WINTER 2020 VOLUME 78.4

BLUE JAY

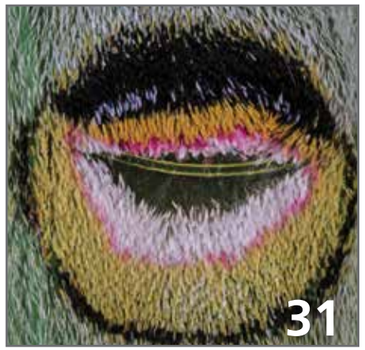
On April 30, 2020, Robert Holtkamp of Yorkton was surprised by an unfamiliar feathered visitor in his yard. The bird was a Lesser Goldfinch, making this the first confirmed record of this species in Saskatchewan.

The Allemand Ranch in southwestern Saskatchewan has joined forces with SODCAP Inc., the SSGA, and Creekside Goat Company to create a multi-year plan that utilizes goats to help control leafy spurge.

Peter Taylor reviews the winter movements of Willow Ptarmigan in and near the Prairie Provinces with an emphasis on southern limits and historic changes. Evidence is presented for a gradual reduction in the magnitude and extent of the species' migratory movements.

After 150 years, American Bison have returned to the land that makes up Wanuskewin Heritage Park outside of Saskatoon. In addition to the re-introduction of bison, Wanuskewin is also seeking to restore the grassland ecosystem and establish the park as a UNESCO World Heritage site.

In this edition of Human Nature, Ashley Vass of Regina shares the struggles of being a new parent during the COVID-19 pandemic, but how Saskatchewan's natural and wide-open spaces have given her the opportunity to get some relief from the ''new normal''.



Do you know what insect species has this unique marking on its wing? Check out this issue's Mystery Photo and submit your guess to the editor for a chance to win a prize from Nature Saskatchewan!

WHAT'S INSIDE

FROM THE PRESIDENT

Ed Rodger
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Hello everyone,

One June morning a few years ago, I got up very early and drove to the Nashlyn pasture, close to where I was staying in Consul. While the sun rose and the moon set, a vast expanse of grassland came to life, and I was able to find numerous subjects for the bird survey I was working on. This was a particularly memorable one of many such mornings I've spent there over the last few years.

ON THE FRONT COVER
One of six Willow Ptarmigan photographed on April 7, 2018 near Deschambault Lake, Saskatchewan. Photo credit: Annie McLeod.

ON THE BACK COVER
A Red Fox in Prince Albert National Park. Photo credit: Annie McLeod.

Nashlyn Pasture is located in the very southwest corner of Saskatchewan, and many *Blue Jay* readers will know that it and the adjacent pastures of Govenlock and Battle Creek recently underwent a change of status that will see the grassland habitat managed for the conservation of species at risk and migratory birds, while continuing to be used for sustainable grazing.

The three pastures also constitute an Important Bird and Biodiverstiy Area (IBA) under a global program of Birdlife International that advocates for preservation of areas of critical habitat. The IBA program is managed nationally by Nature Canada and Birds Canada, and Nature Saskatchewan has the role of coordinating conservation planning, as well as administering a Caretakers Network of local advocates for the IBAs in our province.

Along with the change in status of that IBA, Nature Saskatchewan also observed an important milestone recently, with the 30th anniversary of the Last Mountain Bird Observatory (LMBO). The anniversary was the subject of our successful Fall Meet in September, which was modified from its usual format due to pandemic concerns. Another important development for LMBO is underway, as it is going to incorporate a new type of monitoring through the establishment of a station for the MOTUS wildlife tracking system.

I wanted to share some of these recent milestones for Nature Saskatchewan programs, but also touch on related ways that volunteers can make contributions to these activities.

As mentioned above, the IBA program includes a network of local caretakers. About a dozen IBAs in various parts of the province don't currently have anyone in this role. If you think this is something you'd like to do, more information can be found in the 'What We Do' section of the Nature Saskatchewan website, or you can contact Lacey Weekes at lweekes@naturesask.ca. There are also habitat-protection opportunities for landowners and land managers through Nature Saskatchewan's Stewards of Saskatchewan program. Though I don't have space to describe the program in detail here, information can also be found in the 'What We Do' section of the Nature Saskatchewan website, or by contacting Melissa Ranalli at mranalli@naturesask.ca.

Ed Rodger

As for new volunteer opportunities at LMBO, these are currently restricted due to the pandemic. It's hoped that training sessions for new banders can resume in the spring.

I've only had the space to briefly describe a few volunteer opportunities with Nature Saskatchewan; however, a more complete outline can be found in the 'Get Involved' section of the Nature Saskatchewan website (www.naturesask.ca).

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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Editorial Information

Blue Jay welcomes all submissions, preferably by e-mail (although hand-written or typed manuscripts will be considered to accommodate those who do not have access to computer equipment), polished or in need of some editorial assistance. All items for publication should be sent to the editor electronically (in a Microsoft Word document) by e-mail or on CD. Hard copies and CDs can be mailed to the editor at the address above.

Submission deadlines

January 1 for the Spring issue, April 1 for the Summer issue, July 1 for the Fall issue, and October 1 for the Winter issue. For detailed information, please see the "Guidelines for Authors" under the Publications section of the Nature Saskatchewan website.

REVISITING THE HISTORICAL NESTING RECORD OF THE WHOOPING CRANE AT BATTLEFORD, SASKATCHEWAN

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Among the seven historical nest records of the Whooping Crane (*Grus americana*) that Robert Porter Allen listed from Saskatchewan in his monograph was one reported near my home town of Battleford, discovered in 1884.[1] I recently examined the description of this and the other historical nesting records in Saskatchewan in the context of the proposal submitted to Canada Post prior to the issue of the first Whooping Crane stamp in 1955, and the photograph on which its design was inspired.[2] Those nests have been listed by numerous authors[3,4], but the evidence on which the Battleford record is based, in particular, is tenuous, and I re-examine it here.

The Battleford nest was documented entirely on the basis of second-hand information provided seven years after the fact by a man identified only as MacDonald to oologist Walter Raine, who reported it in his 1892 book *Bird-Nesting in North-West Canada*[5]:

> MacDonald informed me he had seen a whooping crane flying towards the lake, and asked if I had seen any around there, which I had not. While at dinner he told me of a nest of the whooping crane he once found on the banks of the North Saskatchewan [River]; he said he remembered that nest well, as he and his brother came near losing their lives on the same day he found the nest. Seven years ago, just before the rebellion broke out amongst the North-West Indians, Mac. and his brother were camping near Battleford, on the North Saskatchewan, and were out on a tramp over the prairie, when they came across a nest of the whooping crane containing two eggs, which they left in the nest intending to call for them on their return (p. 82).

Further to this story, the two men ventured to the other side of the North Saskatchewan River in a canoe they found, but unfriendly people forced a quick retreat to their camp five miles away. Raine continued (p. 84), "[o]n inquiring what became of the eggs of the whooping crane, Mac. told me that in their excitement they were forgotten, so were probably hatched. He described the nest as consisting of a flat mass of rushes and grass, about three feet in diameter."[5]

Although Allen rightly considered Raine's observations as "not very complete" (p. 177), he included the Battleford record as #336 "(*nesting*, 2 eggs coll.)" in a comprehensive list of nest records and observations of the Whooping Crane that spanned the years 1722 to 1948.[1] Assuming the nest and eggs were those of the Whooping Crane, Allen erred in reporting the eggs had been collected, as they clearly were not. According to today's standards of reporting, this record would have been considered at best hypothetical. But the record dates from more than 130 years ago, when conditions were much different, to which Raine frequently alluded in his narratives. Nevertheless, are we to assume Raine questioned MacDonald to confirm the identity of the cranes at the nest, if one or both adults were observed? Other observers had misidentified Whooping Cranes around that time.[6] Raine was experienced with cranes and their eggs[7,8], but not all of it was positive. He purchased eggs of Little Brown Crane (Sandhill Crane (*Antigone* [formerly *Grus*] *canadensis*)) and compared their similar, albeit smaller, size with "… a series of twenty [Whooping Crane] eggs before me, which included sets from Manitoba and Montana." Sets of the Little Brown Crane, in particular, raised the ire of some ornithologists who accused him of deceptive practices and doubted the bird occurred in the region.[9-11] Criticisms were later determined to be unfounded.[12]

Raine was a prodigious collector and dealer in birds' eggs, but some of his identifications were considered unreliable and his reputation suffered.[12] Percy A. Taverner of the National Museum of Canada and ornithologists at the Royal Ontario Museum did not accept his egg collections. But C. Stuart Houston was not as quick to set aside all of Raine's records. He assessed them thoroughly and fairly and cited opinions expressed by important oologists of the day who defended his collections. Houston noted several instances where Raine's expertise proved useful in correcting misidentifications of egg sets made by other oologists.[12] Many of Raine's photographs of nests and eggs were included in Reed's *North American Birds Eggs*, including one of the eggs of the Little Brown Crane taken in the Saltcoats Marshes, Saskatchewan, on 6 June 1901.[13]

Raine's primary mistake seems to have been to rush prematurely to publication many of his observations and details of egg sets, particularly many of the early records reported in *Bird-Nesting in North-West Canada* — the sole source of information pertaining to the Whooping Crane nest near Battleford. But Houston rightly noted that errors in identification of some species were understandable in the early years of investigation of natural history, citing the dearth of suitable field guides as an example. Nevertheless, Houston considered many of Raine's records useful to the historian of natural history, if scrutinized carefully, especially by those familiar with the areas he visited.[12]

Raine was an engraver and watercolour artist based in Toronto (Figure 1).[10,14] Although he visited the Prairie Provinces four times between 1891 and 1901[12], it was his normal practice to engage other individuals, generally local and often youthful residents, to collect nests and eggs for him. The skills of these collectors undoubtedly varied and, compounded with competition to discover nests of lesser known species, tended to feed people's doubts. The sparse details of the Whooping Crane nest near Battleford were provided by MacDonald, whom Raine met upon his arrival at Rush Lake, a railway siding just west of Herbert, Saskatchewan[15], in early June, 1891. MacDonald was the station master there, and the two men became friends. Raine noted his "… newly made friend was a sportsman who had travelled all through the Saskatchewan region and understood the Indian language (p. 42)."[5] Within a few days the two men were hunting Pronghorns (*Antilocapra americana*) together, an activity that Raine depicted in two


WALTER RAINE

Kew Beach, Toronto, Canada

HAS FOR SALE OR EXCHANGE

Fine sets of Gulls, Plovers, Swans, Geese, Rare Sandpipers. Hawks, Falcons, Owls, etc., taken by his own collectors in Labrador, Hudson's Bay, MacKenzie Bay, Lapland, Iceland and northern regions.

Send for list and testimonials from the leading Oologists of the United States and Canada.

WALTER RAINE

Waverly Villa, Kew Beach, Toronto, Can.

FIGURE 1: Egg sets for sale or exchange by Walter Raine, advertised in *The Oologist*, a monthly publication devoted to oology, ornithology and taxidermy.

plates facing page 50.[5]

This was apparently Raine's only contact with MacDonald. During their conversations, MacDonald related his experience with the Whooping Crane nest at Battleford, seven years earlier. Raine probably would have described the nest and eggs in more detail, and the behaviour of the adults, had more information been available. To his credit, MacDonald's description of the nest as "… a flat mass of rushes and grass, about three feet in diameter", is generally consistent with descriptions of other early Whooping Crane nests.[3,4,15] Raine obviously judged MacDonald to be of good repute because he published his nest record. Credit for the most detailed description of the behaviour of adult Whooping Cranes attending an early nest rests with Neil Gilmore's observations in 1922, to which A.C. Bent devoted two pages in the account of this species.[16] Gilmore did not reveal the nest's location, but it was most likely at Shallow Lake, a few miles northwest of Kerrobert.[3] Gilmore had been appointed Saskatchewan's first Game Guardian in 1907 and was sent by Fred Bradshaw to search for the remaining nests of the Whooping Crane.[17] Bradshaw served as Saskatchewan's first Chief Game Guardian from 1912 to 1927, and was director of the Provincial Museum from 1928 to 1935.[18]

The year of discovery of the Battleford nest has been given as 1884, although recently as 1880[4], possibly in error. Raine did not mention the year, but MacDonald told him the nest was discovered "just before the rebellion broke out amongst the North-West Indians."[5] That was 1885[6], whereas the year before, i.e., "just before the rebellion", would have been 1884 — seven years prior to publication of Raine's book. This nest was recorded within the span of historic nest records[3], but we will never know to what extent Whooping Cranes nested in the Battleford region, an area with extensive marshlands.[19,20]

Raine also reported nests of the Whooping Crane in Manitoba, including at least three from Oak Lake in the southwestern part of the province, 1891-1894, and possibly another nest in 1900, plus a fifth at Netley-Libau Marsh, north of Winnipeg in 1891.[1,5,21] The sketchy reports of those nests also were based on second-hand information, but at least three records were supported by egg sets purchased from collectors; some of those sets can be traced to museum collections.[1,5,8]

Other historical Whooping Crane nests may not stand up to rigorous scrutiny but, as Allen stated nearly 70 years ago (p. 24), "As unsatisfactorily as some few of these nesting records are, most of them constitute a valid picture of the former breeding of the species in Canada."[1] Preservation of those and other wetland habitats and restoration of historical water levels would be prudent if in an expanding population some Whooping Cranes choose to "return" to nest on the prairies.

