



WINTER 2022 VOLUME 80.4

BLUE JAY





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FROM THE PRESIDENT

Ken Ludwig

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Nature Saskatchewan is very pleased to have supported the Chaplin Nature Centre in its operations this past season. The centre has provided a valuable showcase for the significant shorebird habitat in the Chaplin area for the last 25 years.

Even before the nature centre opened, the Chaplin area had been identified — through survey work by the Canadian Wildlife Service (1987) and the then Saskatchewan Wetlands Conservation Corporation (1993-94) — as having a number of sites that supported high numbers of shorebirds, particularly at Chaplin Lake, Old Wives Lake and Reed Lake. This led the Western Hemisphere Shorebird Reserve Network to designate the lakes complex as a WHSRN site in 1997.

Recognizing the ecological significance of the area, a local community initiative began in 1994 to develop a nature centre to showcase the habitat, conservation activity and, of course, the shorebirds themselves (particularly the endangered Piping Plover and the American Avocet). The stated goal of the centre was “To be a world class stop on the prairies highlighting the birds that spend most of their lives coastal!”

With initial funding from TransCanada Pipelines (now TC Energy), federal and provincial government grants, and the local Lions club, the centre was opened in the spring of 1997 as a volunteer-run operation in a new building built along the Trans-Canada highway to serve the traveling public.

Once opened, the centre supported its continuing operations through admission donations from the increasing visitor traffic, the sale of Saskatchewan-made merchandise, and an annual Shorebird Festival and fundraiser (supported by the local and regional communities and a number of NGOs).

As the volume of visitor traffic continued to increase, the nature centre expanded its facility to better profile the life of the shorebirds and tell the



Ken Ludwig

“conservation story of the area”. This also meant expanding its operations to employ two full-time and one part-time summer students, along with the volunteers conducting shorebird tours to the nearby lake.

The centre has accommodated approximately 12,000 annual visitors from around the world. It has also become involved with education work by hosting shorebird workshops, outreach education targeting area elementary schools, and wildlife management classes for high school students. In addition, it has contributed to research and monitoring work through its involvement with the tri-national (Canada-US-Mexico) Linking Communities, Wetlands and Migratory Birds organization and the Smithsonian Institute Project Connectivity.

As with many organizations, the years 2020 and 2021 were challenging for the Chaplin Nature Centre. To continue to profile the habitats needed by shorebirds, and help to protect them, the nature centre looked for assistance to re-open this past year. Nature Saskatchewan was pleased to respond with support in the form of funding and administrative expertise.

May we all continue to benefit from this valuable operation in our province.



ON THE FRONT COVER

An adult female Barred Owl briefly roosts while foraging for unusual prey (see article herein) in Winnipeg, MB, June 2022.

Photo credit: Aaron Janzen.



ON THE BACK COVER

From November 2 to 4, 2021, this Eastern Bluebird was observed in Robert Gebhardt's yard in Eastend, SK. “It came into my yard, sat on the fence then would drop down to the lawn or garden to capture some food item. It was always in a small flock of House Finches; in fact, whenever the bluebird sat on the fence it had ‘admirers’ or ‘guards’ and these birds would follow it into the garden or onto the lawn,” said Robert.

Photo credit: Robert Gebhardt.



BLUE JAY

Blue Jay, founded in 1942 by Isabel M. Priestly, is a journal of natural history and conservation for Saskatchewan and adjacent regions. It is published quarterly by Nature Saskatchewan.

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ANOTHER BLACK WITCH MOTH RECORD FOR SASKATCHEWAN

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The article by Cedric Gillott in *Blue Jay* 79.2 has encouraged me to report another sighting of a black witch moth, although it was more than 10 years ago near Stranraer, a tiny village in the Herschel Hills about 20 miles west of Rosetown. There is quite a tale behind this sighting.

Young Dorothy Stratillo grew up on the family farm at the top of the Herschel Hills, where she began collecting and recording flowers and things of interest to her. She became a teacher, music teacher, photographer, historian, butterfly collector, local history buff, and wrote many articles about the settlement history there. She married Dave Siebold and raised a family. Hundreds of her photographs have been displayed at Ancient Echoes Interpretive Centre (AEIC), which replaced the former school there. The centre focuses on the native petroglyphs and recent excavations of several species of dinosaur in the Coal Mine Creek valley. When she retired from teaching, she found her true calling as a volunteer.

On 24 June 2013, I was volunteering at AEIC, doing some studies of rock alignments around Herschel. Michael Williams, geologist and keen birder, was helping me while we also kept our eyes peeled for butterflies up in the high country. As we prepared to go there, a black butterfly, obviously a swallowtail, flashed by on the breeze. We went to the petroglyphs, on a very high hill, and encountered another swallowtail (possibly the same one). Michael had thoughtfully brought his net. We captured it and hustled back to our house to get some photos of it and to call Dorothy Siebold in Stranraer, because it was a new species for the area and she was mounting a display of her collection of butterflies the next morning (we sent photos to Anna Leighton, who identified



Dorothy Siebold's picture of the Black Witch moth observed in August 2011.

our specimen as an Anise Swallowtail).

The next morning, Dorothy mounted her display in the AEIC gallery. The first photo was a Tiger Swallowtail, and the second was the butterfly we captured the day before. Talk about speed! Then I looked at a third picture. It was a giant among moths. My first Black Witch (*Ascalapha odorata*). We were ecstatic! And from little ol' Herschel (and Stranraer). But just how she captured it made an even better yarn.

The previous year, in late August, there was a family wedding at her farm. A large tent was erected to house the guests for evening visitors. At some point, after dark, something large and brown flew into the tent. It created quite a stir. Some thought it might be a bat. But not Dorothy. She ran for her net and her camera. She caught the creature, which was that black witch moth, photographed it and released it, and everyone continued the party. A remarkable capture and release of a male moth, possibly strayed from much further south.

But that was not to be the end of this tale. Since then, over three different years, I have personally sighted these black species of swallowtails at five locations in the hills and further north in the high hills above and north of Plenty, fluttering along the steep pinnacles of those hills, all on windy days. I was always with friends and, on one occasion in the Toft Pasture near Stranraer, where



Dorothy Siebold (holding camera) and Dave and Sue Neufeld. Photo credit: Muriel Carlson.

a group of four butterflies were newly hatched on a Missouri Currant plant less than 20 feet away. These specimens were deeply coloured, with deep yellow bands on the outer wing. We observed them for several minutes but had no camera with us. I believe this indicates that there is a viable population there.

So schedule a trip out there in late June. Book a couple of rooms at the Respite House and make a weekend of it. Great birds, butterflies and Coal Mine Creek deserves a second look too, we developed a checklist of birds there as well. There may be more surprises!

Dorothy Siebold is no longer among us. She succumbed to pancreatic cancer several years ago, but her pictures still echo. I wonder how many other records she may have found. Some of her butterfly and moth photos are presently on display at AEIC. 🐦

POETRY

BRONZED BEETLE ON THE BEACH



Victoria Beach, Manitoba. Photo credit: Gary Budyk.

A beach -- the boundaries of land, water and air.
While isolated in their states of solid, liquid and gas,
they interact in synchrony and amplify each other.
Who can resist the temptation to explore a sandy shoreline?
Certainly not a fox, minnow or tern,
as they dance in their element and peer into each other's world.

Strolling along a beach, one becomes a child again.
Hot sand stinging the soles, cold water biting the ankles,
the wind tossing one's hair and exciting the heart.
Marvel at the sculptural mass of a gray weathered log,
the terror of a bleached pike skull picked clean,
the smooth curving grace of a white pelican feather.

Stark-naked tree roots, swirling stems of tall yellow grass, polished half-buried boulders,
and windrows of bright-green lake weeds stranded on wet rippled sand
all reveal the awesome power of thunderous summer storms,
giving way in time to restful silence and sweet-smelling air.
Inhale the thick fog of an early spring morning, absorb the reddish-orange serenity of an autumn sunset, and relish the joy of being alive and part of this drama.

Such a sanitized and timeless place, the beach!
Repetitive tumbling and sorting of sand grains,
relentless lapping of waves and white foam,
and restless winds paint awe-inspiring scenes,
carried on from seconds to geological eras,
erasing each mark, burying every object, yet refreshing one's spirit.



Bronzed Tiger Beetle. Photo credit: Larry de March.

As my steps sink into the soft wet sand, I glance in every direction,
eagerly awaiting Nature's next revelation.
Then along the dark damp edge of a stranded pool, a sudden movement
distracts my eye. Was it my imagination or did something fly?
Perhaps a tiny piece of stick or reed,
under full control of a playful, wayward breeze.

But no, there it goes again, and then once more.
Capturing my curiosity by now, I draw near and bend down for a closer
look,
hoping to discover some new secretive delight.
A cream and bronze tiger beetle, standing high on six spindly legs
stares back at me with bulging black eyes,
and quickly takes flight, only to vanish when it lands.

But how can it survive in such an exposed and tempestuous plot?
Days spent tracking down beach flies, attempting to mate,
and evading shore birds by hiding in the sand.
This tiger beetle's life is brief, two years at most, spent mainly in grub-like
larval stage, hanging upright in its burrow, wide jaws spread ready,
waiting for passing prey, which may or never arrive.

Just one of so many intriguing creatures pursuing its life cycle, and
sharing my beach.
At the end of such a heart-warming day,
full of up-lifting thoughts, discovery and beauty,
can one walk away in the setting sunlight,
back over the dunes of golden sand
without regret at departing such an elysian place?

Robert E. Wrigley
Ecologist
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THE NATURE NOTEBOOK:

A SALUTE TO THE SASKATCHEWAN BREEDING BIRD ATLAS

Jared Clarke

It has been a full year now since the Saskatchewan Breeding Bird Atlas, after an epic five-year quest, wrapped up its last year of data collection. What a ride! Never have Saskatchewan breeding birds been so systematically surveyed across the entirety of this province. The work that was accomplished during this project is nothing short of amazing. While there is still a lot of behind-the-scenes work required to analyze the data in the coming months, you can still check out some of the species maps on the atlas website. It's pretty cool.

As some of you know, my family and I were heavily invested in this project, as my wife and I were volunteer Regional Coordinators with the project. From 2017 to 2021, we crisscrossed the province searching for birds. Our twin daughters, Rowan and Teal, have spent half of their life (they are 10 now), being coerced into data collection trips for the atlas! For me that was the best part! Most of my favourite atlasing memories were made with Rowan, Teal and Kristen. There was the time, in 2018, when we canoed 20 km in one day, up and back down Tulibee Brook near Deschambault Lake. It was a straight forward paddle, up a meandering creek that also included pulling the canoe over multiple beaver dams. By the end of the trip, we had counted 34 Sedge Wrens, 14 LeConte's Sparrows and 25 Swamp Sparrows — something I had never experienced before.

Another fond memory that stands out was when we were camping at Moosomin Regional Park and were exploring the trails at the park. We heard Veerys, Red-eyed Vireos and lots of Yellow Warblers. But what got us really excited was hearing the “Drink your tea” call of an Eastern Towhee! This was the first time I had actually heard this call, so we trekked back to get a look at the bird. You can imagine my dismay when we finally laid eyes on the calling bird —



it had a ton of white spots on its back! Clearly it was a Spotted Towhee, which was giving an Eastern Towhee call. The kids were annoyed we had had to walk back up the trail for that.

There was also the time when Teal and I sat on the top of a tucked away valley and watched turtles basking on a rock in a beaver pond below. And the time I saw a young Black Bear in the Qu'Appelle Valley, just north of Sintaluta, and quickly got back into my car. And finding the biggest Cliff Swallow colonies I had ever seen under some of those neat old cement bridges.

