there before so the North American scheme could provide bands suitable for the short tarsus of frigatebirds. I caught several of her birds so we could start building up some demographic data, but nobody who found a frigatebird dead, or caught one, could be expected to notice such a small band so I wing-tagged some too, as I had on Aldabra, hoping for some distant sightings. The few I heard about were around nearby islands such as Martinique and Guadeloupe; but forty years later my Ph.D. student Sarah (Trefry) Hudson was to have better luck with long-distance movements of wing-tagged birds⁷. One male she marked on a nest on Barbuda was photographed on a nest at a colony in French Guyana a year or so later, some 1800 km away! She also discovered, sadly, that wing-tags can disrupt the birds' breeding

⁴ And author of "Mute Swan", the definitive monograph on the species.

⁵ The particular deity in this case was in the shape of Dr. Bryan Nelson at the University of Aberdeen, world expert on tropical seabirds even then (54 years ago). See Obituary here: *Seabird* (2015) 28:95-96.

⁶ Note the change in term! In the western hemisphere now – when in Rome, etc.

⁷ And no doubt she will write those up some day!

activities, so having pioneered their use on seabirds in the 1960s, fifty years later I found myself warning other researchers about their negative effects (Trefry et al. 2013).

After my post-doc in Jamaica, I was back in the Indian Ocean, this time on Cousin Island in the Seychelles. Here I was in charge of running the island as a nature reserve, free to pursue research opportunities in between the duties of managing the flow of tourists that paid the wages. Ringing played a big part in this research, especially with the island's signature bird, the endemic Seychelles Warbler (*Acrocephalus sechellensis*), which lived only on that one island. Using mist-nets, I ringed and colour-ringed many, and because so many were marked individually I could work out that breeding territories were often occupied, and the nest attended, by many more than two adults. It was evident that the population of this tiny (64 ha) island was saturated, or even over-populated. Although the island was well protected, the warbler was vulnerable to any extreme events (fire, disease, cyclone) that might affect the island. Clearly they would not be safe until breeding birds were established on other islands, and in later years many have indeed been translocated to other islands, with established populations now on five islands in all.

There were seabirds to be ringed there too, and I devoted some attention to one that had not been studied in any detail, the Bridled Tern (*Sterna anaethetus*). These were quite jumpy when approached during the day, so we had to catch them at night by dazzling with a flashlight; they nested among rocky outcrops in the forest, so we had to catch them by hand rather than with nets. By following breeding activities of ringed birds for two years I found that they bred synchronously every seven and a half months, still the only population known to do this (Diamond 1976). Although they left the island when they weren't nesting, we saw them at sea throughout the year, so I thought they were resident year-round in the Seychelles; no sooner had I said that in print, then I received a "pink" from one of the Cousin breeders caught on a Korean fishing-boat off the Tanzania coast about 1700km west of Cousin! The perils of premature publication...

Mist-nets set for warblers sometimes caught other birds; the most unexpected were shorebirds, mostly.

Ruddy Turnstones (*Arenaria interpres*), which at high tide would come into the forest interior (only a few tens of metres from the beach). One was recovered six months later on the shore of the Caspian Sea in Iran, about 4,500 km to the north; this is still one of my most treasured "pinks" even though the migrations of turnstones are quite well known.

After the Seychelles, I spent four years in Kenya, where I ringed several hundred forest birds as part of a study of the population dynamics of tropical forest birds. I retrapped several that had been ringed in previous years by other researchers, and occasionally I would catch a migrant from Europe or Asia, but too few to expect any long-distance recoveries.

When I moved to Canada and worked in the prairies near Saskatoon, we banded quite a lot of birds breeding in aspen stands among wetlands ("prairie potholes") but although we found indicators of some interesting phenomena – apparent moult-migration in Swainson's Thrush (*Catharus ustulatus*) and Tennessee Warbler (*Leiothlypis peregrina*), for example - the only recovery away from our banding site was a House Wren (*Troglodytes aedon*) that was caught in the Dakotas. Most of our banding, near Saskatoon, was dedicated to long-term research on Tree Swallows (*Tachycineta bicolor*) in nest-boxes, contributing to several cross-continent studies of this aerial insectivore (e.g., Berzins et al. 2020).