Acknowledgements

Tim Novak responded to my inquiry about early photographs of Rush Lake held in the Saskatchewan Archives. I thank Daryl S. Henderson for carefully reading the manuscript and for pointing out a recent reference.

1. Allen RP (1952) *The Whooping Crane*. Research Report of the National Audubon Society, No. 3, New York.

2. Sealy SG (2020) William Rowan and Canada's 5¢ Whooping Crane stamp: the proposal and the photograph. *Blue Jay* 78(3):19-26.

3. Hjertaas DG (1994) Summer and breeding records of the Whooping Crane in Saskatchewan. *Blue Jay* 52:99-115.

4. Johns BW (2019) Whooping Crane. Pages 222-225 *in* Birds of Saskatchewan (Smith AR, Houston CS, Roy JF, editors). Nature Saskatchewan, Regina.

5. Raine W (1892) *Bird-nesting in North-West Canada*. Hunter, Rose and Co., Toronto, ON.

6. Meyer D, Clipperton RC (2019) Whooping Cranes amid political turmoil, spring 1885. *Blue Jay* 77(2):40-41.

7. Raine W (1894) Bird nesting in Northwest Canada. *Nidiologist* 1:67-71.

8. Houston CS, Bechard MJ (1987) Early Manitoba oologists. *Blue Jay* 45:85-96.

9. Macoun J, Raine W (1896) Raine's crane case. *Nidiologist* 4:23-24.

10. Barnes RM (1910) Walter Raine. *Oologist* 27:125-126.

11. Raine W (1904) Discovery of the eggs of Solitary Sandpiper. *Oologist* 21:164-168.

12. Houston CS (1981) An assessment of Walter Raine and his Saskatchewan records. *Blue Jay* 39:168-181.

13. Reed CA (1904) *North American Birds Eggs*. Doubleday, Page & Co., New York.

14. McNicholl MK, Cranmer-Byng JL, editors (1994) *Ornithology in Ontario*. Ontario Field Ornithologists, Special Publication, No. 1.

15. Barry B, editor (2005) Rush Lake. Page 366 *in* Geographic names of Saskatchewan. People Places Publishing, Regina; Rush Lake History Book Committee (1982) Excelsior Echoes, Derksen Printers, Steinbach, MB. The railroad was originally built through the municipality in 1882 to run north of Rush Lake, then a large body of water surrounded by emergent vegetation. After the C.P.R. drained the lake in 1905, the tracks were straightened to pass through the dry lake bed, and the Rush Lake siding was moved 3.2 km south to its current site. On 13 June 2019, I visited Rush Lake to envision what the area might have looked like nearly 130 years ago.

16. Bent AC (1963) Life histories of North American marshbirds. *United States National Museum Bulletin*, No.135, Washington, D.C.

17. Bradshaw F (1928) Report of the Provincial Museum of Natural History, Saskatchewan Department of Railways, Labour and Industries, pages 1-37.

18. Smith AR, Houston CS, Roy JF, editors (2019) *Birds of Saskatchewan*. Nature Saskatchewan, Regina.

19. Belcher M (1972) An early Provincial Museum field camp in the Battleford area. *Blue Jay* 30:8-17.

20. Austin JE, Hayes MA, Barzen JA (2019) Revisiting the historic distribution and habitats of the Whooping Crane. Pages 25-88 *in* Whooping Cranes: Biology and Conservation (French JB, Converse SJ, Austin JE, editors). Academic Press/Elsevier, New York.

21. Koes, R, Taylor P (2003) Whooping Crane. Pages 161-162 *in* The Birds of Manitoba, Manitoba Naturalists Society, Winnipeg.

POETRY

Highway #11 (to Regina)

In his rich, heavy
winter coat
Coyote, at ease, his snout
deep
in a frozen, ice-caked
carcass.

Raven waits patiently.
His own winter plumage
fluffed out
body heat captured in
his glossy raiment
as he watches,
perched on a nearby
fence post.

This ancient tableau
goes on at its measured
pace,
framed by frantic, speeding
vessels
of steel, glass and plastic
hurtling by
on four lanes of blacktop.

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FIRST CONFIRMED RECORD OF A LESSER GOLDFINCH IN SASKATCHEWAN

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It was a beautiful spring day on 30 April 2020 — warm and not too windy. While taking a coffee break from spring clean-up in my Yorkton yard, I noticed a couple of Purple Finches (*Haemorhous purpureus*), a few House Sparrows (*Passer domesticus*) and a Downy Woodpecker (*Dryobates pubescens*) busy at my bird feeders. Suddenly, I saw a bright flash of colour. It was a bird I had never seen before. It was bright yellow below with mostly black upper parts and white wing markings, like an oddly coloured goldfinch. I grabbed my camera and snapped a dozen or so shots (Figure 1) until the bird disappeared.

Using the iBird application on my cell phone, I typed in American Goldfinch. I then tapped 'similar' and voila! It was the bird I saw in my yard — a beautiful, male Lesser Goldfinch (*Spinus psaltria*).

Minutes later, the Lesser Goldfinch returned and I took many more pictures (Figure 2). The bird was not easily intimidated by more aggressive birds, and at one point perched next to a House Sparrow at the feeder. The Lesser Goldfinch ate and drank his fill and flew about in the trees (Figure 3), spending approximately 40 minutes in my yard before carrying on with his journey. After that visit, I continued to watch my feeders, trees, shrubs and flower beds, but the bird never returned. Incidentally, I saw my first American Goldfinch (*Spinus tristis*) of the season on 12 May.

FIGURE 1: The bird showed bright yellow below with mostly black upper parts and white wing markings. Photo credit: Robert Holtkamp.

Identification

The Lesser Goldfinch is a small, social songbird that is found throughout the southwestern United States. At 4.5 inches in length, the Lesser Goldfinch is the smallest finch in North America and one of the smallest true finches (family Fringillidae) in the world.[1] Its natural habitat is open woodlands and riparian areas, but it also occurs in weedy patches of agricultural areas and at bird feeders in suburbs with ornamental trees and shrubs.[2] Males are distinctive with their entirely black crowns; however, adult females and immature birds resemble the American Goldfinch. Although the Lesser Goldfinch tends to be more greenish, the best distinguishing feature is the white patch at the base of the primaries, which is best seen in flight.[3]

Range

The Lesser Goldfinch is a resident from Washington, Oregon and northern Nevada east to northern Colorado and Texas, and south beyond the Mexico/U.S. border. Black-backed and green-backed males were previously treated as different subspecies, but are now thought to be colour morphs.[4] The black-backed form predominates east of longitude 106°W, while the green-backed form occurs mainly farther west.[4] Preferred habitats include oak savannahs and woodlands.[5] The photographs (Figures 1-3) show clearly that the Yorkton bird was a black-backed male.

Range limits can be quite dynamic and it is evident that the Lesser Goldfinch is extending its range northward, now breeding — at least rarely — from the extreme southern portion of British Columbia to western Nebraska and southwestern South Dakota.[6,7,8] Beyond the breeding range, vagrants have been found across the United States to the Atlantic coast. There are scattered records from Maine to Florida documented on eBird, while records in Montana extend to within 60 km of Saskatchewan.

FIGURE 2: Several images of the Lesser Goldfinch were obtained on 30 April 2020. Photo credit: Robert Holtkamp.

FIGURE 3: The Lesser Goldfinch ate and drank his fill, and flew about in the trees, for approximately 40 minutes before leaving. Photo credit: Robert Holtkamp.

Previous hypothetical records in Saskatchewan

There have been two previous reports of a Lesser Goldfinch in Saskatchewan, although both are hypothetical as they lack a specimen, photo or song recording. The first was a bird with "bright green" upper parts, as well as two others with a greenish tinge that were part of a goldfinch flock that John Douglas saw feeding on roadside wild sunflower seeds near Maple Creek in mid-August 1997.[9] A more credible sighting was of a male of the black-backed form seen briefly at a feeder in Weyburn on 14 August 2011 by Carol Bjorklund.[3]

Records elsewhere in Canada

R. Toochin compiled details for 13 accepted and two hypothetical records of Lesser Goldfinch in southern British Columbia from 1931 to 2013, with the majority appearing since 2000. The first Canadian record of a Lesser Goldfinch was of a bird collected by T.T. McCabe in British Columbia on 9 June 1931.[10] Since 2013, eBird data shows a rapidly increasing number of Lesser Goldfinch observations in the province and breeding was confirmed at Osoyoos in 2019.[6]

In Alberta, a Lesser Goldfinch was photographed at Cochrane on 15 May 2016.[11] There have also been two records in Alberta reported with photographs on eBird. One bird was observed in Nacmine from 23 to 27 April 2014, and another bird was reported in Mountain View from 13 to 14 May 2018. The only record east of Saskatchewan is of a bird observed in Toronto on 10 August 1982.[12] This new, confirmed record for Saskatchewan therefore significantly extends the range of known vagrancy for the Lesser Goldfinch. This appears to be only the second black-backed male to be reported in Canada, the first being the Weyburn bird.

1. Wikipedia (2020) Lesser goldfinch. https://en.wikipedia.org/wiki/Lesser_goldfinch.

2. Watt D.J. and Willoughby E.J. (1999) Lesser Goldfinch (Carduelis psaltria). *In* The Birds of North America, No. 392 (Poole A. and Gill F., eds).

3. Smith AR, Houston CS, Roy JF, editors (2019) Birds of Saskatchewan. Nature Saskatchewan, Regina.

4. Willoughby EJ (2007) Geographic variation in color, measurements, and molt of the Lesser Goldfinch in North America does not support subspecific designation. *The Condor* 109:419-436.

5. iBird Pro Guide to Birds. Field Guide to North America. Mitch Waite Group. iPhone Application.

6. British Columbia Rare Bird Alert (2019) Two new breeding records for BC! Blog post, http://bcbirdalert.blogspot.com/2019/07/two-new-breeding-species-for-bc.html

7. Silcock WR, Jorgensen JG (2020) Lesser Goldfinch (Spinus psaltria), Version 1.0. *In* Birds of Nebraska — Online. https://birds.outdoornebraska.gov/lesser-goldfinch/.

8. Sohl TL (undated) Lesser Goldfinch Spinus psaltria. *In* South Dakota birds, birding, and nature. https://www.sdakotabirds.com/species/lesser_goldfinch_info.htm

9. Douglas J. (1998) Possible sighting of lesser goldfinch. *Blue Jay* 56(4):240.

10. Toochin R (undated, ca. 2013) Status and occurrence of the Lesser Goldfinch (Spinus psaltria) in British Columbia. University of British Columbia online resource: https://ibis.geog.ubc.ca/biodiversity/efauna/documents/LesserGoldfinch-RT-r.pdf

11. Lefebvre B (2016) Rare backyard bird: Lesser Goldfinch. Blog post, https://birdscalgary.com/rare-backyard-bird-lesser-goldfinch/

12. Fraser DM (1984) Lesser Goldfinch (*Carduelis psaltria*) at Toronto: Ontario's first record. *Ontario Birds* 2:120-123.

Goats grazing spurge along the Frenchman River. All photos courtesy of Krista Connick Todd, SODCAP.

GOATS: RESTORING HABITAT FOR SPECIES AT RISK

Krista Connick Todd, PAg
South of the Divide Conservation Action Program (SODCAP) Inc.

In southwestern Saskatchewan, native prairie grasses ripple in the breeze and serve as the principal land cover. In the Saskatchewan portion of the Milk River watershed, commonly known as "South of the Divide", more than half of the land base remains as native grassland, compared to the provincial average of less than 15 per cent. With the largest amount of native prairie remaining in the province, the South of the Divide is a haven for wildlife, grassland birds, and a number of species at risk.