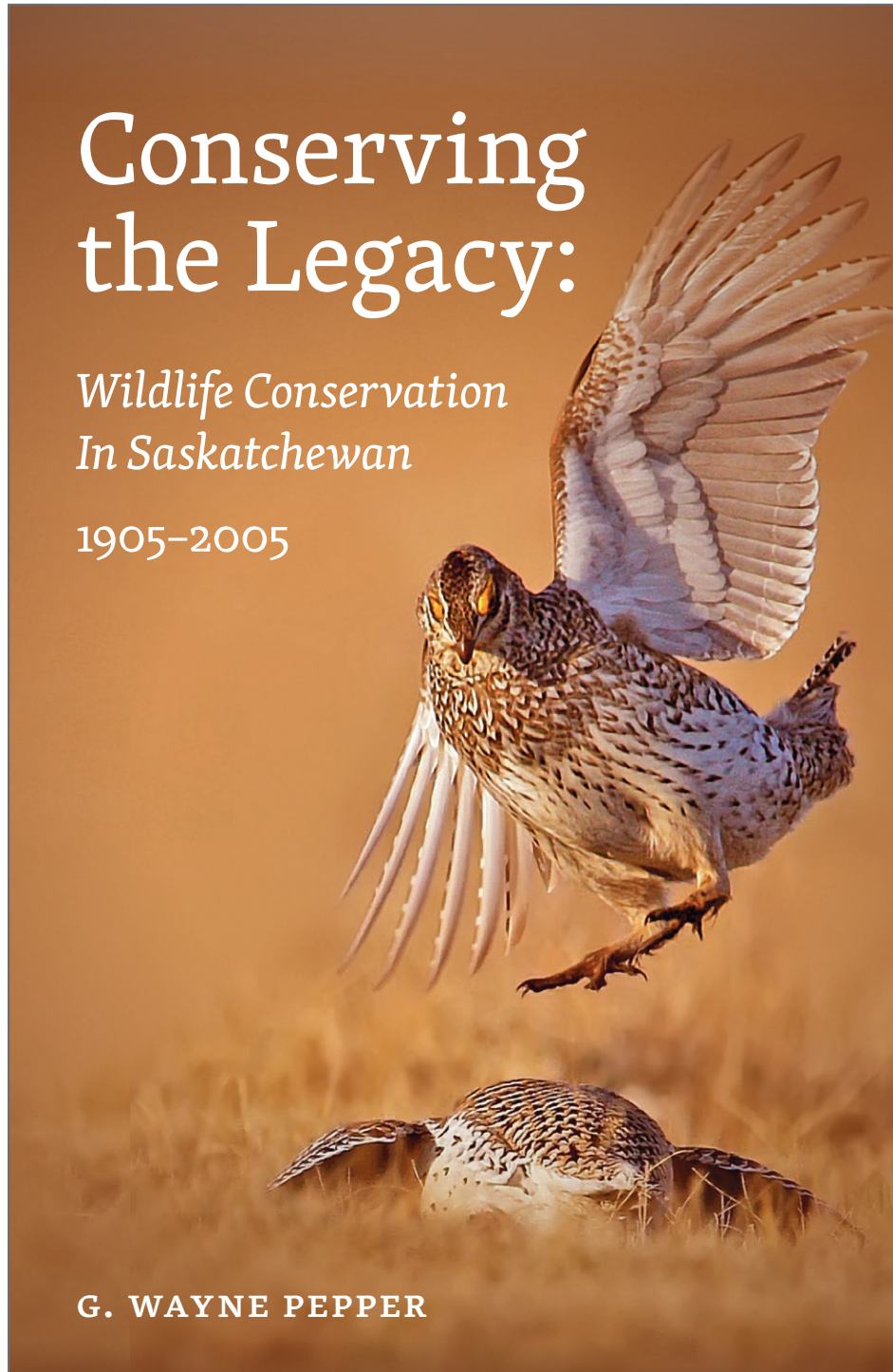
What I loved about the atlas was that it forced us off the beaten trail. Away from the eBird hotspots and into areas of this beautiful province that many of

us have never explored before, providing us with fantastic memories and fantastic birds. I am grateful to have been a part of this truly monumental project that will be invaluable for bird conservation in this province. I am also grateful for all the folks who helped. It was truly a team effort and many people contributed in big and little ways, but it all added up to an epic result. It's hard to believe we'll do it all again in 15 years! I wonder what the bird community will look like by then.

Jared Clarke is a grade 6/7 teacher and biologist who lives with his family on a small farm near Edenwold, SK. He has been bird watching since the age of five after a Spotted Towhee visited his yard. Follow him on Twitter @jaredthebirdguy. 🐦

CONSERVING THE LEGACY: WILDLIFE CONSERVATION IN SASKATCHEWAN 1905-2005

G. WAYNE PEPPER. 2022. NATURE SASKATCHEWAN. ISBN: 9780921104350. 388 PP. \$34.95.



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Conserving the Legacy: Wildlife Conservation in Saskatchewan is about the history and evolution of wildlife conservation during the first century of the province of Saskatchewan. I would strongly recommend first-time readers go over the two-page About this Book section. This is where the author, G. Wayne Pepper, describes the purpose and the organizational structure of the book. To keep the book to a reasonable size, the author wisely chose to limit the scope primarily to the conservation of birds and mammals and their habitats. The author does not go into the history of fisheries or the conservation of plants, insects or other groups of wildlife. These topics probably deserve their own standalone history books.

Pepper begins the book with some extremely useful features, in addition to About this Book, including a copy of the Ecoregions of Saskatchewan map, a much-needed list of abbreviations used in the book, a handy historical timeline and a short section on the history of the province prior to 1905. There is also a foreword from renowned Saskatchewan conservationist Lorne Scott, acknowledgements and a preface in which the author briefly describes how he began his exceptionally long and distinguished career in wildlife conservation.

The main section of the book is divided into six logical 'era' chapters: 1905 to 1915, 1916 to 1929, 1930 to 1945, 1946 to 1964, 1965 to 1980 and 1981 to 2005. The way in which it is organized gives it a textbook look and feel with each chapter being divided into several sections and subsections. This organization makes it easier to find specific topics in the book. However, it does not read like a textbook

— it is well-written and easy to read. I liked the author's easy going storytelling style. The narrative flows well within this structure and contains minimal technical jargon. Pepper tells a fascinating story about how we ended up where we are today with respect to Saskatchewan wildlife conservation. In each chapter, there are several short essays or vignettes that highlight a milestone, issue, program or a species at risk. These vignettes nicely complement the main text. However, not all vignettes stand out enough visually from the main text due to inconsistent use of background shading.

Throughout the six chapters, the author discusses the key people, activities, agencies, partnerships, successes and failures set in the socioeconomic context at the time. One should become aware that societal norms and beliefs related to wildlife have changed over time. For example, persecution of birds of prey is no longer acceptable. Pepper has been consistently fair and honest in his review of historical events, organizations and people in wildlife conservation in Saskatchewan. I was fascinated by many wildlife conservation stories in this book. They include the early wildlife conservation pioneers such as Fred Bard and R.D. Symons, the pronghorn national parks, the early attempts to assign monetary value to 'valuable' wildlife, Whooping Crane conservation efforts, the rise of Non-Governmental Organizations after World War II (including Nature Saskatchewan (NS); please see the Isabel Priestly Legacy by Margaret Belcher for the early history of NS), the reintroduction of the Canada Goose to Wascana Centre in Regina, and many others. I was struck by how fortunate Saskatchewan is to have had numerous resolute and forward-thinking people in wildlife conservation throughout its history.


As I worked through this book, two thoughts repeatedly came into my mind. First, as things change, more things stay the same. As societal views on wildlife changed and our understanding of the natural world expanded and evolved over time, the struggle to save wildlife and their habitats unfortunately

continues to be as difficult as ever. Despite plentiful wildlife conservation successes, the relentless demand for resources, ongoing inadequate resources for conservation (the early to mid-1970s were the only exception to the ongoing underfunding), and the difficulty of maintaining the longer-term momentum for conservation activities has continued unabated. Secondly, there is no wildlife conservation success in Saskatchewan without the active support of sport hunters, trappers, naturalists, concerned landowners, wildlife conservation professionals and the public.

The author concludes the main part of the book with a nice summary of the preceding six chapters and a look at what lies ahead. In what lies ahead, Pepper offers his insightful thoughts on what the key wildlife conservation issues in the 21st century will be: climate change, dysfunctional ecosystems, and ongoing inadequate education of the public about conservation issues. Given current conditions and trends, I think he will likely be right. However, I agree with Pepper that we can be hopeful that positive change can still happen in the face of daunting challenges and odds because of the hard-earned progress and success in Saskatchewan wildlife conservation achieved since 1905.

The back of the book also contains four appendices, references and a subject index. The appendices include a list of scientific names for species mentioned in the text, Representative Areas Network by Ecoregion and land type categories, and a list of designated heritage marshes.

The front cover photo is spectacular and is spot on for this book: dancing Sharp-tailed Grouse. The Sharp-tailed Grouse is Saskatchewan's official bird. Silhouetted pronghorn antelope are featured on the back cover. The eight figures and the many black and white archival and wildlife photos nicely complement the text.

I learned a lot from this book, and it is an important contribution to the understanding of a poorly studied aspect of provincial history. Therefore, I highly recommend it to anyone who is interested in Saskatchewan history, wildlife conservation or both. 

POETRY

KITS

The aspen cache is full
The lodge is warm and cozy
The kits soundly sleep

Brian K Jeffery

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POETRY

SKY TORCH

Luna rises, oh so briefly,
in all her full shimmering,
iridescent, benign beauty,
before, intriguingly veiled behind
slight tendrils of cloud,
she cloaks herself entirely
Her allure to be glimpsed
more by wishfulness
than actuality.

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IS THERE FAIR ACCESS TO PUBLIC LAND IN SASKATCHEWAN?

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My travels in Saskatchewan have convinced me that the province is a friendly place, until you want to access public land for nature appreciation. Recent encounters with several militant ranchers in the Great Sand Hills, a massive block of public land including a huge Ecological Reserve, indicates that public land seems to be treated by them as private and the public are decidedly unwelcome, viewed as trespassers.

I understand the Great Sand Hills is a fragile place and unrestricted vehicle access could unleash a litany of concerns. I note that all the rural municipalities have prohibitions on off-highway vehicle use — a very positive move. But, to close the door on access even on well-established, gravelled trails and to deny foot access seems an overreach, if protection of the environment is the reason for access restrictions.

Cattle grazing might be a benign and legitimate land use in the Great Sand Hills, but a grazing lease on public land shouldn't foreclose on a reasonable amount of use for recreational purposes, notably hiking, wildlife observation, botanical investigations, and simply to revel in big, wild space. That's not how the lease holders I dealt with felt, however, and they seem to have the support of the Saskatchewan government.

The ranching community should recognize that not only do they have an obligation to manage their public land leases well, they also do not own the land, legally, or morally with all the rights that would normally accrue to private land. The interactions I had followed a similar vein — "You wouldn't like it if I [the rancher] wanted to picnic on your front lawn." No, I probably wouldn't, but my lawn is not public land and it is patently absurd to use that excuse when the "front lawn" is public land and several thousands of acres in size.

The tenure for public grazing leases is at the pleasure of the public; the public that also eat beef produced on public land with generous grazing rates. It would seem that ranchers might consider this reciprocal arrangement — reasonable public access in return for access to grazing opportunity.

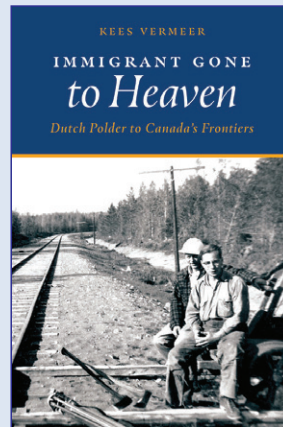
My observations of the situation in Saskatchewan are from a person who lives in a neighbouring province where we have had these debates over public access to public land. Most have been resolved with better policies, better and more accessible information over access provisions (unavailable in your province), and a maturity on the part of public lease holders over the rights for the public.

I would like to think of Saskatchewan as a welcoming place. Perhaps your government, lease holders, and the public might work out a better arrangement for accessing public land, so I do not feel unwelcome in your province.

Lorne Fitch is a Professional Biologist, a retired Alberta Fish and Wildlife Biologist and a former Adjunct Professor with the University of Calgary. 🐦

IMMIGRANT GONE TO HEAVEN

by KEES VERMEER



Immigrant Gone to Heaven is a remarkable book. It grips the reader from the moment the author joins an Emigration Training Centre in the *Biesbosch* region of the Netherlands with the goal of moving to Canada. We follow his experiences as he lands in Canada and works his way up from farm-hand to obtaining a doctorate in Zoology. The section of the book detailing his explorations in ornithology are as fascinating as the stories of immigration and the memories of World War II. The book takes the reader on a riveting journey of exploration in many facets of social history and science as viewed through the lens of an inquisitive and always optimistic upbeat man. I strongly recommend this book to anyone interested in learning more about World War II, immigration, bird behavior or even just in how a life's journey can unfold with all its unexpected twists and turns.

Tom Bijvoet

Publisher, DUTCH the Magazine – De Krant

Brimming with charming personal anecdotes and fascinating ornithological research in equal measure, Kees Vermeer's *Immigrant Gone to Heaven* paints a vivid picture of an adventurous and fearless life. Vermeer's curiosity and insight into the natural world are evident from his descriptions of childhood nest-hunting in the Dutch polder, to his pioneering work with seabirds on British Columbia's windswept *Triangle Island*. His stories of everyday life under Nazi occupation are enthralling in their own right. Naturalists, scientists and history buffs alike will enjoy this book.

Annie McLeod

Editor, Nature Saskatchewan's Blue Jay

To order, please mail a cheque for \$34
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Kees Vermeer

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For further info, go to: www.immigrantgonetoheaven.com

FRIENDSHIPS, LEARNING AND SCENERY AT NATURE SASKATCHEWAN FALL MEET

Ellen Bouvier

Communications Manager
Nature Saskatchewan

What is better than exploring a provincial park during the fall in Saskatchewan? Exploring that park with 53 friends, both old and new! The weather and scenery couldn't have been better for the 2022 Nature Saskatchewan Fall Meet, which was held in Duck Mountain Provincial Park on September 23 and 24.