For the last 25 years in New Brunswick, in research on birds in forest and marine ecosystems, banding has figured in most of my students' projects; from breeding birds in the Acadian forest, and endangered Bicknell's Thrush in north-central mountains, to seabirds – Arctic gulls



Banding puffin on Machias Seal Island. Photo: Nick Hawkins.

and terns, gulls and eiders in the Bay of Fundy, auks, petrels and terns on Machias Seal Island (MSI), shearwaters at sea around Grand Manan with Rob Ronconi, and warblers and frigatebirds in the Caribbean. Most of these projects have supported detailed population studies, with little expectation of long-distance recoveries but, as with seabirds in Britain, there have been some standouts. An Arctic Tern (*Sterna paradisaea*) from MSI to Angola, West Africa, is probably the most memorable, but banded Razorbills and Atlantic Puffins (*Fratercula arctica*) caught up in seabird wrecks in winter 2012-13 were instrumental in tracking the sources of the wrecked birds (Diamond et al. 2020). In perhaps the most exciting phase of my banding career, with collaborators across the international boundary on all the seabird islands of the Gulf of Maine/Bay of Fundy including MSI, we are following the dynamics of the metapopulations of three species – puffins, Razorbills, and Arctic Terns – through a period of rapid change in the supporting marine ecosystem.

There are some⁸ who say that with the advent of increasingly miniaturized digital tracking gadgets, banding has had its day and is now redundant. There is some truth to that, if you are interested only in long-distance movements, but unless you can equip every bird with a chip⁹ there will never be as many digitized birds as banded ones so population studies will rely on banding for many years to come.

There are good scientific reasons for catching birds to band them, but the personal reasons that motivate banders are important too. Whenever I have demonstrated banding to someone new to the process, and offer the chance to hold a bird and release it, I watch their



Banding at St. Andrews, New Brunswick with son Owen Diamond.

face closely as they take a bird in their hand for the very first time. Often I can see a change in their expression, a widening of the eyes, a gasp of wonder; I believe that synapses fire that have never fired before. It can be, quite literally, a life-changing experience, a new connection with these ancient creatures whose role in connecting the earth with the sky is one that has been recognised throughout human history. If you have not had this experience, think of the first time you held the hand of a loved one. It's like that.

It is also possible, perhaps especially in the male brain, that catching and controlling (however briefly) a wild creature, in some way sublimates a hunting instinct that is as ancient in our make-up as any other impulse. I like to think that these two aspects of the attraction of bird-banding for many people are complementary rather than competitive.

In my 38 years (so far) of banding birds in Canada, I have supervised over 50 graduate students, and many undergraduates and summer techs, in the art and science of banding. What started as a hobby has provided me with a lifetime of enchanting encounters in many parts of the world, and has been instrumental in my research career. It has also given me a more global perspective on avian biology and conservation than I would have achieved just through birding.

So, if banding's so great, why am I turning in my permit? The last 26 years have seen several changes of banding software which have been mastered by a succession of UNB technicians converting field data sheets, from forest birds to shorebirds to seabirds, into evolving digital entry formats required by the Bird Banding system. I no longer have access to that support, am no longer supervising research on forest birds or shorebirds, and have gratefully handed over the seabird work on MSI to Heather Major. I will not stop banding birds, but will continue under my wife's master permit at home, and Heather Major's on Machias Seal Island, as long as I am able.

As Stuart Houston, veteran Saskatchewan bander, has been known to say – banding will be needed until every bird has a band, and every band is on a bird.

⁸ You know who you are!

⁹ So far as I know, Peter Becker's colony of Common Terns (*Sterna hirundo*) in Germany is still the only such case.

Acknowledgements

I thank Nikki Benjamin, Dorothy Diamond, Marie-Paule Godin, and Ed Czerwinski for shouldering the burden of data entry on my permit over the last 26 years, and Dorothy for improving this essay with her comments.

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Poster Abstract: Effects of Experimental Malaria Infection on Migration of Yellow-rumped Warblers (*Setophaga coronata*)

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Whether and how avian malaria affects bird migration, particularly during stopover (an important step in migration where birds spend most of their migratory period), has received much attention, but little experimental study. Forty Yellow-rumped Warblers (*Setophaga coronata*) were captured during fall migration at the Bruce Peninsula Bird Observatory and transported 300 km south to the Advanced Facility for Avian Research in London, Ontario, Canada. Twenty-five birds were experimentally inoculated with avian malaria (*Plasmodium cathemerium*) while fifteen birds were inoculated with uninfected blood as a control. All birds were fitted with radio-transmitters and kept in conditions similar to a migratory stopover before being released an additional 100 km south at Long Point, Ontario to continue their migration. Activity was measured in captivity using radio signal strength variability and birds were radio-tracked after release using handheld radio-telemetry and the Motus Wildlife Tracking System. Six of the treatment birds (24%) developed *P. cathemerium* infections after inoculation ('responders') but did not have statistically different captive activity levels from birds that were inoculated but did not develop infections (non-responders) or control birds. Stopover duration (time to departure after release) was not significantly different between groups. This research addresses the migratory implications of exposure to and infection with a common bloodborne pathogen, suggesting that birds do not alter their migratory strategies in response to infection.