These species rely on the habitat provided by the prairie grasses — the natural structure, cover, and food sources provided by the variety of grasses, flowers, and shrubs that make the prairies so unique. When those areas are overrun by invasive plants, such as leafy spurge (*Euphorbia esula*), the structure changes. The habitat is no longer ideal for the vulnerable species at risk that would like to make their home there. Removing those weeds can restore that habitat.

On the Allemand Ranch south of Shaunavon, hundreds of acres of native prairie stretch along the Frenchman River valley. This prairie provides habitat for a number of different species, including the Sprague's Pipit (*Anthus spragueii*), Loggerhead Shrike (*Lanius ludovicianus*), and Northern Leopard Frog (*Lithobates pipiens*). Unfortunately, leafy spurge continues to spread, creeping along the river and destroying habitat. There are several options for leafy spurge control: chemical, biological, and small ruminant grazing. The Allemands have taken an integrated approach, incorporating all three into their long-term plans.

"We want to control the spurge so that we don't lose critical habitat or prime grazing. Goats seemed like a great way to try and control the spurge because there is no real impact on the forage around the spurge," said Daryl Allemand.

Sheep and other ruminants can also be used to graze spurge; while sheep commonly make spurge 60 per cent of their daily diet, goats can graze spurge at 90 per cent of their daily intake.

Allemand has joined forces with the South of the Divide Conservation Action Program (SODCAP Inc.), the Saskatchewan Stock Growers Association (SSGA), and Creekside Goat Company to create a multi-year grazing plan, with funds supplied through Environment and Climate Change Canada. SODCAP Inc., whose mission is to provide habitat for species at risk on a working landscape, has developed many projects with ranchers across southwestern Saskatchewan that focus on improving and maintaining habitat for species at risk.

Robert Finck, owner of Creekside Goat Company, provided the goats and the herding expertise to tackle the infestation along the river this summer. "We approached this project with tons of excitement," said Finck. "We took 200 goats and worked them up and down the creek on both sides. We wanted to cover more country and only eat the seed heads on the first round. We came back for a second round and removed the heads again along with more of the plant eaten. This stressed the plants and no seed was set this year. If we can do this for multiple years, the plants will be damaged and no new seeds can begin to grow. Spurge has been very nutritional for the goats and they are ending the season in great shape to rebreed for next year."

Herding was very important in this project, as goats like to browse on shrubs. This riparian area provides habitat for the Loggerhead Shrike, which require a healthy, tall shrub community. Rigorous attention to where and what the goats were grazing was key to ensuring that the tall shrubs were not browsed and that shrike habitat was protected.

The project also includes a monitoring component, looking at size of spurge patches and the thickness as well as the health of prairie. In addition, this land supports several viable colonies of leafy spurge beetles. Beetles have been collected at these sites the past two summers and moved to other locations nearby. These colonies seem to overwinter well, and are successfully, albeit slowly, also controlling the spurge. The Allemands are spraying patches of spurge with easier access, too.

"Sensitive areas like riparian areas are perfect for goats," explained Finck. "These areas are hard to spray and even most times have limited access. Goats will eat their way in and out again, leave the grasses alone and with little impact to soil compaction or erosion. In addition, sensitive areas that have steep slopes are perfect for these sure-footed animals. Areas that are difficult to spray or to walk, goats along with a border collie can successfully graze safely and efficiently."

Removing the dense spurge and restoring the grassland is good for species at risk. "Goats and grassland birds absolutely complement each other because the grass is the last thing the goats will eat. Weeds, and shrubs such as wild rose, will be targeted first," said Finck.

Three generations currently work together on the Allemand Ranch and, thanks to their efforts, the future of this patch of native prairie is promising for all species that make it their home. "You need to find the right balance between nature and cattle production — they can go hand in hand," said Allemand. "Our goal for the future is to have a ranch that can be taken over by our boys and know it is in the best possible shape."

Goats can graze leafy spurge at 90 per cent of their daily intake.

Beetles being released into a patch of leafy spurge.

CELEBRATING LMBO AT THE NATURE SASKATCHEWAN FALL MEET

Lacey Weekes
Nature Saskatchewan

Photos courtesy of Ken Ludwig.

To celebrate the 30th anniversary of the Last Mountain Bird Observatory (LMBO), Nature Saskatchewan thought it was the perfect place to host the 2020 Fall Meet. It was a very different meet this year, however, due to COVID-19. The usual bus tours and banquet supper had to be cancelled and the banding station was closed to the public because of the limited space inside the trailer. In addition, physical distancing measures were in place and attendees wore masks around the mist nets where space was limited.

Taking these precautions ensured we were able to gather safely outdoors and enjoy the beauty of Last Mountain Regional Park. We had a great turn out on Saturday, with participants all the way from Red Deer and Edmonton joining us. The weather on Sunday was not as nice, with a bit of rain and wind, but we still had a few people come out.

Jordan Rustad, our LMBO Bander-in-Charge, led half the group through the mist nets, retrieving songbirds and outlining the process of banding birds. Some of the birds banded that weekend were Fox Sparrows, Blue-headed Vireo, and White-throated Sparrows. I led the other half on a tour to the lake. We walked along the beach watching for birds and other wildlife. Some of the birds we were lucky to spot hanging around the lake that weekend included Greater Yellowlegs, Killdeer, Canada Goose, American Coot, Hooded Merganser, Belted Kingfisher, and, of course, Sandhill Cranes could be heard in the nearby fields.

The northern end of Last Mountain Lake is located in the Last Mountain National Wildlife Area. It is an Important Bird and Biodiversity Area, part of the Western Hemisphere Shorebird Reserve, and the oldest Migratory Bird Sanctuary in North America, designated in 1887. It is extremely important habitat for birds and all wildlife. As part of the Fall Meet event, Al Smith, Bander-in-Charge for many years, gave a virtual presentation on the 30th anniversary of LMBO. We want to thank Al for his many years of dedication to LMBO. It was Al's dedication and passion that made it possible to continue to collect valuable data for bird conservation and inspire the next generation of bird banders.

SOUTHERLY MOVEMENTS OF WILLOW PTARMIGAN DURING WINTER IN AND NEAR THE PRAIRIE PROVINCES

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This review was inspired by a cluster of three records of Willow Ptarmigan (*Lagopus lagopus*; hereafter, WIPT) in southeastern Manitoba in December 2017. On 11 December, Richard Farquhar photographed two WIPT alongside Manitoba Provincial Road 315 in a forested area near Poplar Bay at the eastern end of Lac du Bonnet [lake] (50.37°N, 95.77°W). On 27 December, while scouting for the annual Pinawa – Lac du Bonnet Christmas Bird Count (CBC), Anita Drabyk and I saw and photographed a WIPT at a small patch of deciduous trees and willows in open farmland along Belluk Road (50.24°N, 95.91°W, 11 km east of Lac du Bonnet [town] and 18 km southwest of the Poplar Bay sighting). Though only a "count week" observation, this furnished the first CBC record of a ptarmigan for southern Manitoba.[1] On 29 December, Daniel Seales photographed a WIPT at Barrier Bay (50.18°N, 95.71°W; 16 km southeast of the Belluk Road sighting) in Whiteshell Provincial Park. It was also seen and photographed by Charissa Godfrey on or about the same date.

Figure 1 is a photo montage documenting these three records, which probably involved four different birds; others likely visited the region, passing unseen or at least unreported. The three localities described above are included in the map, Figure 2, which shows many of the additional localities mentioned in the following sections.

To prepare this article, I consulted many books, reports and journal articles, newspaper articles (especially the erstwhile *Chickadee Notes* column in the *Winnipeg Free Press*, successively edited by Alexander Lawrence, Harold Mossop, and David Hatch), individual correspondents cited in the acknowledgements, and open-access online resources (especially VertNet, eBird, GBIF, iNaturalist, the Searchable Ornithological Research Archive (SORA), and several individual online museum databases). This resulted in more records, anecdotes, and references than I could include in this article.

Observations Elsewhere in Winter 2017-2018

There were no further WIPT records in SE Manitoba in winter 2017-18 despite numerous searches, inquiries in the local press, online bird discussions, and correspondence with Manitoba Conservation staff. Elsewhere, reports and correspondence pointed to unusual southerly movements in central Manitoba, NW Ontario, and NE Alberta, but apparently not in Saskatchewan, eastern Ontario, or Québec.

Central Manitoba – Writing on 5 February 2018, Joel Kayer reported unusually high numbers of WIPT near The Pas and southward to about 53°N in central western Manitoba, starting in November 2017. He wrote to me: "There was an early spurt of ptarmigan locally in early November of singles and small groups and then in late November and early December a big push of flocks moving through. Locally they are scarce right now except for pockets in which they are wintering. About a month ago [early January] there were numerous sightings of flocks on Highway 60 and in the bog area [northwest of Lake Winnipegosis]. I expect they are wintering on Lake Winnipegosis or in the bog area. Some years they shift east from this area, and I expect the same has happened [this year] as in early December there were numerous sightings on Highway 6 between William Lake and Ponton. Historically they are said to have wintered quite far south on Lake Winnipegosis. This year's sightings are the most southerly I have heard of by far. Normally the main push of them is in February when they will winter in a small area to the north of The Pas."

Writing on 5 February 2018, David Raitt confirmed Kayer's assessment and added: "I know of three [ptarmigan] hit by a car on Highway 10 near Lake Winnipegosis around Christmas [2017]." On 31 March 2018, two WIPT were photographed at Grand Rapids by Lee Adam (eBird).

No ptarmigan was recorded on any of 11 CBCs at The Pas between 2009 and 2019, which is consistent with Kayer's description of sometimes widespread migrants but more localized wintering. Writing later (8 June 2020), Kayer and Raitt clarified that, when present in numbers near The Pas, WIPT may be encountered in groups of 10-20 birds, which sometime combine into flocks of up to 40. In some winters, such as 2019-20, ptarmigan are scarce in the region, with records limited to a few individuals.

Northwestern Ontario – Devin Turner, a wildlife biologist based in northwestern Ontario, was informed of a group of ptarmigan (a photograph by an unidentified observer shows three) at Pahngwahshahshk Ohweemushkeeg Provincial Park, between Red Lake and North Spirit Lake in January 2018. Further correspondence received by Turner in March 2018 mentioned unusually large numbers of wintering ptarmigan farther northeast, in and around North Spirit Lake, and he forwarded several identifiable photographs taken by a local resident. Josh Vandermeulen, who compiles Ontario winter reports for *North American Birds* (*NAB*), was not aware of any unusual ptarmigan movements in more easterly parts of northern Ontario in 2017-18 or other recent winters, but he remarked that there is virtually no coverage of remote winter roads by birders.

Northern Alberta – Writing on 23 July 2018, Alberta birder James Fox told me: "There was a major invasion of Willow Ptarmigan this past winter. Every few years a few ptarmigan end up in Fort McMurray; this is as far south as they [normally] go. But this year there were huge numbers and they stayed much longer than usual, well into March. Oil companies were seeking advice from a consulting biologist on keeping the ptarmigan off the roads to avoid running them over. The last eBird record on 18 March is one of the latest ever. Normally they're back in the Northwest Territories by the end of February."