Friday started a little dreary but the grey weather was quickly forgotten as members and friends gathered at the recreation hall for an evening reception and presentation, from Doug Welykholowa, about the Madge Lake Loon Survey. Everyone enjoyed learning about these interesting birds and the work that the Madge Lake Loon Committee does.

The bright sunshine and low winds were a welcome sight on Saturday morning as attendees made their way to Veregrin for a tour of the National Doukhobor Heritage Village. The first thing to catch the eye upon arriving was an impressive prayer home. The bright



Nature Saskatchewan members in front of Prayer Home at the National Doukhobor Village. Photo credit: Bill MacKenzie.

white building shone in the sunlight and members were welcomed by friendly and knowledgeable guides. We broke into smaller groups and enjoyed learning about the long history of Doukhobor's in Saskatchewan, and some members were even lucky enough to try some Doukhobor bread baked in a brick oven!

Following the morning tour, a picnic lunch was enjoyed back in the park. The happy hum of chatting was a welcome sound during a busy day. Once everyone was refreshed, the afternoon tours began. We were pleased that the winds stayed low enough that most of the boat tours were able to go ahead. I was not able to attend the boat tours, but I did hear many positive reports from those that were able to go. Some juvenile loons were even spotted!

Everyone not attending the boat tour headed out on the Calcareous Fen Trail and Little Bluestem Prairie hike. There is nothing like hiking in an almost empty park during the fall. All the colours made the scenery look like a painting! I must say that hiking with such knowledgeable

people is a treat. I learned long ago that if you go slowly and take the time to listen, you can learn so much . . . and I did! By taking the time to enjoy, we spotted many things that would normally be passed by, such as a tiny Northern Leopard Frog and a huge green caterpillar.

After the tours, everyone gathered for the business meeting and the Saturday evening banquet. The meal, which was catered by the Iron Grill in Kamsack, was delicious. We then learned a lot from Michael Leblanc from Weyerhaeuser. His presentation, *Vegetation Management in Duck Mountain Provincial Park – Unnaturally Restoring the Natural Forest Pattern*, was very informative and prompted many questions.

All in all, the Fall Meet was a huge success. Thank you to the presenters, tour leaders and, of course, to all of you who joined us for such a great weekend!

We hope to see everyone at the 2023 Spring Meet being held in Leader, SK from June 16 to 18, 2023. 🐦



Hiking the Fen Trail. Photo credit: Ellen Bouvier.

REASONS TO GO BIRDING

Cory Tufts

Habitat Stewardship Assistant

Summer 2022

Nature Saskatchewan

This summer provided me with the amazing opportunity to drive through parts of the country that I never thought I would visit, and share my passion and admiration for the natural world. I have always loved nature. When I was little, I told my teacher that I wanted to be a Paleontologist, which then turned to a Zoologist when I realized that you can work with animals that are currently alive. When my family moved, I had so many pets that the airline crew called

me Noah as we seemingly had two of every animal. Through it all, my parents — and particularly my mom — always loved birds. We had bird feeders at every place I grew up in and I always enjoyed watching the birds because they connect you with your surroundings. To me, birds are a reminder of the natural world. The same chickadee that can be heard calling on a city street can also be heard out in the woods. Birds are an ever-enduring facet of the natural world and can serve as reminders of ecosystems that we have built up around and tremendously altered. That is what I appreciate the most about animals and birds in particular. Connection.

I've only been an avid birder for the past three or four years; before then, I didn't appreciate the intricacies of bird identification. I was unaware that just saying that the brown bird at the feeder was a "sparrow" isn't entirely accurate, and not every duck floating in a pond is a Mallard. In fact, it wasn't until I was on a road trip through Southern Alberta that my inexperience in identification was readily apparent. A duck floating in a pond, which had an iridescent green head and a wide, spatula shaped bill, caught my attention. With my curiosity piqued, I went scrolling through a freshly downloaded bird ID app, and discovered that what I was looking at was not a



Photo credit: Cory Tufts.

Mallard with a rare medical condition, but was in fact a Northern Shoveler — a fairly common species of duck. This was a revelation — even in places where I was expecting mundane and familiar birds, there were species unknown to me sneaking past my inattentive eye! This sparked what has become an all-encompassing hobby. From that point forward I began to notice just how many types of ducks were on any given lake, pond or slough. Luckily, waterfowl are a great introduction to birding as the males are usually colourful and most waterfowl species stay still for periods of time.

Birding became a main catalyst for the places that my girlfriend and I would visit. It drew us to locations and IBAs (Important Bird Areas) that I would otherwise never have a reason to visit. Places like Frank Lake, Alberta or the Great Sandhills in Saskatchewan would have slipped past my radar. I am very grateful that birding has been the impetus to visit these gorgeous places. Even when I am not making a special trip specifically to bird, this hobby has a great way of ensuring that whenever I am out for a walk, I am present and in the moment. It's a reason to slow down and listen to the grumpy mumblings of a Red-breasted Nuthatch scuttling around a tree, or a Common Yellowthroat flitting about a wetland. Birding further connects me to my surroundings as I notice the terrain and vegetation to decide what kind of bird I am hearing or expecting to see.

I recall a time when my girlfriend and I received a notification that Harlequin Ducks were spotted at a park. While it was a fairly wide area to search, by knowing the type of habitat that these ducks prefer, we were able to narrow down the area where we thought we would have the best chance at spotting them. Lo and behold, after a little bit of searching, and luck, we managed to find these gorgeous birds. The accomplishment of cracking a bit of a riddle and then to be rewarded by seeing a striking bird species in action, and in their natural environment, is a fantastic feeling.

Beyond providing a connection to nature, birding is also a way of connecting with other people. Whether I am craning my neck to look at the canopy or making the rounds of a park with binoculars dangling, people will stop and ask what

I am looking at. Occasionally the answer is met with vague indifference when the reply is a junco, but most of the time people are excited to either learn a little or share their enthusiasm about birds. There is something great about crossing paths with someone in a park, both with binoculars and a knowing look, and offering tips on all of the birds that you can expect to see on your hike. While the birding bug seems to bite some people a little bit harder than others, I think most people have at least a passing admiration for birds.

For these reasons, I encourage you to

slow down the next time you are out for a walk — rather than smelling the roses, look at the birds. I hope that it piques your curiosity as it has mine because I owe many great experiences to the birds. With birdwatching seemingly booming in popularity these past couple of years, I hope the appreciation and connection can encourage people to take better care of the land and see the value in conserving habitat for these animals. It is this connection that will allow people for generations to have the privilege of birding in these increasingly rare and precious natural spaces. 🐦



Photo credit: Cory Tufts.

MAMMALS OF THE DELTA MARSH, MANITOBA

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Introduction

Shortly after the senior author became the Curator of Birds and Mammals (1970) at the newly opened Manitoba Museum of Man and Nature in Winnipeg, he initiated a program to survey the mammal fauna in all terrestrial biotic regions of the province — Arctic Tundra, Boreal Coniferous Forest, Eastern Deciduous Forest, and Grassland biomes, plus Aspen Parkland and Taiga transitional zones. The preliminary site of investigation was the Delta Marsh, carried out by the three authors and volunteers. Soper¹ and Tamsitt² provided general accounts of mammals collected at Delta, and Hochbaum³ commented on the presence of the Franklin's Ground Squirrel, Snowshoe Hare, American Mink, and weasels (Ermine, Long-tailed and Least). Certain species have been the focus of other studies as follows: Franklin's Ground Squirrel,^{4,5} Muskrat,^{6,7} North American Water Shrew,⁸ Striped Skunk,⁹ and bats.¹⁰ Our research focused on habitat selection and abundance of all historical and recent mammalian species. Additional detail on the ecology of mammals at Delta was provided by Wrigley,¹¹ shrews by Wrigley, Dubois and Copland,¹² and prairie rodents by Wrigley, Dubois and Copland.¹³ Numerous studies of the vegetation, soils, and hydrology have been conducted over the decades, summarized by Shay,¹⁴ who listed 360 plant taxa for the area.

The Delta Marsh, located at the southern end of Lake Manitoba in south-central Manitoba, is one of the most-important wetlands on the Canadian

Prairies. Formed between 4,500 to 2,500 years ago with the drainage of Glacial Lake Agassiz, it consists of 23,000 ha of public and private lands, 8,125 ha of which are protected by the Delta Marsh Manitoba Wildlife Management Area. This area is placed into category IV by the IUCN (World Conservation Union), meaning it is managed mainly for the conservation of habitat and wildlife through management intervention. Named a Ramsar Site (a Canadian Wetland Designated of International Importance) in 1982, it is also recognized as a Manitoba Heritage Marsh and a Canadian Important Bird Area, designated for its ecological significance for waterfowl, wetland birds, and songbirds.¹⁵ With a shoreline of about 31 km, the marsh system varies from 14,600 ha during dry years to double this size during years of heavy precipitation. The marsh generally extends for 8 km from the beach ridge south to farm fields, which were formerly mixed-grass prairie.^{3,6}

Delta Marsh has had a long and fascinating history, with a panorama of famous individuals — conservationists, wildlife managers, researchers, artists, business leaders, royalty, movie stars, sports figures, and local characters — drawn mainly by the marsh's exceptional waterfowl-hunting reputation, and as an excellent location to study wetland ecology and environment. Two internationally renowned research facilities have operated at the marsh — the University of Manitoba Field Station (1966 to 2011) and the Delta Waterfowl Research Station/Delta Waterfowl (1938 to current).^{1,15} The authors had the opportunity to conduct research at both facilities during this study.

Methods

Field activities were carried out on 10 trips covering all four seasons, from the autumn of 1970 to the spring of 1974, totaling about 11,000 traps-nights. A crew of enthusiastic volunteers assisted with setting traps, reporting the species



FIGURE 1: White-tailed Deer fawn at Delta Marsh. This photo appeared on the cover of *The Canadian Field Naturalist*, Volume 88(1), 1974.¹¹ The species first invaded southern Manitoba around 1881, following settlement of the region, north of its original range. Photo credit: R. Wrigley.



FIGURE 2: A young Franklin's Ground Squirrel searches in the marsh at Delta for grass and herb shoots, roots and seeds, and insects. When reaching larger size, it becomes a significant predator of duck eggs and hatchlings, and other small animals such as nestling mice and frogs. Photo credit: James Hare.

and numbers collected, and in preparing specimens for the Museum's research collection. Our survey incorporated two trapping techniques. The first involved setting Museum-Special mouse and rat traps (Woodstream Corp., Lititz, PA, USA) for mice and squirrels, and pitfall traps (container sunk into the ground) for mice and shrews, in lines of about 50 traps each through all distinctive habitats. These lines attempted to capture the diversity of small mammals in each habitat. The second technique consisted of placing 5-m-wide rows of about 415 traps (5 m apart) within 2-hectare quadrats in the two dominant

plant/animal communities — Deciduous Beach-Ridge Forest, and Grass-Sedge Marsh. These generated quantitative data on species' numbers per hectare.

We also recorded the presence of other species through sightings and signs (i.e., droppings, nests, beds, trails and cuttings). The traps were checked each morning and left active for three days and nights, by which time the local species and the majority of individuals were captured. Several hundred specimens were preserved and entered into the Manitoba Museum's research collection. Detailed lists of traplines, species, and numbers captured each night by habitat were recorded in the senior author's field notebook at the Manitoba Museum.

Results

While the coastal wetland along the southern shore of Lake Manitoba might appear at first like a monotonous sea of grasses, cattails and ponds, there is in fact a variety of distinct habitats running from the sandy lake shore south to disturbed old-fields and agricultural fields (both formerly mixed-grass prairie), and deciduous-forest woodlots. The following categories list the main habitats (with representative plant species) from the lake shore south to old-field/woodlot, and note the species captured/observed in each (in approximate order of abundance).



FIGURE 4: A trail through the beach-ridge forest. Photo credit: R. Wrigley.



FIGURE 5: Beach-ridge forest transitioning into grass-sedge marsh and cattail-phragmites marsh. Photo credit: R. Wrigley.



FIGURE 6: The marsh in spring, flooded by the melting of an exceptional accumulation of snow. Photo credit: R. Wrigley.



FIGURE 7: A spring view of phragmites marsh with an old-field and woodlot in the background. Photo credit: R. Wrigley.



FIGURE 3: The shoreline of Lake Manitoba with the sandy beach, rushes, and willow-shrub zones impacted heavily by high water, wind and wave action. Photo credit: R. Wrigley.