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Avian Conservation and Ecology Articles

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Hierarchical distance sampling reveals increased population size and broader habitat use in the endangered Bahama Oriole

L'échantillonnage fondé sur la distance couplé à une approche hiérarchique révèle une taille de population plus élevée et une utilisation de l'habitat plus vaste chez l'Oriole des Bahamas, espèce en danger

Michael G Rowley, Richard C Stanley, Janine M Antalfy, Jennifer L Christilf, Daniel C Stonko, Scott B Johnson, Shelley Cant-Woodside, T Scott Sillett, Matthew E Fagan, Colin E Studds, and Kevin E Omland

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Nest success and nest site selection of wetland birds in a restored wetland system

Succès de nidification et sélection des sites de nidification d'oiseaux de milieux humides dans un système de milieux humides restaurés

Auriel M. V. Fournier, Joseph D. Lancaster, Aaron P. Yetter, Christopher S. Hine, Tyler Beckerman, Jacob Figge, Antonio Gioe, Macayla Greider-Wagner, Devin Jen, Cody Johnson, Max R. Larreur, Abigail Shaw, Kayanna Wolter, Michael Wood, Daniel K. Wu, Benjamin J. O'Neal, and Heath M. Hagy

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Abundance, population trends, and negative associations with lake water levels for six colonial waterbird species over five decades in southern Manitoba

Abondance, tendance des populations et associations négatives avec les niveaux d'eau des lacs pour six espèces d'oiseaux aquatiques coloniaux sur cinq décennies dans le sud du Manitoba

Ann E McKellar, Steven E Simpson, and Scott Wilson

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The effect of top predator removal on the distribution of a mesocarnivore and nest survival of an endangered shorebird

Effet de l'élimination d'un supraprédateur sur la répartition d'un mésocarnivore et la survie des nids d'un oiseau de rivage en voie de disparition

Michelle L Stantial, Jonathan B Cohen, Abigail J Darrah, Shannon L. Farrell, and Brooke Maslo

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Bird trends from long-term observation data at sites in the Hudson Bay Lowlands

Tendances des oiseaux à partir d'observations faites depuis longtemps sur des sites dans les basses-terres de la baie d'Hudson

Rodney W Brook, Lisa A Pollock, Kenneth F Abraham, and Glen S Brown

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Eastern Black Rail detection using semi-automated analysis of long-duration acoustic recordings

Détection du Râle noir de l'Est au moyen d'une analyse semi-automatique d'enregistrements acoustiques de longue durée

Elizabeth Znidersic, Michael W Towsey, Christine Hand, and David M Watson

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Assessment of cue counting for estimating bird density using passive acoustic monitoring: recommendations for estimating a reliable cue rate

Évaluation du comptage des détections pour estimer la densité d'oiseaux à l'aide d'un suivi sonore passif : recommandations pour estimer un taux de détections fiable

Cristian Pérez-Granados, Adrián Barrero, Juan Traba, Daniel Bustillo-de la Rosa, Margarita Reverter, and Julia Gómez-Catasús

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Effets de la pollution lumineuse terrestre sur deux espèces d'oiseaux marins nichant dans des terriers en Terre-Neuve-et-Labrador, Canada

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Endemic and endangered Short-crested Coquette (*Lophornis brachylophus*): floral resources and interactions

Coquette du Guerrero (*Lophornis brachylophus*), espèce endémique et en voie de disparition : ressources florales et interactions

María del Coro Arizmendi, Laura E. Nuñez-Rosas, Humberto Berlanga, Mónica A. M. Quiroga Rodríguez, José Manuel Soberanes González, Claudia Macias Caballero, Rosa María Vidal Rodríguez, and Gabriel López-Segoviano

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Satellite telemetry reveals complex migratory movement patterns of two large macaw species in the western Amazon basin

La télémétrie par satellite révèle des schémas complexes de déplacements migratoires chez deux espèces d'aras de grande taille dans l'ouest du bassin amazonien

Donald J Brightsmith, Janice D Boyd, Elizabeth A Hobson, and C J Randel

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Post-collision impacts, crippling bias, and environmental bias in a study of Newell's Shearwater and Hawaiian Petrel powerline collisions

Collisions de Puffins de Newell et de Pétrels des Hawaï avec les lignes électriques : impacts post-collision, biais inhérent aux blessures et à l'environnement

Marc S Travers, Scott Driskill, Angela Stemen, Theresa Geelhoed, David M Golden, Shiho Koike, Amy A Shipley, Hannah E Moon, Tracy Anderson, Molly Bache, and Andre F Raine

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