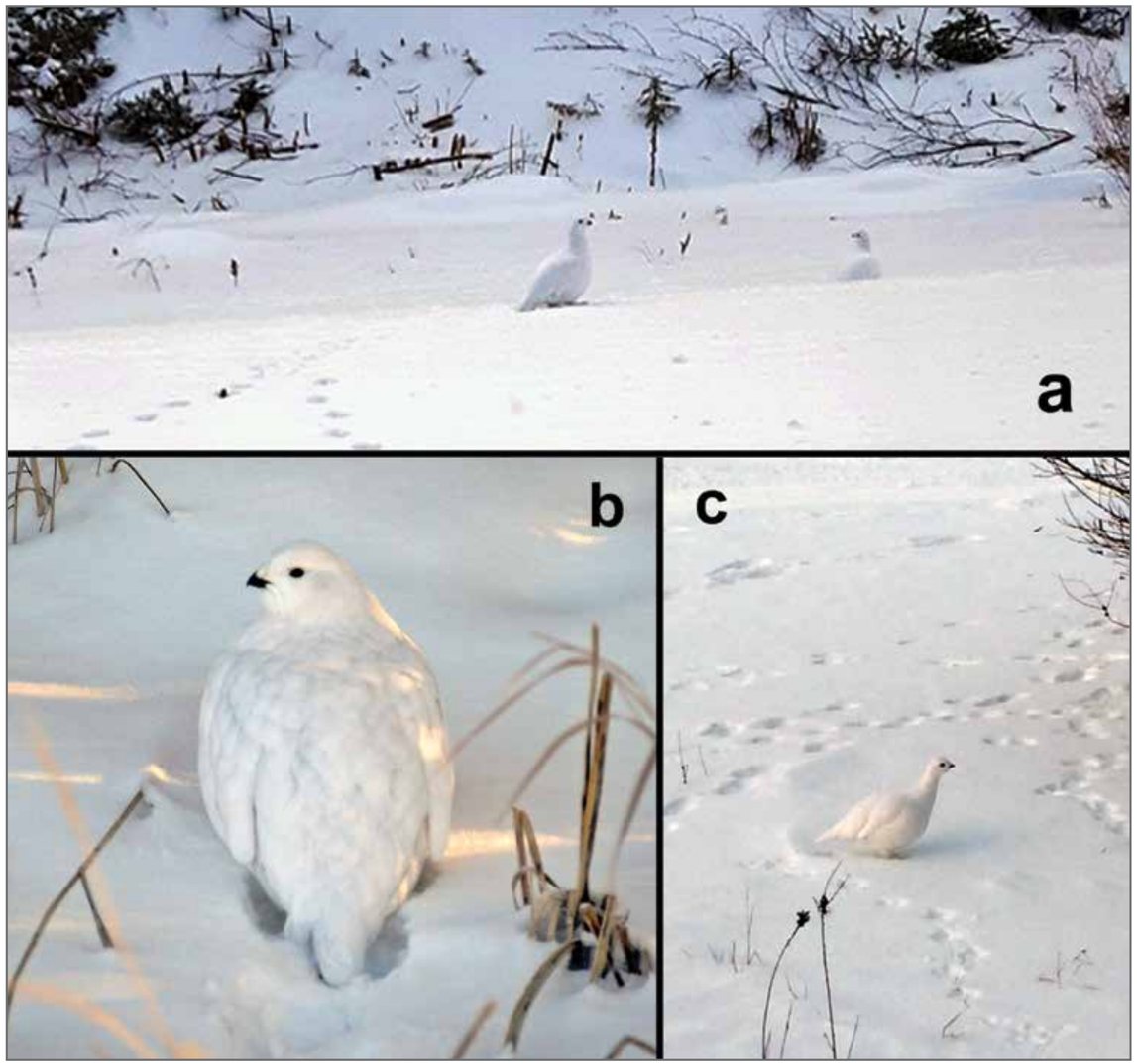

FIGURE 1: Willow Ptarmigan in southeastern Manitoba in 2017: (a) Poplar Bay, 11 December; (b) Belluk Road, 27 December; (c) Barrier Bay, on or about 29 December. Photo credits: Richard Farquhar, Peter Taylor, Charissa Godfrey.

Consistent with this summary, WIPT were recorded on 13 of 33 CBCs at Fort McMurray since 1981 (including three count-week records), with a maximum of 34 on 20 December 1998. Only one was recorded on 16 December 2017, suggesting that the CBC preceded the main winter influx. The eBird database shows a cluster of records of up to 40 WIPT in the Fort McMurray area between 23 December 2017 and 18 March 2018.

Central Saskatchewan – Creighton, Saskatchewan and nearby Flin Flon, Manitoba are near the normal southern limit of the WIPT's winter range.[2,3] An average of 27 WIPT were recorded on 12 consecutive Creighton CBCs between 2006 and 2017. The maximum of 76 on 2 January 2009 furnishing the highest-ever provincial count total, the minimum was one on 30 December 2016, while 16 were tallied on 16 December 2017.[1] The eBird database includes numerous records of WIPT in the Creighton – Flin Flon area between 1 December 2017 and 10 April 2018. Regarding the 2017-18 winter, however, Creighton resident Harvey Schmidt (whose wife Brenda wrote the WIPT account for *Birds of Saskatchewan*[3]) informed me: "This year seems normal or slightly above normal, but definitely not a high in this area. We are noticing tracks along the highway further south, so there seems to be some southward movement." Elsewhere in Saskatchewan, the most southerly winter 2017-18 records (based on eBird) were in the Narrow Hills – Deschambault Lake area, about 100 km west and slightly south of Creighton (Figure 3).

Québec – Reports on eBird show that WIPT moved well southeast of James Bay in winter 2017-18, with records of up to 14 as far south as Rapide-des-Cèdres in early February. However, Normand David and Pierre Bannon, two of the Québec provincial editors for *NAB*, did not consider this movement to be exceptional (email to PT). Records along the north shore of the Gulf of St. Lawrence, between Rivière-aux-Graines and Mingan, were also close to the normal limits of winter movement. Pierre noted a much greater movement the previous winter, including an estimate of 1,500 WIPT at the LG-3 hydroelectric dam on the La Grande River about 150 km east of James Bay on 21 November 2016.

Elsewhere – Inquiries to several other *NAB* regional editors did not reveal any ptarmigan reaching the conterminous U.S.A. (where records are extremely rare) in winter 2017-18.

Geographical and historical context

This section is primarily concerned with the three Prairie Provinces. Information for other parts of Canada and the northern United States is provided for context, but is not comprehensive.

Canada-wide – The Willow Ptarmigan breeds extensively in low-Arctic and some alpine and moorland regions of North America and Eurasia.[4,5] The North American breeding range extends from Alaska to Newfoundland, skirting Hudson Bay and northern parts of James Bay, extending southward in the western mountains to southern British Columbia, and reaching the north shore of the Gulf of St. Lawrence in extreme eastern Québec.[4,5] Breeding in the Prairie Provinces is limited to extreme northern Manitoba (mostly within 100 km of the Hudson Bay

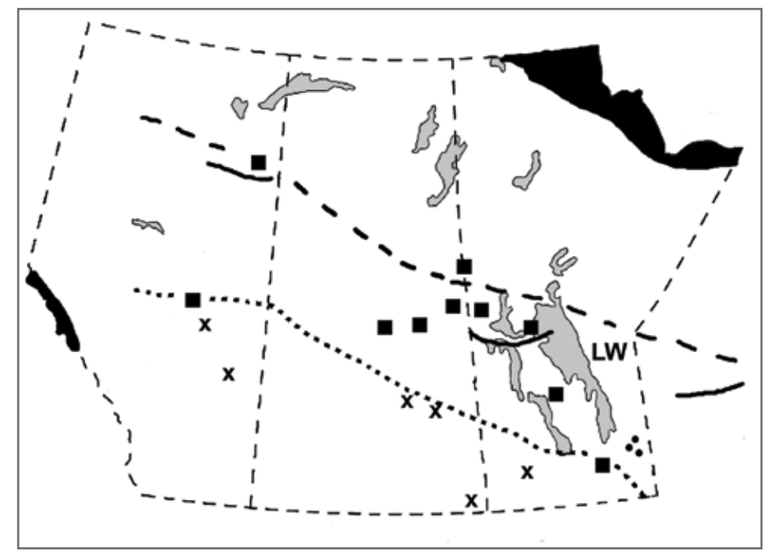

FIGURE 2: Summary of occurrences of Willow Ptarmigan in the three Prairie Provinces. Solid black areas represent the breeding range. Bold, dashed line is estimated extent of normal southward movements. Dotted line is estimated, combined extent of irruptions in the early 1930s (see text). Three dots show the December 2017 locations in SE Manitoba. Three short, solid lines show the known extent of large movements in 2017-18 winter in Alberta, Manitoba, and NW Ontario. ■ indicates important localities mentioned in the text, from west to east: Edmonton and Fort McMurray, Alberta; Prince Albert, Nipawin, and Cumberland House, Saskatchewan; Creighton, Saskatchewan / Flin Flon, Manitoba; The Pas, Grand Rapids, Gypsumville, and Winnipeg, Manitoba. ✖ indicates outlying southerly records, from west to east: Camrose and Sullivan Lake, Alberta; Dafoe, Sheho, and Carnduff, Saskatchewan; Aweme, Manitoba. LW = Lake Winnipeg. The three water bodies immediately west of Lake Winnipeg, from south to north, are Lake Manitoba, Lake Winnipegosis, and the Cedar-Moose lakes complex. Note that there are five records for North Dakota. The only Montana record was just south of the British Columbia border, and presumably associated with the montane population.[58] No attempt is made to show the winter range in mountainous parts of Alberta.

coast, but farther inland along the Nunavut border) and a small portion of western Alberta in and near Jasper National Park.[2,6,7]

Though some WIPT remain throughout much of the breeding range in winter, others move into the northern boreal forest each year, with sporadic movements much farther south.[2,3,8-10] Female WIPT tend to migrate longer distances than males.[10,11] Because ptarmigan migration crosses sparsely populated regions of the boreal forest, often concentrating in inaccessible areas, this migration is a rather ghostly phenomenon (appropriate for white winter plumage!) with fragmentary records.[10] Based on inquiries to conservation officers and other boreal-forest residents in the early 1970s, Höhn found that migrating WIPT tended to show "two separate periods of prevalence" in early and late winter in the northern boreal forest, indicative of southbound and northbound movements, but occurred mainly in the mid-winter period (November to February) farther south.[10] This pattern held true in the 1974-75 winter, when ptarmigan numbers were below average.[10] Only rarely do any ptarmigan appear at or beyond the southern fringe of the forest, sometimes upwards of 1,000 km from their breeding range. There is evidence of a reduction in the magnitude and extent of southern movements over the past two centuries.[3,12,13]

This complex situation probably accounts for the different depictions of WIPT winter range in various field guides and other publications. Peterson illustrated the situation succinctly by drawing a dashed boundary through the mid-boreal forest, but annotating the map with a note on casual or accidental occurrence much farther south.[14] Similarly, the map of estimated winter range in *The Birds of Manitoba* is divided into "sporadic" occurrence south to a diagonal line passing the north end of Lake Winnipeg and "extremely rare" south to a line that excludes only the most intensively farmed (former prairie) regions of southwestern and central southern Manitoba.[2] This is slightly farther south than the estimated winter range boundary in *Birds of North America*, but supported by 20th century records discussed here.[5]

In *The Birds of Canada*, Godfrey defined the southern limit of irregular WIPT migration by mentioning the following localities: Camrose and Sullivan Lake, Alberta; Qu'Appelle Valley, Saskatchewan (rarely); Gypsumville, Ashern, and southern Lake Manitoba, Manitoba; central Ontario (rarely south to Whitby); Chelsea and perhaps Montréal, Québec.[4] Note that the occurrence in the Qu'Appelle Valley, originally mentioned by Mitchell, is not substantiated, but there is at least one valid record farther south.[3]

The winter diet of WIPT is mostly willow (*Salix* spp.) and birch (*Betula* spp.) buds and twiglets (Figure 4), so that occurrence in any region of the boreal forest is localized.[10] Prime habitat for hunting ptarmigan in winter has been described as "clusters of small lakes with expansive willow and alder bushes growing along the shorelines, as well as low-lying marshy river segments that back onto old-growth conifer stands… [with] patchy burns or exposed rocky ledges for grit."[15]

Québec – The strongest statements about diminished migration of WIPT since the 19th century come from Québec.[12] While winter movements may exceed 1,000 km, and occasional incursions still reach the Abitibi, Saguenay – Lac St. Jean, and North Shore (St. Lawrence) regions (collectively, 48.5 to 49.0°N, 69 to 78°W), Lamothe and Doyon stated that such movements involve fewer and fewer birds.[12] They cited reports of tens of thousands taken by hunters in 1885, 1895, and 1904; the decade-long intervals apparently reflect cyclic population changes.[12,16]

Ontario – Based on accounts of early settlers in southern Ontario, ptarmigan were apparently "frequent migrants into the townships back of Darlington [43.9°N, 78.7°W]", east of Toronto in the 19th century.[17] Again, the extent of regular migration seems to have diminished during the 19th century, such that recent, unseasonal occurrences at Toronto and Darlington were extreme rarities.[18] An "unusually southern" migration in winter 1896-97 brought WIPT as far south as Lake Nipissing and the Parry Sound district east of Lake Huron.[17,19] Records for northwestern Ontario are sparse, but Speirs cited regular winter occurrence at Big Trout Lake and Nikip Lake.[20]

Manitoba – The three records in December 2017 that inspired this article were clustered about 60 km SE of Lake Winnipeg. A number of historical records of wintering WIPT on or near this lake, which extends about 400 km from north to south, provide local context. The summary by Donald Gunn, as quoted by Ernest Thompson [Seton], is helpful: "Very seldom to be seen south or west of Lake Winnipeg, but is found in all of the country north and east of that lake during the winter season."[21] Writing of Swamp [or Swampy] Island, now known as Berens Island, a Mr. Plunkett (also cited by Seton) stated that WIPT were common in severe winters only. He noted 20 on 16 February 1885, and described the species as abundant the following winter, with records between 12 January and 8 March 1886.[21]

An explorer from Iowa, Frank Russell obtained 15 WIPT specimens between 12 November 1892 and 8 February 1893, when he overwintered at Grand Rapids; 10 of these are still held at the University of Iowa Museum of Natural History.[22,23] He stated that they frequented the sandy dikes of the lake shore, feeding on willow buds, noting that "the ptarmigan were not abundant this season", and that he never secured more than two or three usable specimens in a day's hunt. More recent records at Grand Rapids of four WIPT on 16 February 1979 (Dominic French) and two photographed on 31 March 2018 (see p. 13) seem more noteworthy in the current era of less frequent irruptions.[24a] A road-killed bird south of Grand Rapids was Joel Kayer's only WIPT observation during the 2019-20 winter (email, 8 June 2020).