Shoreline Rushes (*Scirpus* spp., *Eleocharis acicularis*, *Juncus balticus*, *Carex atherodes*)

Eastern Deer Mouse
Meadow Jumping Mouse
Eastern Meadow Vole
Northern Short-tailed Shrew
Southern Red-backed Vole

Shoreline Willow Shrubs (*Salix interior*, *Salix exigua*, *Salix alba*)
Eastern Deer Mouse
Meadow Jumping Mouse
Southern Red-backed Vole
Northern Short-tailed Shrew
White-tailed Deer

Beach-ridge Forest Sand ridge averaging 90 m in width (*Fraxinus pennsylvanica*, *Acer negundo*, *Populus deltoides*, *Celtis occidentalis*, *Salix amygdaloides*, *Ulmus americana*, *Prunus virginiana*, *Salix interior*, *Cornus sericea*, *Corylus americana*, *Sambucus racemosa*, *Toxicodendron radicans*)
Southern Red-backed Vole
Eastern Deer Mouse
Northern Short-tailed Shrew
Cinereous Shrew
Meadow Jumping Mouse
Franklin's Ground Squirrel
Eastern Meadow Vole
Eastern Chipmunk
Eastern Grey Squirrel
Red Squirrel
Northern Flying Squirrel
Woodchuck
Northern Raccoon
Striped Skunk
Red Fox
White-tailed Deer
Eastern Red Bat
Silver-haired Bat

Wet Meadow Seasonally/temporarily flooded (*Scolochloa festucacea*, *Carex atherodes*, *Elymus canadensis*, *Chenopodium rubrum*, *Atriplex patula*)
Eastern Meadow Vole
Cinereous Shrew
Northern Short-tailed Shrew
Arctic Shrew
Meadow Jumping Mouse
Southern Red-backed Vole
Eastern Deer Mouse
Franklin's Ground Squirrel
Richardson's Ground Squirrel
Woodchuck

Snowshoe Hare
Striped Skunk
Ermine
Eastern Chipmunk (10 m from woods)
White-tailed Deer

Marsh (*Phragmites australis*, *Typha latifolia*, *Mentha canadensis*, *Cirsium arvense*, *Sonchus arvensis*, *Cicuta maculata*, *Urtica dioica*)
Eastern Meadow Vole
Cinereous Shrew
Northern Short-tailed Shrew
Arctic Shrew
Meadow Jumping Mouse
Franklin's Ground Squirrel
Muskrat

Salt Flat (*Hordeum jubatum*, *Salicornia rubra*, *Chenopodium salinum*, *Suaeda calceoliformis*, *Senecio congestus*, *Puccinellia nuttalliana*, *Sonchus arvensis*, *Atriplex patula*)
Eastern Meadow Vole
Meadow Jumping Mouse

Old-Field (*Bromus inermis*, *Schizachyrium scoparium*, *Cirsium arvense*, *Fallopia convolvulus*)
Eastern Meadow Vole
Cinereous Shrew
Northern Short-tailed Shrew
Northern Pocket Gopher
Richardson's Ground Squirrel
Thirteen-lined Ground Squirrel
White-tailed Jackrabbit

Deciduous Forest Woodlot (*Fraxinus pennsylvanica*, *Acer negundo*, *Populus tremuloides*, *Quercus macrocarpa*, *Cornus sericea*)
Southern Red-backed Vole
Northern Short-tailed Shrew
Eastern Deer Mouse
Cinereous Shrew
Eastern Chipmunk
Eastern Grey Squirrel
Red Squirrel
Thirteen-lined Ground Squirrel (grassy edge)
Richardson's Ground Squirrel (grassy edge)
Northern Flying Squirrel
Snowshoe Hare
White-tailed Deer
Ermine

Quadrat Study Results

The Deciduous Beach-Ridge Forest Quadrat (28 August to 2 September, 1972) produced 101 specimens of 11 species: Southern Red-backed Vole (52), Northern Short-tailed Shrew (16), Cinereous Shrew (12), Meadow Jumping Mouse (9), Eastern Deer Mouse (6), Eastern Chipmunk (1), Northern Flying Squirrel (1), Eastern Grey Squirrel (1), Woodchuck (1), Snowshoe Hare (1), Striped Skunk (1).

The Grass-Sedge Marsh Quadrat (29 August to 3 September, 1972) produced 232 specimens of 7 species: Eastern Meadow Vole (192), Cinereous Shrew (19), Arctic Shrew (10), Meadow Jumping Mouse (6), Northern Short-tailed Shrew (3), Eastern Deer Mouse (1), Ermine (1). Many traps were set off from rain, wind-blown grass, and the high population of Leopard Frogs (*Lithobates pipiens*).

Species Recorded In This Study (26)

Cinereous Shrew (*Sorex cinereus*)
Arctic Shrew (*Sorex arcticus*)
Northern Short-tailed Shrew (*Blarina brevicauda*)
Eastern Chipmunk (*Tamias striatus*)
Red Squirrel (*Tamiasciurus hudsonicus*)
Eastern Grey Squirrel (*Sciurus carolinensis*)
Northern Flying Squirrel (*Glaucomys sabrinus*)
Richardson's Ground Squirrel (*Urocyon richardsonii*)
Franklin's Ground Squirrel (*Poliocitellus franklinii*)
Thirteen-lined Ground Squirrel (*Ictidomys tridecemlineatus*)
Woodchuck (*Marmota monax*)
Northern Pocket Gopher (*Thomomys talpoides*)
Eastern Deer Mouse (*Peromyscus maniculatus*)
Eastern Meadow Vole (*Microtus pennsylvanicus*)
Southern Red-backed Vole (*Myodes gapperi*)
Muskrat (*Ondatra zibethicus*)
Meadow Jumping Mouse (*Zapus hudsonius*)
Red Fox (*Vulpes vulpes*)
Striped Skunk (*Mephitis mephitis*)
Northern Raccoon (*Procyon lotor*)
Ermine (*Mustela erminea*)
White-tailed Deer (*Odocoileus virginianus*)
Snowshoe Hare (*Lepus americanus*)
White-tailed Jackrabbit (*Lepus townsendii*)
Eastern Red Bat (*Lasiurus borealis*)
Silver-haired Bat (*Lasionycteris noctivagans*)

Species Unrecorded in This Study, but Whose Distributions include the Delta Area (21)¹⁶

American Pygmy Shrew (*Sorex hoyi*)
Prairie Shrew (*Sorex haydeni*)
North American Water Shrew (*Sorex palustris*)
North American Porcupine (*Erethizon dorsatum*)
North American Beaver (*Castor canadensis*)
Least Chipmunk (*Neotamias minimus*)
Eastern Fox Squirrel (*Sciurus niger*)
Eastern Cottontail (*Sylvilagus floridanus*)
Big Brown Bat (*Eptesicus fuscus*)
Northern Myotis (*Myotis septentrionalis*)
Little Brown Bat (*Myotis lucifugus*)
Hoary Bat (*Lasiurus cinereus*)
Coyote (*Canis latrans*)
Canada Lynx (*Felis canadensis*)
Bobcat (*Felis rufus*)
Cougar (*Puma concolor*)
North American Black Bear (*Ursus americanus*)
American Mink (*Neogale vison*)
Long-tailed Weasel (*Neogale frenata*)
Least Weasel (*Mustela nivalis*)
American Badger (*Taxidea taxus*)

Species Extirpated (9)

Grey Wolf (*Canis lupus*)
Brown Bear or Grizzly (*Ursus arctos*)
American Marten (*Martes americana*)
Fisher (*Pekania pennanti*)
Wolverine (*Gulo gulo*)
Moose (*Alces americanus*)
Mule Deer (*Odocoileus hemionus*)
North American Elk (*Cervus elaphus*)
American Bison (*Bison bison*) (teeth found on the lake shore)

Discussion

A total of 56 species may be listed as native to the marshland between Delta and St. Ambrose, with 26 species detected in the present study, 21 others that were missed or may occur here occasionally (i.e., Delta Marsh is within the current range maps for these species),¹⁶ and nine species that are considered extirpated (outside current range maps for these species).¹⁶ To this list may be added the introduced House Mouse (*Mus musculus*) and Brown Rat (*Rattus norvegicus*), which exist commensally with people in homes, cottages and farm outbuildings, but may

disperse out into natural habitats during the warm season (authors' data and¹⁶). In later years, Sealy⁸ collected several North American Water Shrews, a species which we failed to detect. The Eastern Cottontail (*Sylvilagus floridanus*) has likely spread to the Delta area in recent times, but we did not record it in the early 1970s.¹⁷ The Fox Squirrel arrived into the Red River Valley of southern Manitoba around 1970 from North Dakota, and rapidly spread throughout the southern parts of the province, but it had not yet reached Delta during our study period.¹⁸ The presence of humans in the region^{19,28} may also be added, for a total of 59 species.



FIGURE 8: North American Water Shrew (staged).
Photo credit: R. Wrigley.

With the rich abundance of small mammals present in the area, avian predators were seen on the hunt, including Bald Eagles (*Haliaeetus leucocephalus*) and Cooper's (*Accipiter cooperii*), Northern Harrier (*Circus hudsonius*), and Red-tailed (*Buteo jamaicensis*) hawks. Sowls⁴ found that the Franklin's Ground Squirrel was a significant predator of waterfowl eggs in the Delta Marsh. We observed several Short-tailed Shrews on the beach-ridge road feasting on road-killed Leopard Frogs. Sealy⁸ reported finding all four species of local shrews dead along the road by the beach-ridge forest, apparently killed and discarded by mammalian predators (likely due to the shrews' musky scent).

During the winter months of our field work, strong northwesterly winds deposited enormous snow drifts into

the beach-ridge forest from the lake, and as these rose slowly but steadily to a height of up to 5 m into the tree canopy, Snowshoe Hares and White-tailed Jackrabbits were able to browse on ever-higher tree buds and bark. On 24-26 April 1974, spring melt waters flooded the wet meadow and marsh to a depth of over 10 cm, causing a mass movement of Eastern Meadow Voles to higher ground in the beach-ridge forest; shrews were very scarce (possibly drowned or became hypothermic and perished). While the expansive, dense beds of phragmites reeds and cattails were not used by most mammals, nor for waterfowl nesting, we found the abundant presence of the Cinereous, Arctic, and Northern Short-tailed shrews, and the Eastern Meadow Vole. The management of reed/cattail stands and encroachment of woody vegetation in the marsh by fire was studied by Ward.^{20,21} In another marsh study in Manitoba, Wrigley²² found that many species of small mammals can survive a fire and recover their populations by retreating underground to isolated wet sites with some surviving vegetation.

The past five decades since we conducted our studies have seen several human-caused, ecologically deleterious changes in the Delta Marsh, which have no doubt negatively affected aquatic and terrestrial ecosystems, with profound effects on vegetation and waterfowl. Flood/drought fluctuations in prairie marshes are known to be essential in maintaining biotic diversity and productivity through rapid nutrient recycling. Stabilized water levels on Lake Manitoba, introduced by Manitoba Hydro (controlled by the Fairford River dam) since 1961, have prevented these natural fluctuations so regenerative of prairie marshes. A Marsh Ecology Research Program was conducted at Delta to investigate long-term responses of marsh vegetation to water-level stabilization.²³

The Portage Diversion (funneling excess flood water from the Assiniboine River to Lake Manitoba) has on occasion flooded the marsh and caused the accumulation of undesirable sediment. Excessive nutrients and pollution from farms and towns have also made their way into the marsh, reducing

water quality and occasionally causing algal blooms and surface cover of floating pond weeds, resulting in an impoverished aquatic ecosystem. Catastrophic spring floods of Lake Manitoba in some years (e.g., 1955 and 2011) temporarily submerged most of the marsh's terrestrial habitats (reducing significantly the stands of least-tolerant cattail and whitetop grass), and likely drowned out populations of the local fauna. Variations in water levels in the marsh have ranged up to 1.5 m.⁶ Hibernating species, such as the Meadow Jumping Mouse, Woodchuck, and the three species of ground squirrels, would have been most vulnerable to flooding of their hibernacula; a population crash in Franklin Ground Squirrels was reported during overland flooding near Delta in 2001.⁵

One of the most dramatic negative alterations to marsh ecology due to the above factors was the marked reduction in Muskrat populations, from pre-1950 estimates as high as 100,000 to rarity in the early 1960s, after water-levels were stabilized by Manitoba Hydro.^{6,24} In 1955/56, Olsen⁶ determined that litter size ranged from 4-11 (average 7.3), with most females bearing one litter per year (range of one to four litters). High water levels not only reduced the population by depleting food resources (i.e., emergent vegetation), but also flooded-out houses, causing mortality of litters. With an average of 20.4 young produced per female (with 2.8 litters) annually, it becomes apparent that the Muskrat population may increase rapidly under favourable water-levels and food resources. Populations in experimental marshes at Delta in 1985 ranged from 0.4/ha in May to 21.3/ha in October, with a high of >30/ha after the second growing season.⁷

The invasion of non-native Carp into the Delta Marsh in the 1950s resulted in great numbers of spawning fish entering the marsh from the lake each spring. Their bottom-grubbing feeding activity created turbid water conditions and release of excessive nutrients from bottom sediment, negatively altering and diminishing the aquatic fauna and flora of the marsh. This in turn has led to the deterioration of Delta's famous

waterfowl- and wetland-bird breeding grounds. The construction of dikes and installation of exclusion screens have been able to limit the entry of most adult carp, leading to a marked improvement in marsh ecology (i.e., water clarity and return of submerged plants and zooplankton), with subsequent increased use of the marsh for breeding and staging by wetland bird life.^{25, 26}

The invasion of a European subspecies of the Common Reed, *Phragmites australis*, has largely replaced the native subspecies, *Phragmites australis americanus*, and then the appearance of the aggressive cattail *Typha angustifolia* (possibly introduced from Europe) and its hybrid, *Typha x glauca*, have now outcompeted the original species, *Typha latifolia*, at Delta. Exotic plants have altered the distribution of marsh cover and open water in the marsh, affecting the occurrence of both aquatic and terrestrial faunas. Summaries of these changes were covered by Bossenmaier²⁷ and more recently in Suggett et al.²⁸

Walking along the sandy beach and forested ridge, and through the marsh grass, we felt the former presence

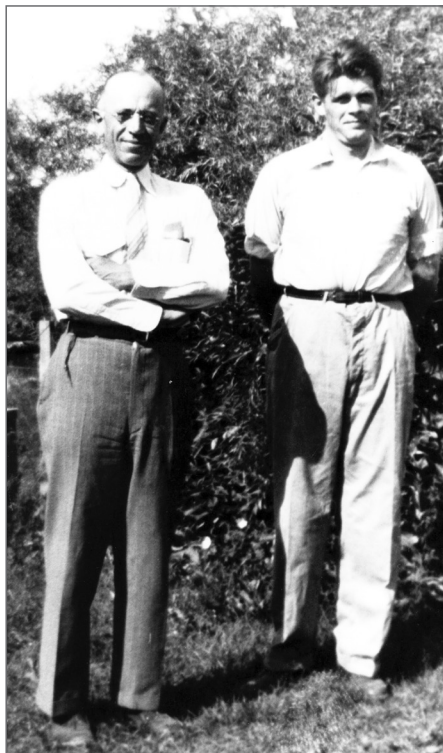



FIGURE 9: In 1938, Dr. Aldo Leopold and his graduate student Hans Albert Hochbaum meet to plan the Delta Duck Station, which opened the following year. Peter Ward became the Station's first research assistant. Photo credit: University of Wisconsin—Madison Archives.

of prominent biologists, such as conservation-pioneer Aldo Leopold. We had opportunities to befriend wildlife artist Colleen Nelson, who conducted much of her research (commencing in 1966) at Delta for her remarkable book, "The Downy Waterfowl of North America."²⁹ She wrote about her experiences at Delta in an article for Manitoba Nature Magazine.³⁰ We met with botanist Jennifer Shay (founding Director of the University of Manitoba Field Station), artist and author Albert Hochbaum (Director of the Delta Waterfowl Research Station), and Peter Ward (Manager of the latter facility), who prepared articles on marsh fire ecology²⁰ and for Manitoba Nature Magazine.²¹ Sadly, the University of Manitoba Delta Marsh Field Station fell into decline after major flood damage and no longer exists (closed 2011), but the flow of research and visitors continues to flourish at Delta.³¹ We hope our efforts in studying the mammalian ecology of the marsh so many years ago prove useful to future researchers, marsh managers, and naturalists drawn to this wonderful prairie marsh.

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RECIPIENT OF THE NATURE SASKATCHEWAN 2022 CLIFF SHAW AWARD: Vladimir Kricsfalusy


Each year, the Editor of *Blue Jay* chooses the recipient of the Cliff Shaw Award. This award acknowledges an article that appeared in the most recent four issues of *Blue Jay* (Fall 2021 to Summer 2022), which merits special recognition for its contribution in any branch of natural history. In 2022, Vladimir Kricsfalusy was chosen to receive the Cliff Shaw Award for his article “Rare Vascular Plants of Redberry Lake Biosphere Reserve”, which appeared in the Winter 2021 (volume 79, no. 4) issue of *Blue Jay*.

Redberry Lake Biosphere Reserve (RLBR) is the only protected area of its kind in Saskatchewan, being designated by UNESCO in 2000 with the purpose to conserve biodiversity and foster sustainable development and capacity building through research, education monitoring and training. There is limited data on biodiversity in this area, and what exists is predominantly focused on birds.

Vladimir's article improves the understanding of biodiversity at a regional scale for different taxonomic groups, and documents the distribution of rare species for conservation planning as they are usually underrepresented in establishing protected areas. He collected rare plant information from literature, databases, herbariums and field studies and his efforts resulted in 18 species being identified as at risk at the global, national and subnational levels.

Through his study, and his paper, Vladimir substantially increased the knowledge and locations of rare plants in RLBR — 10 of 18 were new for the biosphere. He also identified threats to these plants, including successional woody growth, recreational activities and habitat destruction.

Aside from documenting these rare plant species, Vladimir concludes with suggested conservation management actions that are needed, including monitoring to help determine if the species are declining.

The results of Vladimir's study will help to designate priorities for the conservation of rare plants, which are important for raising public awareness and promoting political action. 

WHAT HAVE THE STEWARDS OF SASKATCHEWAN STAFF BEEN UP TO?

Kaytlyn Burrows

Habitat Stewardship Coordinator
Nature Saskatchewan

Hello Blue Jay readers! Is it just me or did summer fly by in the blink of an eye? It was a hot and sunny summer filled with a lot of work to do in the field for our stewardship programs, Operation Burrowing Owl (OBO), Shrubs for Shrikes (SFS), Plovers on Shore (POS), and Stewards of Saskatchewan (SOS) banner program. My co-worker Rachel Ward and I were very fortunate to have two wonderful summer staff join the team this year to help us out with our conservation work — Brynne McMaster and Cory Tufts. With Brynne and Cory's help, our team accomplished a lot!

A large portion of our field work involves one-on-one visits with program participants. These visits allow us to catch up in person, verify species sightings and habitat, provide outreach materials, learn from our program stewards, and enroll new stewards into the programs. We were able to visit with 75 current program participants, 95 potential program participants, and we welcomed 71 new stewards into the programs this year! We had many stewards conserving habitat for various species at risk including Burrowing Owls, Loggerhead Shrikes, Piping Plovers, Sprague's Pipit, Ferruginous Hawks, Barn Swallows, Monarch Butterflies, and Northern Leopard Frogs ... just to name a several few!

Earlier in the summer, we were able



Rachel Ward hard at work in the field.
Photo credit: Kaytlyn Burrows.



Cory Tufts surveying for Piping Plovers at Lake Diefenbaker. Photo credit: Kaytlyn Burrows.

to help the Water Security Agency with their annual Piping Plover census on Lake Diefenbaker. It was four days of walking the shorelines surveying for the endangered Piping Plovers and eagerly waiting to hear that distinctive “peep-lo” call! We really enjoyed our time on the shorelines of Lake Diefenbaker and look forward to taking part in this census every year, if possible!

Another important part of the stewardship programs is the annual species census. Each year, we send all of our program participants a census card to report the presence or absence

of the species they are monitoring for. While we are still busy following up with our stewards, so far 36 per cent of OBO participants have responded and reported 13 pairs, seven singles, and 10 young Burrowing Owls. Forty-five per cent of SFS participants have responded and reported 32 pairs, 129 singles, and 27 young Loggerhead Shrikes; 30 per cent of POS participants have responded and reported four pairs, five singles, and five juvenile Piping Plovers; and 45 per cent of SOS participants have responded and reported 658 Barn Swallows, 37 Ferruginous Hawks, seven Short-eared Owls, 35 American Badgers, 31 Sprague's Pipits, 39 Bobolinks, 48 Common Nighthawks, 23 Northern Leopard Frogs, 18 Tiger Salamanders, and 15 Monarch Butterflies.

In addition to the census, we also receive species at risk sightings through our toll-free HOOT line, social media, and email. So far this year, there have been 83 reports from the public, program partners, and stewards submitting sightings! We have received sighting reports for Burrowing Owls, Short-eared Owls, Loggerhead Shrikes, Monarch Butterflies, Common Nighthawks,

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Ferruginous Hawks, and Northern Leopard Frogs.

We were also very fortunate to be able to attend and co-host in-person events and presentations this summer! We attended the opening of the Royal Saskatchewan Museum's new exhibit, Home: Life in the Anthropocene, as well as the Society for Range Management tour in Eastend and Old Man on His Back (Nature Conservancy property). We were thrilled to be able to co-host an in-person Conservation Awareness Day (CAD) event in Consul in July, too! We had a delicious supper catered by the Manley Bakery followed by presentations from Nature Conservancy of Canada and South of the Divide Conservation Action Program. It was wonderful to be able to come together again and talk about conservation and species at risk with our program partners, stewards, and other members of the local community.

In August, we were also very excited to plan and co-host a webinar and in-person event all about the Great Sandhills of Saskatchewan. During the webinar, we presented on the ecology of the Great Sandhills and held an in-person gathering and BBQ-style supper at the Great Sandhills Museum and Interpretive Centre in Sceptre, SK. Following supper, we were fortunate to take a tour of the Block Family Ranch and learn about their history and ranching operation.

I'd like to take this opportunity to thank all the stewards that welcomed us onto their property; your kindness and hospitality does not go unnoticed! A big thank you as well to Brynne and Cory for their dedication this summer. We accomplished our goals because of your passion and hard work! Lastly, I want to thank my friend and co-worker, Rachel, for all of your hard work this past year as a coordinator. I'm sad to lose you as my "partner in crime" but so glad you are able to stay on with Nature Saskatchewan a little longer. You are an invaluable member of the team!

If you would like more information on our stewardship programs, or report a species at risk sighting, or just have a chat about nature, please give us a call toll-free at 1-800-667-HOOT (4668), direct at 306-780-9833, or email obo@naturesask.ca. We would love to hear from you! 🐦

CALL FOR APPLICATIONS TO THE 2023 MARGARET SKEEL GRADUATE STUDENT SCHOLARSHIP

The 2023 Nature Saskatchewan Margaret Skeel Graduate Student Scholarship, in the amount of \$2,000, assists a graduate student attending a post-secondary institution in Saskatchewan in the fields of biology, ecology, wildlife management, environmental education and environmental studies including social sciences applied to advancement of conservation and sustainable use of natural resources.

The scholarship is awarded to a student pursuing studies in a field that complements the goals of Nature Saskatchewan: to promote appreciation and understanding of our natural environment, and support research to protect and conserve natural ecosystems and their biodiversity. We work for the sustainable use of Saskatchewan's natural heritage, ensuring survival of all native species and representative natural areas, as well as maintenance of healthy and diverse wildlife populations throughout the province. We aim to educate and to stimulate research to increase knowledge of all aspects of the natural world. Research that will contribute to resolving current conservation problems has special priority.

The Margaret Skeel Graduate Student Scholarship must be applied to tuition and associated costs at the named institution. For more information, contact our office by e-mail at info@naturesask.ca or by phone at 306-780-9273 (in Regina) or 1-800-667-4668 (Saskatchewan only).

Application Guidelines

Please include the following documents:

- An updated resume with a cover letter
- A full description of your present and/or proposed research
- A transcript of the undergraduate and graduate courses completed so far and those in which you're currently enrolled
- An indication of what other source(s) of funding you hope to rely on to complete your studies
- Reference letters (optional)

Application deadline:

December 31, 2022

Winner announced:

January 31, 2023

Please submit your completed application to the Scholarship Committee:

info@naturesask.ca or
Nature Saskatchewan
206 - 1860 Lorne Street
Regina, SK S4P 2L7

ADULT FEMALE BARRED OWL (*STRIX VARIA*) EATING SMALL CATERpillARS (FAMILY GEOMETRIDAE) WHILE GUARDING A RECENTLY FLEDGED CHICK IN WINNIPEG, MANITOBA

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On 21 June 2022, in a riparian flood-plain hardwood forest along the Red River in Winnipeg, Manitoba (Figure 1) we, along with Ken Stewart and Patricia Duncan, observed and photographed an adult Barred Owl (*Strix varia*) feeding on small prey from tree trunks, branches, and leaves. Barred Owls have successfully nested in this river bottom forest dominated by green ash (*Fraxinus pennsylvanica*), black ash (*F. nigra*), Manitoba maple (*Acer negundo*), and American elm (*Ulmus americana*) since at least 2019 (Henry Fast, pers. comm.).