Long-time bird columnist Alexander G. Lawrence mentioned reports of WIPT between Poplar River and Berens River (about 52.6°N, 97.2°W) on 15 November 1926, and earlier at Black Bear Island.[25a] He subsequently noted that WIPT "migrates regularly south in winter to Norway House, and very occasionally to more southern points".[25b]

Further scattered reports in the early 20th century included the first of five definite North Dakota records in 1909 and the first Minnesota record in 1914.[26,27] The Ward brothers, who Percy A. Taverner described as "unusually well informed sportsmen naturalists", knew of five ptarmigan killed in winter near Shoal Lake[s] (west of the south end of Lake Winnipeg) some time prior to 1917.[28] Lawrence cited an observation by N. (presumably Norman) Criddle of several WIPT at Aweme for a few days during the winter of 1917-18.[25b] Writing in 1964, Harold Mossop mentioned seeing a flock of 18 WIPT in St. Vital (Winnipeg) 40 years previously in January 1924.[29] Mossop (1908-1973) was just 15 years old at the time of this sighting, but he went on to describe the 1933-34 invasion, so the 1924 date does not seem to be in error.[29] Bent gave extreme migration dates for Winnipeg of 12 January and 21 March (no source or years given), but this may refer to a larger region than the city alone.[30] He also noted tersely that WIPT migration in general "has no regularity".[30]

Saskatchewan – Historical records at Cumberland House and Prince Albert, as compiled in *Birds of Saskatchewan*, suggest a change

FIGURE 3: This Willow Ptarmigan was one of six seen near Deschambault Lake, Saskatchewan on 7 April 2018. Photo credit: Annie McLeod.

FIGURE 4: A feeding Willow Ptarmigan selects a bud at Creighton, Saskatchewan on 30 December 2008. Photo credit: Harvey Schmidt.

of WIPT status from regular and abundant in winter from around 1820 to the 1880s (though perhaps not annual by the 1850s), thereafter becoming much scarcer and probably limited to severe winters.[3] Based on *Atlas of Saskatchewan Birds*, the southern limit of normal occurrence in Saskatchewan since 1966 is near 54°N and 53°N at the Alberta and Manitoba boundaries, respectively.[13] Earlier records extend about 1.5 degrees of latitude (~170 km) farther south, consistent with a northward range reduction away from the Parklands region.[13]

Alberta – Salt and Salt stated that WIPT normally move south in winter to about 57°N in Alberta, but have been recorded as far south as Sullivan Lake as mentioned also by Godfrey.[4,7] Summarizing the species' winter habitat, they wrote that WIPT "…frequent frozen muskegs, the borders of lakes and streams, and similar openings in the woods [but] in some years… they move further south into settled regions… [adding] cultivated grains to their usual diet of berries and buds." They did not mention specific years of southward irruptions.[7] The reference to cultivated grains recalls the 1931-32 incursion in Saskatchewan (see p. 19), when ptarmigan frequented farmyards and grain elevators in the Nipawin region.[3]

Southerly incursions in the Prairie Provinces

It is difficult with 19th and early 20th century records (up to 1930) to distinguish between irruption years and then-regular (annual or near-annual) occurrences, and usually impossible to tell if scattered southern occurrences reflected large movements in more remote regions. There is no doubt, however, that several major southward incursions took place in the early 1930s.

1930-1931 – A harbinger of a Manitoba irruption was a "beautiful skin" collected by Sam Waller on 13 November 1930 near Gypsumville and sent to Dr. H. M. Speechly (present status of specimen unknown).[25b] In correspondence with Lawrence, Waller said the ptarmigan came south "around the time of the great blizzard in October [1930]" and were still present in considerable numbers at Gypsumville when he collected this specimen. He added that many local First Nation residents had never seen a ptarmigan before.[25b] This was probably the first of more than 20 WIPT specimens collected by Waller in central Manitoba (mostly at or near Gypsumville and The Pas) and now distributed among several museums in Canada and the U.S., including the Sam Waller Museum in The Pas.[23]

A dozen more observations between 5 November 1930 and 23 April 1931, mentioned by Lawrence (citing numerous observers) were mostly within the ranges of latitude 51-52°N and longitude 97-101°W.[25b-g] The most southerly report was from Rev. O. Chagnon at Sandy Bay on Lake Manitoba. East of Lake Winnipeg, two specimens were collected at English Brook on 15 January 1931 and are preserved at the Provincial Museum of Alberta.[23]

While most reports involved fewer than 10 birds, "large numbers" were present around the southern shore of Lake Winnipegosis, with 1,000 to 2,000 estimated about 15 miles north of the community of Winnipegosis (about 51.8°N, 99.95°W), while "hundreds" were reported farther northwest around Birch River.[25d-f] Ptarmigan were also "fairly abundant about the base of the northern escarpment of Riding Mountain, and sparsely scattered throughout the Dauphin district (around 51°N, 101°W).[25i]

Though writing for a Winnipeg newspaper, Lawrence had correspondents in Alberta, Saskatchewan, and Ontario as well as Manitoba. Concurrent with the 1930-31 WIPT incursion in Manitoba, he mentioned sightings in Saskatchewan at Norquay in mid-December and about 50 miles north of North Battleford (~53.3°N, 108.3°W, "common", undated).[25c,d] *The Birds of Saskatchewan* mentions a southerly record from that winter at Mozart.[3]

Farley collected a male in full summer plumage south of Camrose, AB, on 16 May 1931.[31] He was aware of only one previous Alberta record south of the North Saskatchewan River, in the South Edmonton area "in winter, some years ago".[31] The unseasonable date seems to match the pattern of some extreme southerly records in Ontario and the northeastern United States.[18,32-35] It is possible that at least some such individuals are misoriented spring migrants rather than lingering winter birds.

1931-32 – Though WIPT were noted regularly in winter at Nipawin, Saskatchewan during the 1930s, the greatest influx occurred between 6 November 1931 and 3 April 1932, when ptarmigan frequented farmyards and grain elevators southward to Codette and Pontrilas.[3] Additional Saskatchewan records in 1931 at Maidstone, Carruthers, and Fort Pitt (all in a band between 52.8 and 53.6°N) likely also refer to this winter.[3] There is no indication in Lawrence's columns of any comparable movement in Manitoba, but a specimen taken by Waller at Gypsumville is dated 10 March 1932 and preserved at the Royal Ontario Museum (ROM). [23,36]

1932-33 – This winter seems to have brought only a modest movement of WIPT to central Manitoba, with Lawrence receiving only two reports from the Dauphin region.[25h,i] Three Gypsumville specimens, taken by Waller on 2, 11, and 17 February 1933 are in the ROM collection. This winter does not receive special mention in *The Birds of Saskatchewan*, nor does it feature in other specimen records for the Prairie Provinces and NW Ontario on GBIF.[3,23] Some mentions of WIPT in central Ontario and parts of Québec around 1932 and 1933 are uncertain or ambiguous about the specific winter(s).[37,38]

1933-34 – The winter of 1933-34 brought noteworthy southward movements by WIPT to southeastern Manitoba and northern Minnesota, as well as parts of Alberta and Ontario, but apparently not Saskatchewan.[2,3,39,40]

In Manitoba, many observations were concentrated at the south end of Lake Winnipeg, including five localities within latitude 50.3-50.7°N and longitude 96.4-97.0°W.[25k-m,41c] Fred J. Rogers said it was not uncommon to see 20 at a time in the Hillside Beach area, and suggested that the arrival of WIPT was "apparently the result of the extremely cold November weather", a comment echoed 30 years later by Mossop's reference to "a particularly wintry 1933 November".[25k,29] Additional reports extended south to the Whitemouth area and the Murray Park district of Winnipeg, and west to the East Bay area at Dauphin Lake.[25l,n-p] "Hundreds" were present along the north shore of Lake Manitoba.[25p] It was evidently a bumper winter for WIPT within their normal winter range, with "thousands" between Gods Lake and Norway House on 10 December 1933 (A.A. Campbell).[25n]

In Alberta, Farley reported a major influx "immediately north and east of Edmonton".[39] He attributed this irruption to deep snows and extremely low temperatures farther north, mentioning temperatures near -50°C in the lower Mackenzie region. Specific communities he mentioned were Ardrossan, Ashmont, Athabasca, and Tawatinaw (all within 53.5-54.8°N, 111.5-113.5°W). From the same region, 10 Donatville specimens and one from Boyle, collected between 6 December 1933 and 5 February 1934, are in the ROM collection (nine birds), the Slater Museum at Puget Sound, and the Peabody Museum at Yale University.[23] Lawrence received a description of one a little farther west at Barrhead about 18 December 1933.[25l] The ROM collection of WIPT specimens also includes four collected at Red Lake, Ontario on 12 December 1933 and two in the Timiskaming area in January 1934.[23] Three from Smoky Falls on 3 December 1933 were only about 200 km from the southern tip of James Bay, and therefore perhaps within the range of normal migration.[23]

The 1933-34 incursion yielded an astonishing 200+ WIPT observations between 7 December 1933 and 25 April 1934 in northernmost Minnesota (Roseau, Lake of the Woods, and northern St. Louis counties), substantiated by three specimens held by the J. F. Bell Museum in Minneapolis.[23,40] There are only two other confirmed Minnesota records (in 1914 and

1964) plus some hearsay reports, and no record of comparable invasions in other northern states.[26,40]

1934-35 to present – Contrasting with the great winter movements of 1930-31 and 1933-34, WIPT were scarce in 1934-35 even in their normal winter territory at Island Lake and Gods Lake.[25r] The only further reports mentioned by Lawrence came from the Whitemouth area in November 1935 and February 1939, and Dauphin Lake in January 1937 and January 1941.[25s,u,w] Near the southern limit of normal movements, however, Waller reported "considerable numbers" in February 1940 near The Pas, where he also collected a specimen on 27 November 1939.[25v,41d]

Also at The Pas, WIPT were "common everywhere in the district" in February 1950, and they were "more plentiful than usual" in January 1954 farther north at Sherridon, Manitoba.[25x,y] As well as the 1939-40 and 1949-50 winters, Waller secured specimens at or near The Pas in December 1950, January 1951 and 1956, and March 1960 and 1962.[23,41d,e] A series of 23 specimens from Lac la Ronge, Saskatchewan at the University of Michigan Museum of Zoology, obtained in January and February 1949, is apparently linked to an unsuccessful attempt to introduce WIPT in Michigan, and suggests a strong movement in central Saskatchewan that winter.[5,23] While WIPT migration and wintering in northern Saskatchewan is an annual event, the only hint of southward invasion numbers in Saskatchewan since the 1930s is an often-cited migrating flock of 2,000 WIPT near Creighton in March 1973.[3,10]

Citing the season's bird summary in *Audubon Field Notes*, Sadler and Myres noted that WIPT moved farther south in Alberta during winter and spring 1961 than for many years, and were "extremely numerous" at Athabasca.[42] This is substantiated by five Athabasca specimens, taken in December 1960, at the University of Alberta Museum, Edmonton. Although there seems to be no published account of a ptarmigan invasion in either Saskatchewan or Manitoba that winter, the Manitoba Museum has two southerly specimens taken in January 1961: one from Lake Winnipeg SW of Reindeer Island (~52.3°N, 98.0°W) on the 6th, and one from Homebrook, near the north shore of Lake Manitoba on the 11th.[41a,b]

Records are sparse for WIPT in southern Manitoba from 1962 to 2016. Two in winter plumage were reported at Winnipeg in 1963 on 9 December and an earlier date.[29] Near the normal winter range limit, large flocks NW of Norway House in February 1964 were reported to Fowke.[43] Höhn implied, without details, that ptarmigan were present during winter near The Pas and Grand Rapids in the 1970s.[10] There was a flurry of more southerly reports in December 1986: two surprisingly in summer or transitional plumage at Winnipeg on the 2nd; one in transitional plumage near Marquette early in the month (Perry Hildebrandt); two near Vogar about the 20th and one roadkill east of Lake Manitoba Narrows on the 27th.[24b,c] David Raitt recorded two WIPT along Highway 60 near the north shore of Lake Winnipegosis (~52.98°N, 99.94°W) on 23 December 2013 (eBird).