On closer inspection using binoculars and telephoto camera lenses, and later of images taken on this day and on earlier visits (2020), it was noted that the owl was eating small caterpillars (Figure 2). One live caterpillar was collected, photographed, and tentatively identified as an Elm Spanworm caterpillar (*Ennomos subsignaria*) (Figure 3). Other similar-sized

green and brown caterpillars, also in the family Geometridae, occur in the area including the Spring Cankerworm (*Paleacrita vernata*) and Fall Cankerworm (*Alsophila pometaria*).^{1,2}

James and Patricia Duncan had captured and banded an adult female and male Barred Owl and their two fledglings at and near their nest tree in summer 2021. We confirmed that the adult consuming the caterpillars on 21 June 2022 was the same adult female by reading the band number from photographs taken by Aaron Janzen and Ken Stewart. The adult female was observed and photographed perching and hunting from 19:20-22:00 h while remaining close enough to guard a fledged chick within 50 m west-



FIGURE 3: Elm Spanworm collected near a hunting Barred Owl on 21 June 2022. Photo credit: James Duncan.

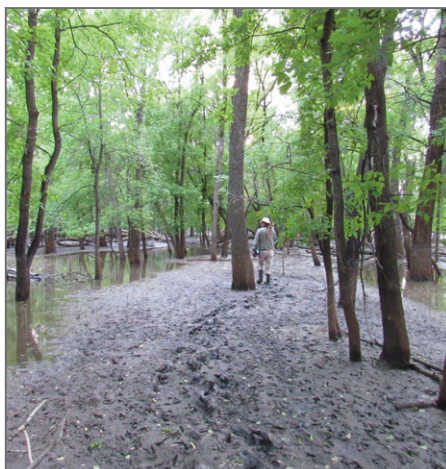


FIGURE 1: Riparian flood-plain hardwood forest along the Red River in a Barred Owl breeding home range in Winnipeg, Manitoba (21 June 2022). Photo credit: James Duncan.



FIGURE 2: Adult female Barred Owl eating a moth caterpillar (22 June 2020). Photo credit: Aaron Janzen.

southwest of the nest tree; the adult male was perched at least 50 m east of the nest tree and out of sight.

The adult female appeared to capture moving caterpillars including those suspended by silk threads within the tree canopy and those crawling on tree trunks and small trees that were awkward to land on, fallen trees and upturned tree roots, and from the forest floor (Figures 4-5). The leaves on these trees were heavily chewed on and some were defoliated by caterpillars

(Figure 5). Afterwards, the female flew up into the canopy near the fledged juvenile. In 2020, at this same location, an adult Barred Owl was observed feeding small caterpillars to its fledged chick (Figure 6).

The Barred Owl is a generalist predator with a diverse diet, including prey up to the size of rabbits but also invertebrate species, across its North American range.³ In Manitoba its previously known diet included 37 prey taxa, including adult sphinx moths

(Family Sphingidae) and adult June bug beetles (*Phyllophaga* spp.) identified from exoskeleton remains recovered from the stomachs of Barred Owl specimens or from nest substrate and regurgitated pellet materials.^{4,5}

This account is the first record of Barred Owls actively stalking and eating small moth caterpillars. It is noteworthy because the remains of soft-bodied boneless prey items are either difficult to locate or absent from Barred Owl prey remains obtained from regurgitated



FIGURE 4: Adult female Barred Owl hunting moth caterpillars from the side of a tree trunk (21 June 2022). Photo credit: Ken Stewart.



FIGURE 5: Adult female Barred Owl hunting moth caterpillars from an awkward perch in a small tree (21 June 2022). Photo credit: Aaron Janzen.



FIGURE 6: Adult female Barred Owl feeding a fledged chick a small moth caterpillar (22 June 2020). Photo credit: Aaron Janzen.

pellets or nest cavity substrates⁶ and their importance to this adaptable owl species is likely underestimated. This behaviour and prey source were likely previously overlooked due to the small size of these soft-bodied moth larvae.

At times the female Barred Owl appeared to be catching a caterpillar every few minutes (Ken Stewart, pers. comm.). The energetic and nutritional importance of small caterpillars to breeding passerines is well known.⁷ It is questionable if there is a significant net energy benefit to adult Barred Owls or their young, given their size, except perhaps when small caterpillars are very abundant during outbreaks. Foraging opportunities for a female Barred Owl may be limited during the period when it has to remain close to its nestlings or recently fledged chicks to protect them.³ At this time the female is largely dependant on the male that forages over a greater area.³ A female Barred Owl with fledglings may partially meet its energy needs by opportunistically foraging on abundant caterpillars, especially in river bottom forests where spring flooding initially covered the forest floor with water and later left a mud substrate

(Figure 1). The use of local caterpillar prey by the female would enable more prey delivered by the male to be consumed by the fledglings, maximizing their growth and condition which in turn increases their likelihood of surviving to independence.⁸

The Barred Owl must overcome biophysical challenges to capture such small prey. Owls have lower visual spatial resolution and a limited visual accommodation range resulting in an inability to focus on close objects.⁹ Barred Owls therefore rely on prominent rictal bristles, which are sensitive to touch¹⁰, around their bills to locate and nimbly grasp small caterpillars when they are too close to see them (Figures 7-8).

Acknowledgements

Thanks to Richard Westwood for tentatively identifying the live caterpillar photographed and for helpful comments on similar moth caterpillars found in the general area. Ken Stewart and Patricia Duncan provided helpful discussions based on their field observations. Ken Stewart also provided valuable photographic documentation. Dean Berezanski, Patricia Duncan, Ken Stewart,

Todd Whiklo and an anonymous reviewer kindly commented on early drafts of the manuscript.

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FIGURE 7: Adult female Barred Owl bending down to grasp a small moth caterpillar in its bill (21 June 2022). Photo credit: Aaron Janzen.



FIGURE 8: A close-up of an adult female Barred Owl attempting to catch a small moth caterpillar in its bill (21 June 2022). Photo credit: Aaron Janzen.

IT'S BEEN A LONG TIME RUNNING: RARE PLANT RESCUE CELEBRATES 20 YEARS

Ashley Vass & Emily Putz

Habitat Stewardship Coordinators
Nature Saskatchewan

Rare and endangered plants are an often overlooked part of conservation work, most being small and hard to find in isolated ecosystems. Nature Saskatchewan's Rare Plant Rescue (RPR) program aims to change this, and is celebrating 20 years of seeking out some of the prairie ecosystem's most elusive organisms!

Launched in 2002, RPR is a stewardship program for landowners with rare plants, or habitat where they are likely to occur. Focused on targeting nine species protected federally as threatened, endangered or extirpated, and seven provincially rare species, each year search crews ask permission to search suitable habitat on private landowner properties. Once located, information is taken on the plant's health, phenology, and individuals are mapped and counted; this helps fill important gaps in the knowledge base of where these species are, how populations are doing, and what environment they need to thrive. The past 20 years have seen tremendous success. By partnering with landowners conserving habitat, we have been able to search and collect data on Saskatchewan's rarest plant species, contributing to the down-listing of at least three.

During the 2022 field season, surveys targeted Smooth Goosefoot (*Chenopodium subglabrum*), Tiny Cryptantha (*Cryptantha minima*), Dwarf Woolly-heads (*Psilocarphus brevisimus* var. *brevisimus*), Buffalograss (*Bouteloua dactyloides*), and Slender Mouse-ear-cress (*Crucihimalaya virgata*), whose name recently changed from *Transbergingia bursifolia* ssp. *Virgate*. The latter two were not found, including a population re-visit for Slender Mouse-ear-cress; but as it is tough to find, being a biennial strongly dependent on spring moisture, we are hopeful it may show up in a future year. In total this year, staff surveyed 35 quarter sections of land and found more than 600 individual plants listed either federally or provincially as species at risk.

Our 2022 surveys involved 17 different land managers, each of whom were provided with a report following the search of their property. In the report, we detail the type of search that took place, the target species, and any other rare species that were observed, including non-plant, wildlife species at risk. We also provide maps highlighting the survey routes, including locations of rare and invasive species, along with information about those species to help with identification and inform on beneficial management practices.

Over the decades, RPR has sleuthed out 720 occurrences of federally listed plant species and recorded another 556 provincially rare plants found incidentally, all during a whopping 559 individual quarter section searches. Once a plant occurrence is found, RPR also monitors — every three-to-five years — where

they are able to revisit and map out how populations have changed between years, gaining information on whether the populations have grown or shrunk, or are being pressured from threats such as invasive species. Monitoring work is also a great opportunity to visit and reconnect with the wonderful landowners who make our program possible and keep these plant populations healthy through their ranching practices!

So far this year, we have contacted 32 landowners and managers and have discussed signing up for the program with 20 potential participants. We were happy to reconnect with six landowners already enrolled and very grateful that seven new participants joined the program this year! There are currently 93 participants in the program, conserving nearly 260,000 acres of rare plant habitat. This habitat includes rare fragile ecosystems such as sand dune environments, prairie fens, dry prairie ephemeral wetlands, and pristine, but rapidly disappearing native prairie. Saskatchewan has lost the vast majority of its prairie, with estimates of what is left as low as nine per cent. Rare plants are very specific about their needs — they require grazing and they can't compete against aggressive tame species, such as Smooth Brome or Crested Wheatgrass, nor against cropland expansion. As habitat disappears, so do the plants, leading in turn to the further disappearance of species that rely on them such as birds, mammals, amphibians, and pollinators — species that humans also rely on.

Nature Saskatchewan uses voluntary handshake agreements with landowners in an effort to conserve and collect data on target plants. The program works alongside the landowners' existing practices, and the land continues to be used in a way that benefits the steward. We rely on our ranchers and landowners to keep these plants thriving. If you think you have a rare plant or suitable habitat please give us a call on our toll-free Hoot Line, at **1-800-667-HOOT (4668)** or email **rpr@naturesask.ca**. Every rare plant recorded is helping to map ranges, monitor populations, and aid with conservation efforts. Personal information is never shared without permission. 🐦



Western Spiderwort (*Tradescantia occidentalis*).
Photo credit: Emily Putz



Small-flowered Sand-verbena (*Tripterocalyx micranthus*). Photo credit: Emily Putz

POSSIBLE EFFECTS OF PLACEMENT TIMING ON THE USE OF REPLACEMENT HABITAT BY CHIMNEY SWIFTS IN MANITOBA

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Introduction

Loss of breeding and roosting habitat is one of the primary threats to the Chimney Swift (*Chaetura pelagica*) in Canada.¹ Prior to European settlement, this species nested and roosted in hollow trees in mature forests, only switching to chimneys during periods of urban expansion.² Since the Breeding Bird Survey was introduced in 1970, the Chimney Swift has declined significantly in Canada, culminating in it being listed as Threatened under the federal *Species at Risk Act* and in Manitoba, under *The Endangered Species and Ecosystems Act*.¹

Although breeding and roosting habitat loss is not considered a limiting factor in some regions, evidence from Manitoba and elsewhere suggests that annual loss of occupied habitat is still occurring on the Chimney Swift's nesting grounds.^{1,2,3,4} Consequently, replacing demolished, capped or lined chimneys has become a key focus for Chimney Swift conservation in Manitoba. The provincial legislation specifically protects the habitat on which listed species depend for breeding and other key parts of their lifecycle. The Manitoba Government has therefore required mitigation in two instances for the loss of breeding and roosting habitat on Crown lands. The structures supporting the habitat were deteriorating to the point that they endangered the public and were therefore in need of demolition. In each case, mitigation plans were prepared and, prior to demolition, a letter of exemption was issued under *The Endangered Species and Ecosystems Act* by the Government of Manitoba and a permit was issued under the federal *Species at Risk Act*, both permitting the destruction of Chimney Swift habitat.

Here I describe the process and the subsequent use by Chimney Swifts of these structures. These exemptions stipulated that habitat should be replaced at a ratio of one new structure for every structure destroyed at the first site and two new structures for every structure destroyed at the second site, both of which are described in more detail below. I also describe use of playback to draw Chimney Swifts to each structure in spring 2021.

Methods

Old Grace Hospital

A large brick chimney at the Old Grace Hospital in the Wolseley neighbourhood of Winnipeg, Manitoba, was demolished in the winter of 2014.⁵ Initially, a large timber tower was constructed on the site of the hospital, but was only completed

in July 2015, too late to support nesting that year. No Chimney Swifts were recorded roosting in the tower over the subsequent weeks. The tower was removed in the fall of 2015 to facilitate new buildings at the Old Grace location and it was moved to the Assiniboine Park in Winnipeg in 2018.⁵ Construction of a multipurpose housing complex, the Old Grace Housing Cooperative, began on the original site in 2016 and was formally opened in 2019. A false chimney was constructed within the new building development as long-term mitigation for the loss of Chimney Swift habitat. The chimney (Figure 1) was constructed of concrete blocks and the internal dimensions of the chimney are 0.46 m x 2.80 m x 11.00 m, with the top two metres above the eaves. A 38 mm overhang was constructed over the entrance to provide



FIGURE 1: False chimney at the Old Grace Housing Cooperative. Note that the chimney is the large red rectangular structure in the centre of the photograph. Photo credit: Ken De Smet, Manitoba Government.

a rain shield. These dimensions were equivalent to, or exceeded, minimum dimensions of chimneys that are used successfully by Chimney Swifts in Manitoba.⁶ The chimney was designed specifically to occupy an area of wall as part of the overall site development plan (Figure 1).