The southernmost occurrences in Saskatchewan in the last 65 years involved single birds north of Dafoe on 20 February 1964, wintering at Sheho until 21 May 1958, and in the extreme southeast at Carnduff on 6 December 1981.[3,13,44] Höhn implied occurrence near Smeaton in the early 1970s.[10] The most southerly WIPT record in Saskatchewan on eBird was east of Prince Albert on 15 December 2014.

Note on Rock Ptarmigan

Other ptarmigan species present an identification challenge, but do not substantially affect the current review because of limited range overlap, though a few individual ptarmigan may have been misidentified. Arctic populations of Willow and Rock Ptarmigan (*L. muta*, ROPT) overlap, but ROPT has a more northerly range in both summer and winter, and does not normally occur farther south in winter than about Gillam, Manitoba and Uranium City, Saskatchewan.[45,46] There is one substantiated Alberta record at Garden River (18 December 2011), while Ontario records are mostly along or near the Hudson Bay coast.[47,48] Exceptional records of individual ROPT in southern Saskatchewan in April and northern Minnesota (and possibly also NW Ontario) in May suggest misoriented spring migration, as with some unseasonal Willow Ptarmigan records discussed on p. 19.[46,49,50]

In 1931, Lawrence wrote: "a specimen of the Rock Ptarmigan has arrived in Winnipeg, which was found in Saskatchewan, north and west of The Pas in early March [1931]".[25f] I am unable to trace this specimen, which pre-dates the seven accepted Saskatchewan records.[46]

Occasionally, leucistic individuals of other grouse species or Gray Partridge (*Perdix perdix*) have been misidentified as ptarmigan, but this is also not significant to this review.[25j,q]

Discussion

Each year, Willow Ptarmigan concentrate in southern parts of their Low Arctic breeding range and move varying distances and in varying (but apparently declining) numbers into the boreal forest.[2,3,8-10] One can imagine a series of zones progressing south across the boreal forest from the southern breeding limit, in which the winter occurrence of WIPT is: (a) "annual" in large numbers; (b) "normal", with large numbers at least once a decade, and possibly cyclic; (c) "limited" to stray individuals or small groups and sporadic irruptions (intervals may be many decades, possibly historic only in some regions); and (d) "vagrant" individuals only. Taking a north-south line near the Manitoba-Saskatchewan border as an example, these zones appear to extend south to about (a) Creighton and Flin Flon; (b) The Pas; (c) the "mountains" of the Manitoba Escarpment and adjacent plains; (d) just south of the U.S. border. Data are too sparse to plot the entire winter range in such detail, but Figure 2 includes my estimate of the limit of normal winter occurrence in the Prairie Provinces, plus the known extent of some major irruptions and some isolated southerly records. The range boundary in *Birds of North America* is farther south, corresponding roughly to "limited" occurrence as defined above.[5] The estimated limit of normal occurrence has a slight diagonal trend across Canada, as do the range limits of many birds and other organisms, being farther north (~57°N) in Alberta and dipping south from ~53°N at the Manitoba-Ontario border to ~50°N in eastern Ontario and Québec.[7,12] This reflects the more southerly latitude of the Taiga Shield and northern Boreal Shield Ecozones in eastern than western Canada.[51]

Irruptive movements well south of the normal winter range appear to be sporadic rather than cyclic, occurring at intervals from one or two years (as in the 1930s) to several decades. In North America, some WIPT populations show peaks at roughly 10-year intervals, though there is evidence of recent breakdown of such cycles, especially the loss of major peaks, perhaps due in part to climate change.[12,16] Individual irruptions seem to be limited to one or more portions of the continental range, but this may be partly due to limited coverage and reporting in remote regions. Many anecdotal reports associate irruptions with severe weather, *i.e.*, extreme cold or major winter storms, which might result in localized southward displacements. Direct, storm-blown displacement seems unlikely, since ptarmigan migration appears to involve relatively short-range, low-altitude flight stages, even "walking much of the way" according to Taverner (Figure 5).[10,52] Writing about WIPT movements in the Labrador Peninsula, Harper noted: "The local bushmen said that when the "White Partridges" come down, it is

FIGURE 5: These boots are made for walking! A Willow Ptarmigan, one of a flock at Creighton, Saskatchewan on 19 February 2009, shows off its densely feathered "snowshoes". Note that it has just commenced moulting into breeding plumage. Photo credit: Harvey Schmidt.

usually because of sleet in the more northerly areas where they usually pass the winter".[9] This makes sense, because sleet could lead to crusting of the snow, making it difficult for ptarmigan to roost under the snow surface, as well as encapsulating their food supply of twiglets and buds in ice.

Sporadic irruptions by northern Sharp-tailed Grouse (*Tympanuchus p. phasianellus*), *e.g.*, in 1865-66, 1896-97, 1932-33, 1967-68, and 1968-69 in central Ontario, have been linked to exceptionally high population levels.[53-55] Unusual southerly records of at least a few WIPT coincided with most if not all of these movements. Summarizing the findings of several researchers around 1990, Hannon *et al*. described WIPT migration thus: "Movements [are] precipitated by snow cover on breeding sites; birds move to areas with greater vegetative cover, possibly to escape predation, but not because of food shortage".[5] However, this summary seems to refer to normal migration rather than sporadic irruption. Donald Hooper attributed the gradual diminution of ptarmigan migration in Saskatchewan to the gradual advance of settlement and farming.[56]

The population dynamics of WIPT is a complex subject of extensive research throughout its circumpolar range, as summarized in a recent, multi-author review.[57] While Yukon populations have been monitored closely for several decades, data are apparently sparse for the central Canadian Arctic, whence many of the migrants that reach the southern Prairie Provinces likely originate.[16,57] Whatever drives and limits the most southerly winter movements, I feel privileged to have witnessed one of the extreme occurrences in southeastern Manitoba in December 2017. These were apparently the first records so far south in Manitoba since 1986, and the first southeast of Lake Winnipeg since the 1930s.

Acknowledgements

The following correspondents provided valuable information: Garry Budyk, Dennis Fast, Charissa Godfrey, Richard Farquhar, Gordon Grieef, Joel Kayer, Rudolf Koes, Katherine Patterson, David Raitt, Daniel Seales (Manitoba); Stuart Houston, Harvey Schmidt (Saskatchewan); James Fox (Alberta); David Elder, Brian Ratcliff, Devin Turner, Josh Vandermeulen (Ontario); Pierre Bannon, Normand David (Québec); Adam Byrne (Michigan); Peder Svingen (Minnesota); Ron Martin (North Dakota); Andrew Rapp (Virginia). Special thanks are due to Randall Mooi, Curator of Zoology at The Manitoba Museum, for access to specimen information, copies of *Chickadee Notes* columns, and many other resources. I also thank Anita Drabyk, Randall Mooi, Brian Ratcliff, and Spencer Sealy for helpful comments on a draft manuscript.

All websites cited below were verified on 12 August 2020.

1. Audubon Christmas Bird Count. http://www.audubon.org/conservation/science/christmas-bird-count.

2. Holland GE, Taylor P (2003) Willow Ptarmigan. In: Manitoba Avian Records Committee, The Birds of Manitoba, Manitoba Naturalists Society, Winnipeg, Manitoba, p. 151.

3. Schmidt B (2019) Willow Ptarmigan. In: Birds of Saskatchewan (A. R. Smith, C. S. Houston, J. F. Roy, editors), Nature Saskatchewan, Regina, p. 131.

4. Godfrey WE (1986) The birds of Canada. Revised edition. National Museum of Natural Sciences, Ottawa, Ontario.

5. Hannon SJ, Eason PK, Martin K (1998) Willow Ptarmigan (*Lagopus lagopus*), version 2.0. In: The Birds of North America (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, New York. https://doi.org/10.2173/bna.369 .

6. Artuso C (2018) Willow Ptarmigan. In: Artuso C, Couturier AR, De Smet KD, Koes RF, Lepage D, McCracken J, Mooi R, Taylor P (Eds.) (2018). The Atlas of the Breeding Birds of Manitoba, 2010-2014. Bird Studies Canada. Winnipeg, Manitoba. http://www.birdatlas.mb.ca/accounts/speciesaccount.jsp?sp=WIPT&lang=en .

7. Salt WR, Salt JR (1976) The birds of Alberta with their ranges in Saskatchewan and Manitoba. Hurtig, Edmonton, Alberta.

8. Jehl JR Jr (2004) Birdlife of the Churchill region: status, history and biology. Trafford Publishing, Victoria.

9. Harper F (1958) Birds of the Ungava Peninsula. University of Kansas, Lawrence.

10. Höhn EO (1984) Willow Ptarmigan in the boreal forest of the Prairie Provinces. Blue Jay 42:8388.

11. Weeden RB (1964) Spatial separation of sexes in Rock and Willow Ptarmigan in winter. *The Auk* 81:534-541.

12. Lamothe P, Doyon M-R (1996) Willow Ptarmigan. In: The breeding birds of Québec: Atlas of the breeding birds of southern Québec (J. Gauthier and Y. Aubry, eds.). Province of Québec Society for the Protection of Birds and Canadian Wildlife Service, Montréal, Québec, pp. 422-425.

13. Smith AR (1996) Atlas of Saskatchewan birds. Special Publication No. 22, Saskatchewan Natural History Society, Regina.

14. Peterson RT, Peterson VE (1980) A field guide to the birds [east of the Rockies]. Fourth Edition, Houghton Mifflin, Boston.

15. Skok A (2017) Hunting ptarmigan in winter: the 5 things you need to know. https://www.outdoorcanada.ca/hunting-ptarmigan-in-winter-the-5-things-you-need-to-know/ .

16. Mossop DH (2011) Long-term studies of Willow Ptarmigan and Gyrfalcon in the Yukon Territory: A collapsing 10-year cycle and its apparent effect on the top predator. In: Gyrfalcons and ptarmigan in a changing world (conference proceedings), The Peregrine Fund, Boise, Idaho. Vol. 1, pp. 323-336.

17. Fleming JH (1907) Birds of Toronto, Canada. Part II, Land birds. *The Auk* 24:71-89.

18. Burrell MVA, Charlton BN, Burrell KGD, Vandermeulen JD, Lamond WG, Lucas TB, Mann BA, Pratt PD, Sutherland DA (2018) Ontario Bird Records Committee Report for 2017. *Ontario Birds* 36:58-88.

19. Fleming JH (1901) A list of the birds of the districts of Parry Sound and Muskoka, Ontario. *The Auk* 18:33-45.

20. Speirs JM (1985) Birds of Ontario. Natural Heritage / Natural History Inc., Toronto, Ontario. Volume II, p. 207.

21. Thompson [Seton] EE (1890) The birds of Manitoba. *Proceedings of the U.S. National Museum* 13:457-643 [No. 841]. As reprinted in "Ernest Thompson Seton in Manitoba 1882-1892" (with introduction by C.S. Houston), Premium Ventures Ltd. and Manitoba Naturalists Society, Winnipeg, Manitoba, 1980.

22. Russell F (1898) Explorations in the Far North. University of Iowa, pp. 260-261.

23. Global Biodiversity Information Facility, https://www.gbif.org/ and VertNet, https://www.vertnet.org/. There is substantial overlap between these two database portals.