The false chimney was completed in 2018, but upon closer inspection it was found that horizontal metal support bars remained inside the chimney during the breeding season. These were removed by spring 2019 and the chimney is now considered to be suitable for Chimney Swifts. There was, however a four-year gap in habitat availability at this site. Prior to 2021, no Chimney Swifts were observed using the Old Grace Housing Cooperative site during nest and roost monitoring, which covered a period 60 minutes before and 30 minutes after sundown.⁷

Selkirk Mental Health Centre

Three chimneys have either been demolished or capped, or are to be demolished in the near future, at the provincially owned Selkirk Mental Health Centre in Selkirk, Manitoba. Four artificial towers were constructed at this location in spring and summer 2021, which were part of a mitigation plan in lieu of the destruction of three buildings with chimneys used by Chimney Swifts on the site (Figure 2).⁸

A known nesting chimney on the Unit B building was capped in fall 2015 as there was a possibility of imminent demolition. A second chimney, the 36.6 m (120 foot) tall Powerhouse stack chimney, was demolished in April 2021. Since monitoring began in 2007, this chimney was a significant roost site, supporting up to 61 Chimney Swifts on a single night (Manitoba Chimney Swift Initiative, unpublished data). The Tankhouse and its chimney is to be demolished, but was still standing in April 2022. There are no plans to demolish the Red River College building that also supports a nesting chimney. The letter of exemption and federal permit allows for the destruction of all three buildings and the subsequent construction of six replacement artificial towers.⁸ Three replacements, two free-standing towers (T1 and T2 in Figure 2), and one tower attached to an existing



FIGURE 2: Plan of all chimneys at the Selkirk Mental Health Centre. Map created on ArcGIS Professional and property of the Government of Manitoba.

building (T3 in Figure 2) were constructed before 1 May 2021. The fourth tower (T4 in Figure 2; Figure 3) was completed in mid-June 2021 and built on the site of the Powerhouse chimney. All tower designs and construction were based on the successful tower at the Assiniboine Park (former Old Grace tower), the design of which followed guidelines from the Manitoba Chimney Swift Initiative.^{5,6} Internal dimensions of T2, T3 and T4 are 0.762 m x 0.762 m x 10.36 m; T1 is 0.76 m x 0.76 m x 13.82 m. The inside of each tower is lined with rough sawn cedar and the outside is clad with steel sheeting.

Playback protocols

Given the lack of occupancy at the Old Grace Housing Co-op and the urgency of attracting Chimney Swifts to the Selkirk towers, I established a playback protocol to try to draw Chimney Swifts to these sites in the summer of 2021. Playback has been used successfully to attract Chimney Swifts to artificial towers in Minnesota and Ontario, although in the Ontario case, no Chimney Swifts settled to breed in the towers following playback.^{9,10} The Ontario playback also employed the use of artificial Chimney Swift decoys over the tower and employed a two hour protocol with an initial period of 30 minutes of passive observations followed by 60 minutes of

playback and decoy-use, followed by a final 30 minutes of passive observations.¹⁰

Pre-recorded generic Chimney Swift calls were downloaded from a CD purchased from the Chimney Conservation Association onto an MP3 player and broadcast from a wireless Bluetooth speaker placed near the base of each structure.¹¹ Towers T1 and T3 were close enough to consider a simultaneous response by Chimney Swifts and therefore the speaker was placed between these towers. Playback commenced once it was confirmed that Chimney Swifts had returned to Manitoba in the spring, based on volunteer reports to the Manitoba Chimney Swift Initiative (MCSI) and submissions on eBird.¹² I designed a 70-minute protocol



FIGURE 3: Tower T4 at the Selkirk Mental Health Centre. Photo credit: Robert Stewart.

for daytime monitoring (defined as periods that ended at least 30 minutes before sundown) and a 90-minute protocol during the roosting period (the 30-minute period either side of sundown). Playback was conducted by volunteers from MCSI, residents of the Old Grace Housing Cooperative and me. Most playback at Old Grace was conducted in the late afternoon, whereas playback at Selkirk was primarily conducted in the morning and during the roosting period. Monitoring began with 10 minutes of silent observation. Following this, playback was broadcast for five minutes interspersed with 10 minutes of silent observation. This 15-minute protocol was repeated four times during the observation period. The protocol was unchanged if used during the roosting period, with all playback ceasing for the final 30 minutes of the 90-minute period, providing for a 30-minute period of silent observation. If Chimney Swifts entered the tower, the playback protocol ceased for the remainder of the observation period and all monitoring switched to silent observation.

Playback ceased if sites were considered to be occupied by Chimney Swifts. Occupancy was defined as at least one bird entering the structure and remaining inside during the roosting hour on a minimum of two evenings between spring arrival and 7 June. Playback was stopped at both sites after 7 June as Chimney Swifts would be expected to be constructing nests by this date.¹³ Monitoring continued if volunteer resources allowed, on at least one day per week until the end of June at the Old Grace Housing Cooperative and until mid-September (fall migration) at the Selkirk Mental Health Centre (as defined by no Chimney Swifts present for two consecutive visits) using MCSI monitoring protocols.⁷

Stages of breeding were estimated in each structure from June through to September, using the daytime monitoring protocols established for Manitoba.¹⁴ A Reconyx Hyperfire 2 Trail Camera was also placed in the base of T2 at the beginning of May, propped up to face the west-facing wall. Photographs of Chimney Swifts taken by this camera

were used to supplement monitoring data, primarily by confirming the presence of Chimney Swifts in the tower.

All towers were accessed via cleanout doors at the base of the structure in fall and winter to check for evidence of Chimney Swifts, including droppings, nests, egg shells, feathers and carcasses.

Results

Chimney Swifts were first reported in Winnipeg on 6 May 2021, and in Selkirk on 12 May 2021 (Amanda Shave, pers. comm.).¹² Playback at Old Grace Housing Co-op began on 6 May 2021, and was broadcast six times (Table 1). Supplementary roost monitoring without playback was also conducted on other evenings during the spring (Table 1). No Chimney Swifts were observed using the chimney during any monitoring and no evidence was found of use during an inspection of the cleanout on 3 December 2021. Chimney Swifts were seen flying high above the property during the summer, including during roost monitoring, but no apparent direct interest was shown in the site.

Playback at Selkirk Mental Health Centre began on 18 May 2021 and was conducted on five occasions (Table 2). There was a resident Chimney Swift population on site, and birds responded vocally and behaviourally to playback.

Observed behaviours included turning to swoop over the rim of the towers and chasing, behaviours which are associated with breeding Chimney Swifts.^{2,14} A Chimney Swift was observed entering T3 on 3 June 2021, but no roosting observations were made in this tower before playback discontinued on 7 June 2021 (Table 2). Roosting by a single Chimney Swift was noted in tower T2 on 18 May 2021 and 24 May 2021, culminating in playback ceasing early at this tower.

All towers and chimneys at the Selkirk Mental Health Centre were monitored throughout the summer, at least once per week by volunteers, and each was occupied on several occasions. Summary use of all sites is described as follows:

T1: First monitored on 11 May 2021. First observed use by two roosting Chimney Swifts on 10 June 2021. Subsequent use during the day on 18 June 2021 and four entries and two exits noted during roost monitoring on 23 June 2021 (two birds roosted for the night) suggested breeding.¹³ Only subsequent use however was recorded on 14 July 2021 when a single bird roosted for the night. No evidence of a nesting attempt was found inside the tower when it was inspected on 10 September 2021, although droppings confirmed that birds



FIGURE 4: Motion capture image of a pair of Chimney Swifts inside T2 taken at 10:14:37 on 8 June 2021. Photo taken with Reconyx Hyperfire 2 camera and property of the Government of Manitoba.

had used it earlier in the season.

T2: First monitored on 11 May 2021. First use by a single roosting Chimney Swift during playback on 18 May 2021 and subsequently on 24 May 2021. No Chimney Swifts roosted on 26 May and 3 June 2021, but two roosted on 7 June 2021. Images from the Reconyx Hyperfire 2 camera indicated that a pair was present together in the tower during the day on 8 June 2021 from 10:14 to 10:16 (Figure 4). An entry/exit cycle observed from outside the tower during the day on 10 June 2021 suggested possible nest

building.¹⁴ A presumed pair, based on two individuals in the tower together, roosted on the same evening and on 15 June 2021. Further use of the tower was recorded by the Reconyx camera between 19 and 21 June 2021, but no further use was recorded after this either by volunteers or the camera. Contrary to observations on 8 June 2021, no evidence of a nesting attempt was found inside the tower when it was inspected on 10 September 2021, although droppings confirmed that birds had used it earlier in the season.

T3: First monitored on 11 May 2021. First use during the day by a single Chimney Swift during playback on 3 June 2021. No subsequent use was detected until a single bird roosted on 27 June 2021. Subsequent roost monitoring sessions suggested occasional roosting by single birds throughout July, but not into August. No evidence of a nesting attempt was found inside the tower when it was inspected on 10 September 2021, although feathers at the base of the tower suggested that at least one non-breeding adult had used it for moulting.

DATE	METHOD	OBSERVATIONS
6 May 2021	Playback – Daytime (defined as anytime between 30 minutes after sunrise and 30 minutes before sunset)	No Chimney Swifts observed
13 May 2021	Playback – Daytime	Possible Chimney Swift observed flying high above the roof
17 May 2021	Playback – Daytime	No Chimney Swifts observed, Merlin (<i>Falco columbarius</i>) in area
20 May 2021	Playback – Daytime	No Chimney Swifts observed
25 May 2021	Playback – Daytime	No Chimney Swifts observed
26 May 2021	No playback – Roost (defined as the period starting 30 minutes before sunset and ending 30 minutes after sunset)	No Chimney Swifts observed, Two Merlins in area
27 May 2021	No playback – Roost	No Chimney Swifts observed
30 May 2021	No playback – Roost	No Chimney Swifts observed, Merlin in area
31 May 2021	Playback – Daytime	No Chimney Swifts observed. Note: Five Chimney Swifts observed for 30 minutes in the evening at 21:15 DST, circling high over building but did not roost
3 June 2021	No playback – Roost	No Chimney Swifts observed
7 June 2021	No playback – Roost	Chimney Swifts spotted in area on two occasions but did not investigate chimney

TABLE 1: Summary of monitoring at the Old Grace Housing Co-op, Winnipeg, Manitoba in May and early June 2021.

DATE	PLAYBACK PERIOD	TOWER	OBSERVATIONS
18 May 2021	Roost	T1 and T3	Immediate response by pair above rim of T1, chasing behaviour consistent with pair bonding ² . Responded to every playback period
		T2	Regular flights by area. Single Chimney Swift roosted at 21:32 DST
24 May 2021	Roost	T1 and T3	Up to seven birds observed above T1, including obvious pairing behaviour. No entries in either tower
		T2	Up to seven Chimney Swifts in immediate area. Single Chimney Swift entered tower to roost at 21:20 DST
28 May 2021	Daytime (defined as anytime between 30 minutes after sunrise and 30 minutes before sunset)	T1 and T3	Gusty winds. Up to four Chimney Swifts observed dipping and circling over T1
1 June 2021	Daytime	T1 and T3	Up to 10 Chimney Swifts around T1, several sharp dips towards tower
3 June 2021	Daytime	T1 and T3	Single Chimney Swift entered T3 and did not leave within 30 minutes

TABLE 2: Summary of playback monitoring at the Selkirk Mental Health Centre. Note that tower T4 was not completed until after the protocol had ended.

T4: Observations first made on 18 June 2021, while construction workers were still working on the side of the tower, noted three Chimney Swifts regularly flying over the rim during the daytime. A single Chimney Swift roosted inside the tower on 23 June 2021, the first monitoring night post construction. Two birds roosted on 27 June and 7 July 2021, but no birds were noted roosting inside the tower on 15 July 2021. A single Chimney Swift was observed entering the tower on 15 July 2021 at the culmination of a 90-minute daytime monitoring session. Monitoring was not conducted consistently at this site again until 11 August 2021 when six entries and four exits were noted during monitoring and two Chimney Swifts roosted for the night. A similar level of activity was detected during roost monitoring on 16 August 2021. On 19 August 2021, a probable nesting attempt at the non-brooded juvenile stage was confirmed during a 90-minute daytime observation period.¹³ Further monitoring indicated nesting was being attempted, culminating in two fledged juveniles entering the tower on 9 September 2021. Observations continued until no Chimney Swifts were observed using the tower, with the final monitoring session occurring on 15 September 2021. Evidence of nesting Chimney Swifts was found upon inspection of the cleanout trap on 23 September 2021, including a nest on the wall of the tower (Figure 5), eggshells, twigs and droppings. No carcasses were present on the floor of the tower. The mass of eggshells suggested that three or four chicks hatched in this tower but confirmation of total productivity cannot occur until the nest contents can be examined for dead chicks.