24. Hatch DRM (various years) Chickadee Notes, *Winnipeg Free Press*. (a) 16 Feb 1979, (b) 17 Jan 1987, (c) 14 Feb 1987.

25. Lawrence AG (various years) Chickadee Notes, *Winnipeg Free Press*. (a) No. 306, 3 Feb 1927, (b) No. 504, 21 Nov 1930, (c) No. 512, 16 Jan 1931, (d) No. 517, 20 Feb 1931, (e) No. 520, 13 Mar 1931, (f) No. 523, 3 Apr 1931, (g) No. 529, 15 May 1931, (h) No. 615, 6 Jan 1933, (i) No. 620, 10 Feb 1933, (j) No. 628, 7 Apr 1933, (k) No. 664, 15 Dec 1933, (l) No. 666, 29 Dec 1933, (m) No. 668, 12 Jan 1934, (n) No. 673, 16 Feb 1934, (o) No. 674, 23 Feb 1934, (p) No. 679, 30 Mar 1934, (q) No. 707, 12 Oct 1934, (r) No. 729, 15 Mar 1935, (s) No. 776, 7 Feb 1936, (t) No. 824, 8 Jan 1937, (u) No. 935, 24 Feb 1939, (v) No. 987, 23 Feb 1940, (w) No. 1039, 21 Feb 1941, (x) No. 1501, 24 Feb 1950, (y) No. 1707, 5 Feb 1954.

26. Roberts TS (1932) The birds of Minnesota. University of Minnesota Press, Minneapolis (two volumes).

27. Martin R (North Dakota Bird Records Committee). Personal communication, email, 5 March 2018.

28. Taverner PA (1918 and 1919) The birds of Shoal Lake, Manitoba [published in three parts], *Ottawa Naturalist* 32:137-144 and 157-164; *Canadian Field-Naturalist* 33:12-20.

29. Mossop H (1964) Chickadee Notes, Winnipeg Free Press. No. 468 (second series), 4 Jan 1964.

30. Bent AC (1932) Life histories of North American gallinaceous birds. U.S. National Museum Bulletin No. 162, Smithsonian Institution, Washington, DC.

31. Farley FL (1932) Willow Ptarmigan, *Lagopus lagopus*, in central Alberta in May. *Canadian Field-Naturalist* 46:208-209.

32. Applegate RD (1996) Extralimital occurrences of Willow Ptarmigan, *Lagopus lagopus*, in Maine. *Canadian Field-Naturalist* 110:715.

33. Massachusetts Avian Records Committee (2009) Thirteenth Annual Report of the Massachusetts Avian Records Committee (MARC), http://maavianrecords.com/annual-reports/13th/.

34. Vermont Bird Records Committee (2019) An annotated list of vagrant, out-of-season and rare nesting birds of Vermont. https://vtecostudies.org/wildlife/wildlife-watching/vbrc/annotated-bird-list/.

35. New York State Avian Records Committee (2016) Special report of the New York State Avian Records Committee: Addition of six new species to the New York checklist. *The Kingbird* 66: 264-274.

36. Shortt TM, Waller S (1937) The birds of the Lake St. Martin region, Manitoba. Contributions, Royal Ontario Museum, Zoology 10:1-51.

37. Smith WJ (1957) Birds of the Clay Belt of Northern Ontario and Quebec. *Canadian Field-Naturalist* 71:163-181.

38. Brassard JA, Bernard R (1937) Willow Ptarmigan at the Quebec Zoological Gardens. *The Auk* 54:514-515.

39. Farley FL (1934) Unusual migration of Willow Ptarmigan into central Alberta during the winter of 1933-34. *Canadian Field-Naturalist* 48:120.

40. Janssen RB (1987) Birds in Minnesota: a field guide to the distribution of 400 species of birds in Minnesota. University of Minnesota Press, Minneapolis.

41. The Manitoba Museum, Winnipeg, Willow Ptarmigan specimens, (a) 1-2-2203, (b) 1-2-2384, (c) 1-2-2425, (d) 1-2-2552, (e) 1-2-2553.

42. Sadler TS, Myers MT (1976) Alberta Birds 1961-1970. Occasional Paper #1, Provincial Museum of Alberta, Edmonton, Alberta.

43. Fowke SC (1964) Winter birds of Norway House. *Blue Jay* 22:56-57.

44. Taylor RR (1964) A southerly record of the Willow Ptarmigan. *Blue Jay* 22:57.

45. Larche RA, Sealy SG (1977) Inland records of the Rock Ptarmigan in Manitoba. *Blue Jay* 35:99-100.

46. Dickson RD (2019) Rock Ptarmigan. In: Birds of Saskatchewan (A. R. Smith, C. S. Houston, J. F. Roy, editors), Nature Saskatchewan, Regina, p. 132.

47. Kuipers K, Kuipers N, Storer P (2012) Rock Ptarmigan – a new bird for Alberta. *Blue Jay* 70:56-57.

48. Lumsden HG (1964) The Rock Ptarmigan, *Lagopus mutus rupestris*, in Ontario and Manitoba. *Canadian Field-Naturalist* 78:161-167.

49. Hoffman K (1996) A Rock Ptarmigan at Grand Marais [Minnesota]. *The Loon* 68:79.

50. Eckert KR (1996) Some additional comments on the Rock Ptarmigan in Grand Marais [Minnesota]. *The Loon* 68:80-81.

51. Canadian Council on Ecological Areas (2014) Ecozones of Canada Version 2014.02. https://www.ccea.org/Downloads/shapefiles/CA_ecozones_1M_v5_final_map%20v20140213.pdf.

52. Taverner PA (1926) Birds of Western Canada. Department of Mines, Ottawa (reprinted, 1974, Coles, Toronto).

53. Lumsden HG (2005) "Prairie Grouse", *Tympanuchus cupido* X *phasianellus*, hybridization on Manitoulin Island, Ontario. *Canadian Field-Naturalist* 119:507-514.

54. Elder DH (1979) Birds of the Geraldton district. *Ontario Field-Biologist* 33:26-41.

55. Escott NG (2003) The Sharp-tailed Grouse in Thunder Bay District. *Ontario Birds* 21:2-14.

56. Hooper DF (1992) Birds of east-central Saskatchewan. Special Publication No. 18, Saskatchewan Natural History Society, Regina.

57. Fuglei E, Henden J-A, Callahan CT, Gilg O, Hansen J, Ims RA, Isaev AP, Lang J, McIntyre CL, Merizon RA, Mineev OY, Mineev YN, Mossop D, Nielsen OK, Nilsen EB, Pedersen Ø, Schmidt NM, Sittler B, Willebrand MH, Martin K (2020) Circumpolar status of Arctic ptarmigan: population dynamics and trends. *Ambio* 49(3):749-761.

58. Stanford HP (1914) Willow Ptarmigan in Montana. *The Auk* 31:399.

BISON RETURN TO WANUSKEWIN AFTER 150 YEARS

Joel Cherry
Regina, SK

A Brown-headed Cowbird perches on the dark, humped back of a Plains Bison, hungrily watching for any grasshoppers that may be stirred up as the massive animal grazes. The bison's nutrient-rich dung provides fertilizer for recently planted native grasses and plants underfoot, and nourishment for insects such as dung beetles. A tawny calf grazes nearby.

These bison are members of a small but growing conservation herd welcomed to Wanuskewin Heritage Park as part of *Thundering Ahead*, the organization's $40-million revitalization project, which also seeks to restore the grassland ecosystem and establish the park as a UNESCO World Heritage site. The calf is among the first four to be born on this land in 150 years.

Esteemed archaeologist Dr. Ernie Walker has been working in the area, located just outside Saskatoon where Opimihaw Creek cuts a steep valley through the flat prairie, for 40 years. A stone medicine wheel was found there in the 1930s, but Walker and his students have unearthed bison jumps, tipi rings and other archaeological treasures that reflect 6,000 years of continuous human occupation. This archaeological work and a partnership with the First Nations community were the foundation for the development of Wanuskewin Heritage Park, which opened at the location in 1992.

In addition to the rich cultural history illustrated by the archaeological finds, Walker's team has studied the ecology of the area. While there is evidence of a wide diversity of prairie species at the location, most bones that are found are from bison, highlighting their importance to the local ecology and to the original human inhabitants.

The decline and near-extinction of the bison has been well documented. European settlement of the great plains devastated the bison, reducing the population from as from as many as 30 million in 1700 to less than 1,000 by 1888.

"The American bison is a keystone species — it's the iconic animal of North America and we almost lost them," Walker said. "We always wanted bison back (at Wanuskewin) — the elders in the early days talked about that — but we just didn't have the resources. We are finally able to do that because of our *Thundering Ahead* campaign, and we now we have live bison on the property as we speak."

The bison who survived the slaughter of the eighteenth and nineteenth centuries were mostly isolated into a few small remnant herds. The 15 animals that currently make up Wanuskewin's conservation herd are descended from two of the largest and most significant. The first six animals established at Wanuskewin in December 2019 were calves taken from Grasslands National Park, whose bison were introduced from Elk Island National Park in Alberta. The Elk Island herd was itself established with animals from the Pablo-Allard herd,

which was purchased from ranchers on the Flathead Indian Reservation in Montana in 1907. Soon afterward, a mature bull and four pregnant cows were added from Yellowstone National Park in Wyoming. At 4,000 animals, the Yellowstone herd is the world's largest.

"Our animals are descendants of those two larger pools, and that isn't easy to do — it's almost impossible these days to do," Walker said. "We are going to put the two genetic pools together. It's true we only have 15 animals, but we are starting to build our conservation herd slowly and we're hoping to be up to about 50 animals in a few years."

Equally important for Wanuskewin is the restoration of the grassland upon which the bison and other native species depend. Grasslands are the largest and most endangered biome of North America, and very difficult to restore once damaged. The lands at Wanuskewin were broken for agricultural purposes decades ago, and the long and painstaking process of restoring the natural grassland is underway.

"We pre-planted certain crops

All photos courtesy of Wanuskewin Heritage Park.

to change the chemistry of the soil and then seeded 15 species of native grasses and other plants, and now we're seeing how its going to take," Walker said. "I'm not under the illusion that we're going to turn this back to exactly what it was, but we're getting closer and closer each year, and we're trying to bring that environment back."

Walker pointed to three active badger dens, as well as increasing numbers of insects, birds, amphibians and other animals as positive signs. As grazers and fertilizers, the bison will help restore the land as well, he said.

The restoration work has come at a substantial financial cost, which Walker said has prompted some to ask if the money would be better invested in existing native grassland, such as PFRA pastures.

"The answer to the question for me is that while PFRA pastures do exhibit our wonderful grasslands, the average person is not going to go visit them," Walker said. "But close to the city (at Wanuskewin), the general population can be introduced to bison, grassland, and natural prairie environments. If they get it there, if they understand it, then our PFRA pastures and protection of our grasslands becomes an important issue down the road."

The birth of the four calves in spring 2020 generated extensive media coverage and positive public attention, but Walker cautioned that much work remains to be done.

"We have a long row to hoe here, to have a true conservation herd of plains bison is going to take a lot of effort. The birth of those calves is just the start of it," he said.

Wanuskewin Heritage Park is currently preparing its submission to UNESCO to receive a world heritage designation. UNESCO awards the designation to places of "cultural and natural heritage around the world considered to be of outstanding value to humanity." With its archaeological record, genetically important bison herd, grasslands restoration efforts, and emphasis on indigenous culture and spirituality, Walker believes Wanuskewin has a strong case.

"I think UNESCO is going to stand back and say 'this is the best example of a northern plains cultural and natural environment that we've seen' — and that's what you need to get world heritage designation, you have to be the best in the world."

POETRY

Highway #11 (to home)

Snowy Owl sails into
sight,
punctuating the black
asphalt
like a sweeping pen stroke.

Then is lost soaring
into the golden and
white
snow covered stubble
and the grey-white
winter sky.

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NATURE SASKATCHEWAN 2020 AWARDS RECIPIENTS

No nominations were received from Nature Saskatchewan membership for the 2020 Conservation or Volunteer Awards. If this situation were to occur during a normal year, the Board would then discuss potential awards recipients; however, due to the ongoing pandemic, and a non-traditional Fall Meet, it was decided to forgo any winners for the Conservation or Volunteer Awards this year. Regular annual awards will resume again in 2021. Because the annual Cliff Shaw Award is chosen by the *Blue Jay* editor, without the need for nominations, a recipient for this award was chosen for 2020. The tentative plan is to present the Cliff Shaw Award, in person, at the 2021 Nature Saskatchewan Spring Meet, or at the Fall Meet if the pandemic continues to present issues for gathering together.

CLIFF SHAW AWARD
Dale Hjertaas and Estelle Hjertaas

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*, which merits special recognition for its contribution in any branch of natural history. In 2020, Dale Hjertaas and Estelle Hjertaas were chosen to receive the Cliff Shaw Award for their article "The Common Raven Reoccupies Southern Saskatchewan", which appeared in the Winter 2019 issue of *Blue Jay*(77.4).