Initially, the monitoring data suggested that fledging at T4 occurred between 30 August and 9 September 2021. The behaviour of the fledged birds on 9 September, requiring several attempts to enter the tower, including tumbles along the external wall, suggested inexperience, supporting the conclusion that the birds had only fledged between one to four days previous (Barbara Stewart, pers. comm.). The single daytime entry on 15



FIGURE 5: Nest on the wall of tower T4 at the Selkirk Mental Health Centre taken from underneath on 23 September 2021. Photo credit: Timothy Poole, Manitoba Government.

July 2021 was likely an adult carrying nesting material. Assuming it takes a minimum of seven days to build a nest and lay the first egg, incubation may have started on 21 July 2021 and hatching may have occurred between seven and 10 August 2021. No birds were detected using the tower during monitoring of the adjacent Tankhouse chimney on 8 August 2021. Assuming that the lack of activity was indicative of there being no chicks hatched, this potentially places hatching between 9 and 11 August 2021. This suggests a nominal fledging date of 6 to 8 September 2021 (28-30 days post-hatch), with the latest date being 9 September 2021 (Barbara Stewart, pers. comm.).

Discussion

These results demonstrate the importance of constructing replacement towers for Chimney Swifts to mitigate for habitat that has been destroyed. Significantly, the timing of erecting replacement habitat varied between the two sites. In the case of the Selkirk

Mental Health Centre, three alternative sites were completed before the Chimney Swifts returned from their wintering grounds, and a fourth was available early enough in the season for a pair to successfully raise their chicks. By contrast, there was a gap of four breeding seasons between the demolition of the Old Grace Hospital site and the completion of the Old Grace Housing Cooperative, with an artificial tower placed too late for Chimney Swifts to use in the first of those years. Chimney Swifts are known to possess a strong bond to their nest site, and if one adult does not return to the site in spring, the other continues to use the same site with a new mate.¹⁵ Furthermore, young birds often return to the immediate area around their natal site.¹⁵ In two cases, Chimney Swifts have occupied unscreened chimneys in Winnipeg following the capping of previously occupied chimneys on the same buildings (pers. obs.).¹⁶ The four years with no available nesting habitat may have broken the bond that juvenile

or adult Chimney Swifts had with the site. Furthermore, I cannot eliminate the possibility that the Old Grace site lacks certain unknown structural cues which are critical for Chimney Swift occupation.¹⁰

The effect of time might have been amplified by issues relating to location. The tower at Assiniboine Park Zoo was occupied by a breeding pair of Chimney Swifts in its second full season in place.⁵ The success of this tower was potentially a consequence of proximity to a large hub of at least 11 nesting and roosting chimneys north of the Assiniboine River, with the closest chimney being approximately 300 m from the tower.⁵ Two regular nesting chimneys were still left standing at the Selkirk Mental Health Centre in 2021, and each tower was no more than 70 m from the closest occupied nesting chimney. By contrast, the closest known occupied nest chimney to the Old Grace Housing Co-op is an apartment block 185 m away in a dense urban neighbourhood. The MCSI database lists 11 sites in that neighbourhood, including the Old Grace Housing Cooperative, the original Old Grace Hospital chimney and a site watched in 2019 but which was not occupied by Chimney Swifts.¹⁷ Of the eight remaining sites, four chimneys have been capped, lined or demolished, a rate of decline similar to that identified previously in Manitoba.^{4,17} Only four known active chimneys remain in this neighbourhood. While the small number of known sites may be influenced by low volunteer recruitment in the area, low recruitment may reflect a low population of Chimney Swifts. What is clear is that 25% of the known sites were lost in the intervening years before the Cooperative was finished, which likely served to amplify the impacts of the four-year period with no habitat. Furthermore, it has been suggested elsewhere that artificial towers constructed for Chimney Swifts at the northern edge of their range, were placed out of logistical convenience rather than in areas with large numbers of Chimney Swifts or where habitat is limiting.¹⁸

The successful nesting attempt at T4 was significantly later than any other documented breeding attempt

in Manitoba, with the previous record being 24 August 2017 at a nest site in Brandon (Manitoba Chimney Swift Initiative, unpublished data).¹³ Previously documented late breeding attempts by Chimney Swifts in Manitoba have resulted in nest failures. A re-nesting attempt in the Club Amical in St Adolphe and an apparent primary attempt in St Avila School in Winnipeg were monitored concurrently in August 2016. In both cases, feeding continued until the third week of August and stopped suddenly, culminating in adult Chimney Swifts abandoning nest sites quickly, heading towards full migration (Barbara Stewart, pers. comm.). The mechanism for such rapid abandonment is unknown but is suspected to relate to sharp declines in aerial insect populations, possibly due to late season cool temperatures. Although there is little information regarding why Chimney Swift nests fail, studies of brood survival in another aerial insectivore, the Tree Swallow (*Tachycineta bicolor*), documented declines in insect flight activity following cold snaps.¹⁹ Warm and dry weather conditions in August and September 2021 may have produced higher than average insect flight activity, enabling these birds to continue to feed their young much later into the fall.

It is possible that the pair of Chimney Swifts that occupied T2 switched to T4 on its completion. No Chimney Swifts were detected using T2 after 21 June 2021, with first documented use of T4 on 23 June 2021. As T4 sits on the site of the former Powerhouse roost chimney, this suggests the Chimney Swifts may have been influenced by site location, a form of site fidelity, in their habitat selection. There is no previous evidence that Chimney Swifts bred in the Powerhouse roost chimney, although they have been documented nesting in large roosts in Manitoba and elsewhere across their range (MCSI, unpublished data).² Historically, volunteers were instructed to focus on counting roosting birds, and were not encouraged on this site to document daytime use consistent with breeding; therefore, we cannot rule out the possibility that Chimney Swifts had previously nested in the Powerhouse chimney.

The loss of the roost chimney led to

a drop in overall numbers at the Selkirk Mental Health Centre in 2021. A new smaller roost (nine birds) formed at an apartment building 1.5 km to the east of the hospital grounds in spring 2021. Although the roost was not replaced on site, a consistent total of six to 10 birds was observed during roost monitoring each evening prior to juveniles fledging. In addition, two successful breeding attempts were recorded in the two existing brick chimneys on the site, opening up the prospect of more recruits breeding in the other towers in future years.

Conclusions

The experience with artificial habitats in Manitoba for Chimney Swifts demonstrates the importance of completing habitat mitigation in a timely manner for migratory birds with evidence of site fidelity. Although late nesting was successful in T4, this was possibly due to unseasonably warm weather conditions increasing insect loads. Thus, completing construction before birds return in the spring should still be considered a priority for their conservation. Furthermore, replacing nest and roost sites quickly is more urgent in areas with low densities of alternate breeding sites than areas with high densities of alternate sites and larger local populations of Chimney Swifts.

Given playback elicited a response at the Selkirk Mental Health Centre in 2021, I would recommend its continued use at the Old Grace Housing Co-op in future years, possibly with some adaptation of the equipment to broadcast further in an enclosed urban area. Following initial difficulties attracting Chimney Swifts to towers that replicated the successful model used in Texas, our recent experience with taller, insulated artificial towers confirms that Chimney Swifts will accept these sites for roosting and nesting in Manitoba.^{6,15}

The successful nesting in T4 is the latest recorded in Manitoba. Fledging is likely to have occurred between 6 and 9 September 2021, around two weeks later than the previous record. The potential switching by Chimney Swifts to a tower on the site of the demolished chimney

not only suggests site fidelity in this species but also that future replacement structures should be situated as closely to the original chimney as possible.

The Manitoba Chimney Swift Initiative was founded on the assumption that building towers would reverse long-term negative population trends in this species in Manitoba. After years of effort, we can now say that the successful use of the second tower supports the old mantra, 'if you build it, they will come'. Nonetheless, beyond using a successful tower design for Manitoba conditions, the timing of new habitat placement is everything.

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Francene Adelman coordinated Chimney Swift monitoring of residents at the Old Grace Housing Co-op and Gerald Machnee coordinated monitoring of the Selkirk Birdwatchers Club members at the Selkirk Mental Health Centre. The following volunteers provided data: Linda Adie, Bonnie Chartier, Jack Cram, Frank Machovec, Jacquie Machovec, Sandra Hardy, Donna Hempler, Robert Hempler, Winona Hook, Debby Lake, Wendy Land, Mette La Porte, Nia Massey, Debbie Patterson, Nicola Schaefer, Amanda Shave, Barbara Stewart, Robert Stewart, Bonnie Thiessen, Carl von Baeyer, Vicky Tang, Judy Wilson and Diane Wolfman. Project management and tower construction at the Selkirk Mental Health Centre was coordinated by Gord Siebert of KGS Group and completed by Gardon Construction. Comments on the draft manuscript were provided by Robert and Barbara Stewart, Christian Artuso, Ron Bazin, Ken De Smet, Nicole Firlotte and Amanda Shave. Playback was carried out under Manitoba permit SAR1003.

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POETRY

Ravens

What sounds do I hear,
that breaks the morning silence?
Is it the trickster?

With ebony coats,
glistening in the sunshine,
ravens call aloud.

Brian K Jeffery
5800 4th Avenue
Regina, SK S4T 0K3

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HUMAN NATURE: THAT SPECIAL PLACE

Alexandra Benesh

Grade 7 student
Grant Road School, Regina

Everyone has that special place. It may be in your backyard, or it may even be across the world. For me, that special place is Nemeiben Lake. Stationed on a peninsula on this beautiful lake is a cabin where some of my best memories have been made. Even though all the memories are great, there are three that always stick out.

One of them is an adventure I had with my dad, and though it was a bit chaotic, it was still great fun. It was a warm day in 2018 and my dad and I decided to take advantage of it. We went out and followed the long, winding water supply hose that ran from the cabin to the lake. It wasn't a trail, and there were fallen trees and prickly bushes, but that's what we liked about it. Finally, we reached the water at the end of the peninsula. Figuring it would be easier to go around the peninsula, instead of back through the tangled forest, we set off towards the safety of the dock. This was a terrible mistake. Nemeiben Lake isn't like most lakes with their sandy beaches; its Canadian Shield bed means the underwater surface is usually nothing but rocks. So, with my dad's new phone threatening to be plunged to its doom from just one slip on these perilous rocks, and our shoes and socks squishy and soaked, we finally found ourselves at the dock. While this memory is wet, wet, wet, there is another memory quite the opposite.

Driving to Nemeiben took a long time, but I'd know when we were close to it when the forest would appear on the side of the road. In 2020, however, the normally quiet forest was crackling, and bright orange light shone from it. Fire! As we drove on, I worried about the state of the cabin and forest, with a knot in my

stomach. Five years earlier, forest fires had reached multiple cabins. Many burned, and ours could have been one of them, as we watched the news helplessly from hundreds of kilometres away. But as the fire approached, our cabin was saved at the last minute by volunteers mounting sprinklers on the roof. They doused the fire, and thankfully our cabin was safe. The surrounding forest, however, burnt down and has spent seven years trying to rebuild itself. The knot in my stomach had ceased by the time we reached the cabin, but it was replaced quickly with surprise and terror. From the cabin window, across the lake I saw black wings of death. The smoke was like a million crows rising from the forest. I will never forget the hurricane of smoke.

Speaking of hurricanes, we faced our own mini one in 2019! The lake was crashing and the dock was flooded. We battened down the hatches and prepared for the storm. You better believe it came. They call them "plough winds" for a reason. By the time the storm was half way through, the trees might as well have been lying down, and I was shaking almost as vigorously as they were. I knew it was coming. The inevitable was soon. My mom must have sensed it too, because she forced us into the most stable room. It was coming. Trees were snapping all around us. Any second now ... then CRACK! One of the long, bending trees came crashing down onto the cabin! Everyone was safe (thank goodness) and the tree didn't do irreparable damage to the cabin. We got off lucky. My papa was able to fix up the roof, and use the tree for firewood. Now looking back on it, it seems like just another day at that special place.

These memories and adventures are precious, so I implore you; go out, find your special place, and make memories. 🐦

POETRY

WINTER'S CROWN

Beneath the surface of our earth
Rest the gems of lasting worth.
Yet earth itself of all this wealth
Wears none.

They're placed instead on royal heads
And bought by those who pay the sum.
But there are days when earth's displays
Are not to be out done.
On a winter morning when no adorning
Rests on nature's barren land,
The sparkling sight of solar light
On freshly fallen snow
Blinds the eyes and touch defies
And shares with us a brilliant show.

Shirley Leibel
Regina, SK

MYSTERY PHOTO

WINTER 2022

QUESTION: What insect is shown in this picture? Hint: A key to the answer lies within the pages of this issue!



Photo credit: James R. Duncan.



FALL 2022

ANSWER: The wildflower shown in the Fall 2022 Mystery Photo is a Canada Anemone (*Anemone canadensis*). This plant, native to North America, grows in wood thickets and moist grasslands and blooms from April to June. Its scientific name, *canadensis*, means “of Canada”. 🐦

Photo credit: Annie McLeod.



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