Now a relatively common sight during southern Saskatchewan winters, the Common Raven experienced a long absence from the region following settlement. The authors note that ravens were likely driven from the prairies by settlers, directly through being killed by poisons and traps, and indirectly through the destruction of large mammals such as bison, which served as a primary food source.

In their article, Dale and Estelle catalogued and mapped decades worth of Christmas Bird Count (CBC) data to chronicle the recolonization of the prairies by these impressive birds. The number of ravens per CBC saw a dramatic increase beginning in the 1990s, reaching a crescendo during the latter part of the last decade. Food sources such as landfills, roadkill, dead livestock and other animals were available in adequate supply for some time before the ravens made their return, and so the authors posit that a second factor was necessary — the end of the use of the poison strychnine for wolf control. With the likelihood of poisoning reduced, the boreal raven population swelled, resulting in surplus birds able to reclaim the south.

Blue Jay was fortunate to publish this article in its pages. The combination of meticulous, painstaking research and thoughtful analysis in this article make it a clear choice for this year's Cliff Shaw Award.

CALL FOR APPLICATIONS FOR THE MARGARET SKEEL GRADUATE STUDENT SCHOLARSHIP

The 2021 Nature Saskatchewan Margaret Skeel Graduate Student Scholarship in the amount of $2,000 will be awarded to a graduate student attending a post-secondary institution in Saskatchewan in the fields of ecology, wildlife management, biology, or environmental studies including social science applied to marketing conservation and sustainable use of natural resources. This scholarship must be applied to tuition and associated costs at the named institution.

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 the survival of all native species and representative natural areas, as well as maintenance of healthy and diverse wildlife populations throughout the province. We also 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 a special priority.

For more information, contact our office at info@naturesask.ca or 306-780-9273 (in Regina) or 1-800-667-4668 (Saskatchewan only).

Application Guidelines

Please include the following documents in your application:

- An up-to-date resume and cover letter
- A full description of your present and/or proposed research
- A transcript of undergraduate and graduate courses completed and those currently enrolled in
- An indication of what other source(s) of funding you hope to rely on to complete your studies
- Letters of reference are optional

Application deadline: December 31, 2020
Winner announced: January 31, 2021

Please submit your completed application to the Scholarship Committee: **info@naturesask.ca** or Nature Saskatchewan, 206 - 1860 Lorne Street, Regina, SK S4P 2L7

PHOTOGRAPHY

Roberta Cox of Regina photographed two Achemon sphinx (*Eumorpha achemon*) moth caterpillars that were feeding on the grape vine in her yard. These caterpillars, which are ravenous feeders, have white markings on their sides and a distinct eyespot on the top of their hind end.

Nature Saskatchewan staff with the Friends of St. Victor Petroglyphs, who conserve and monitor habitat for Monarch butterflies and other species at risk. Photo credit: Rebecca Magnus.

TEN YEARS OF HABITAT CONSERVATION FOR MULTIPLE SPECIES AT RISK

Rebecca Magnus
Nature Saskatchewan

It is hard to believe that a decade has passed since Nature Saskatchewan began working with landowners to conserve habitat for all species at risk, as well as the associated biodiversity. In 2010, after a couple years of raising awareness about the Sprague's Pipit, and engaging communities about many other species at risk, a gate sign was created with local artist Paule Hjertaas and the Stewards of Saskatchewan (SOS) banner program was officially launched!

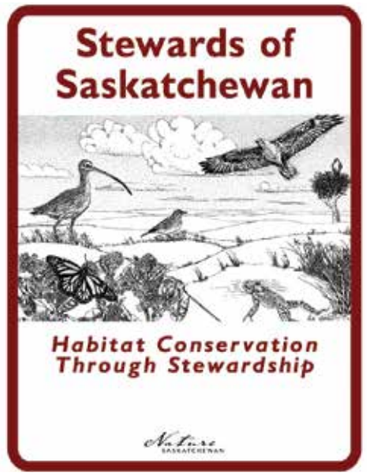
The SOS banner program has been fortunate to have 24 full-time and term staff, as well as many indirect contributors, who all made the program successful over the years. However, that success would not be possible without the nearly 175 volunteer participants that conserve 86,345 acres of habitat at 598 sites. All of these conservation-minded Saskatchewanians are the heart of the program, and more specifically our eyes and ears out on the land.

Not only are the Nature Saskatchewan staff grateful for the volunteer participants, but so are the Sprague's Pipits, Barn Swallows, American Badgers, Northern Leopard Frogs, Monarch butterflies, Chestnut-collared Longspurs, Horned Grebes, Long-billed Curlews, Bobolinks, Great Plains Toads, and many more species at risk that rely on the habitats these participants conserve.

The SOS banner program is modelled after the successful Operation Burrowing Owl (OBO) program. Through OBO, Nature Saskatchewan has been working with landowner participants since 1987 to conserve and monitor habitat for Burrowing Owls. It is important to note that, like the Burrowing Owl, all species at risk serve as ambassadors for habitat conservation to support all prairie biodiversity.

To celebrate and bring greater awareness to the SOS banner program, shirts and stickers showcasing a sketch of the Monarch butterfly, created by local artist Jason Thiry, have been produced. The Monarch is a great ambassador for habitat conservation, as it serves as a reminder that our world is interconnected and that we are a part of nature. In order to save Monarchs, birds and wildlife, we must conserve the habitats on which they rely. Please visit the Nature Saskatchewan website (www.naturesask.ca) to get your limited-edition shirt. All proceeds from the sales will support the Stewards of Saskatchewan programs. Also, follow us on Facebook, Instagram, and Twitter for a chance to win a free shirt and stickers!

The contributions of our local artists are just one example of how people are participating in the SOS program, even if they don't own habitat. We all have ways in which we can contribute. Whether it be directly conserving the land you own, or joining community science projects to steward the landscapes and monitor for species at risk, there is something for everyone. For more information on how you can participate or contribute, please email outreach@naturesask.ca.



Stewards of Saskatchewan gate sign that landowners receive in recognition of habitat conservation.

HUMAN NATURE

Photos courtesy of Ashley Vass.

Ashley Vass
Regina, SK

"The new normal." That's a term we've been using a lot lately, but when will the new normal start actually feeling normal? As a new parent, I was grateful to have the short time that I did to enjoy programs at the libraries, Early Years Family Centres, YMCA's "Y's moms," and all the other activities that allow you to learn about parenting techniques and timelines. With all the emotions and frustrations that come with being a new parent, taking part in these external communal activities not only helps to give you a sense of belonging, but also provides an objective and a structure that simply helps you make it through the day.

I had big dreams of what my maternity leave would look like. Enrolling in programs, spending time with family and friends, going to the lake, playing with cousins and grandparents. Then BAM! It hit us all like a shockwave. I could no longer pack up Spencer and take him anywhere. Even going for a walk became strange. Passing friendly neighbours on the sidewalk became avoiding others in the street. Skirting around parked cars or park benches, being careful not to exhale too heavily, and stifling that tickle in your throat in fear of appearing contagious, while at the same time wondering if you are. We became suspicious of each other, and we were all robbed of those things we look so forward to in the summer. Even now that we've "re-opened Saskatchewan" to some extent, it still doesn't feel normal.

As Saskatchewanians, we are lucky that we are somewhat physically distant by default. Even in our parks we are much less restricted than they are in other places. You hear stories on the news about parks elsewhere where the trails were so overcrowded that people wanting to get out for a hike ended up having to go back home. I recently went to the Cypress Hills and it was beautiful, as always, especially with all the fall colours of the trees in the surrounding landscape. It's in our nature to love trees, and there's proof of this in every manmade landscape; however, being a prairie girl at heart, I enjoyed the drive just as much as the destination. I love the rolling hills and expansive views. It was amazing to see the Great Sandhills from Lookout Point. On the wide-open prairies, you can feel that COVID bubble get a little bigger. You can take a deep breath in … and out.

We took a detour through Eastend. This has always been one of my favourite places in the province. It has the T-Rex Discovery Centre, pottery studios, and amazing views, especially if you drive Ravenscrag road. We drove by Chocolate Peak just outside of town, whose history is even more intriguing than its appearance. The hill contained valuable white mud, a clay coveted by potters. Apparently a miner set fire to the coal seam, in an attempt to weaken it for easier access to the clay. However, instead of burning for days, the hill inadvertently baked for years, destroying the clay and turning the hill a chocolate brown colour. We saw plenty of hawks, a Golden Eagle, and even the excitement of a potential Swift Fox sighting that, upon further inspection, turned out to be a Swift Fox-looking farm cat. I was also very excited to get using my Pronghorn Xing application again. It is a simple cell phone application where anyone can submit sightings of pronghorn, deer, moose, etc. and I highly recommend it. I submitted a herd of pronghorn here, some deer there, oh more pronghorn, more deer, MORE deer, oh dear they aren't going to believe me, more deer?! There were so many deer I don't know if the app could keep up!

Getting outside really helps to take the edge off. With all of the paranoia I have been so grateful for our prairies and the nature that surrounds us. You can still go for a drive, bird watch, or participate in citizen science by submitting wildlife sightings or even the band numbers on the Canada Geese in Wascana Park. Once you get out there and are able to take your mask off, you can feel a little safer outside the bubble. Maybe even put the pandemic in the rearview, if just for a moment or two. It's uncertain when we will actually start feeling normal again but I don't know what I would do without these moments of relief that I get from our beautiful surroundings. I hope I can instill the passion I have for our prairies in the next generation.

MYSTERY PHOTO

Photo credit: Annie McLeod.

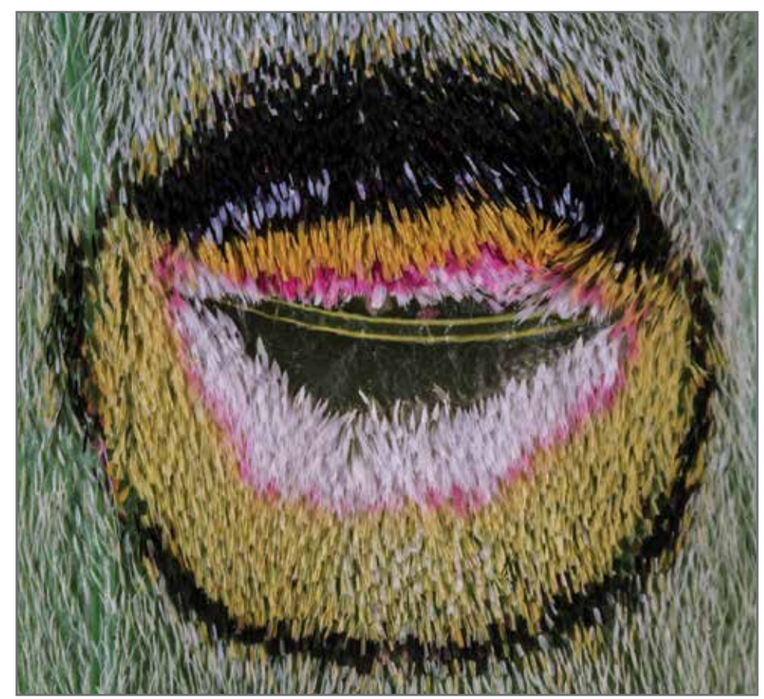


Photo credit: Harvey Schmidt.

Fall 2020 (top left)

ANSWER: Being small and generally plain in colour, "peeps" are notoriously difficult to identify. On the left is a Baird's Sandpiper and on the right is a Semipalmated Sandpiper.

When observing these species side-by-side, one can see the relatively much-longer wings of the Baird's Sandpiper, which extend past its tail feathers. This species also has black spotting across its back and tends to stand with a notably horizontal posture.

The Semipalmated Sandpiper's name gives away one of its diagnostic field marks — the very slight webbing between its toes. This feature is visible only at close range, but is evident in this photo compared to the Baird's Sandpiper. Other field marks to watch for with this species include its short neck, black legs and very slightly drooping black bill.

A number of readers had guessed that the Baird's Sandpiper was a White-rumped Sandpiper. White-rumped Sandpipers are similar to Baird's, but have streaked sides and a droopier bill, often with some yellowish colouring at the base of the lower mandible.

Winter 2020 (bottom left)

QUESTION: This unique marking appears on the wing of what Saskatchewan insect?

Please send your answers to the *Blue Jay* editor, Annie McLeod, by email at bluejay@naturesask.ca or by letter mail (address on page 4). Those with correct answers will be entered into a draw for a prize from Nature Saskatchewan.

Have you taken a picture that may make for a good mystery photo? Send it to the editor for possible inclusion in an upcoming issue.

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SASK LOTTERIES