



# NATURE ALBERTA

MAGAZINE

WINTER 2022  
VOLUME 51 | NUMBER 4



A COMMUNITY  
CONNECTED BY A  
LOVE OF NATURE

**Flying Bison**  
From Elk Island to  
Around the World

**Weathering  
Winter with  
Chickadees**

**Threatened  
Northern  
Leopard Frogs**

**Chinese  
Mystery Snails  
in Alberta**





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## About Nature Alberta

Alberta is home to incredible natural spaces comprised of beautiful and varied landscapes, and rich biodiversity reflected in our abundant and diverse flora and fauna. Across the province, natural history clubs and their members are engaging Albertans in the conservation and appreciation of this natural heritage. Nature Alberta represents a network of these natural history organizations in Alberta.



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## THE PRESIDENT'S PERSPECTIVE

2020 was a year of staying put, locked down and isolated; not the most favourable conditions for the human spirit. 2021 has been a time of personal exploration and societal rebirth. With the uncertainty surrounding travelling, people have stayed closer to home, discovering (or rediscovering) local landscapes, cultural customs, and nature's wonders in their own backyards.

This reconnection to our surroundings seems to have revitalized our appreciation of nature on a global scale, and it is very rewarding to know that Nature Alberta has been front and centre with programs designed to help people reconnect and learn about nature in fun and safe ways. Our Nature Network was set up to connect organizations throughout the province, offering support and resources where needed. We embraced virtual connections, hosting an array of Nature Network Speaker Series events from locations across the province. Our relaunched and much improved website and our social media outlets enhanced everyone's access to Nature Alberta and its member clubs' activities. Nature Kids welcomed people back to Family Nature Nights this past summer after a year's absence, satisfying the need to get out in the fresh air and interact with others (at a safe distance), and creating moments of connection to inspire the next generation of nature lovers.

As environmental issues arose, including potential park and campground closures and coal mining in the Rockies, Nature Alberta and other provincial groups worked together to create awareness and raise people's voices to challenge harmful change.

A "new normal" is emerging, inspired by the beauty and wonder of the world around us, enhanced by an accessible array of electronic tools, and strengthened by our innate human resolve.

Nature Alberta would not have accomplished any of this without the hard work of dedicated staff and devoted volunteers. As I step down from the role of President, my final act is to thank those volunteers and staff who have laboured so intensely, as well as the membership — clubs and individuals — who are our reason for being, and everyone who supported Nature Alberta financially through the giving season. Thank you.

Please join me in welcoming Kim MacKenzie as your new Nature Alberta President. I look forward with hope and excitement to what the coming year holds for our *Community Connected by a Love of Nature*.

ELIZABETH WATTS

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# Nature Alberta News

## Celebrating Nature Initiative

Nature Alberta engaged 68 at-risk youth at five Edmonton-based Boys' and Girls' Clubs through the Celebrating Nature Initiative. Celebrating Nature Kits including a pair of unlimited-warranty binoculars, bee house, native flower seeds, bird feeders, nature-themed games, books, and identification guides were provided to each participating



Vanessa from the MacCauley Boys' and Girls' Club holding their new Celebrating Nature kit. ABIGAIL STOSKY

club. Club participants adopted songbird nests at the Ellis Bird Farm and had a virtual meet and greet with WILDNorth's albino squirrel, Yarrow.

*"What a wonderful program it was, and so easy to incorporate into our already planned summer activities, but it gave us more direction. For example, we already have a Nature Week so we were able to use a lot of the materials provided in the Nature Kits to make the*

*week more engaging. On our Nature Walks the kids used the notebooks to jot down what they saw and what interested them so they can do further research. Absolutely love it, the families loved the updates on the bird nest we adopted, and I hope we can do this again in the future."*

—Boys' & Girls' Club program coordinator

This project had a great deal of community support from various partners, including Wildbird General Store, Edmonton Native Plant Society, and Edmonton and Area Land Trust. We thank the TD Friends of the Environment Foundation for financially supporting this project.

## Nature Kids Chapters

Nature Alberta is excited to announce the launch of our Nature Kids Calgary Chapter! We are delighted to welcome Michelle Seifert as our Nature Kids Calgary Chapter Leader. Michelle is looking forward to connecting families to nature. Programming is geared towards families with children aged 4-11 but all families are welcome to participate.

Nature Alberta is currently recruiting volunteers to help launch Nature Kids Chapters in Medicine Hat and

Lethbridge. If you are interested in volunteering or participating in a Nature Kids Chapter, please email [naturekids@naturealberta.ca](mailto:naturekids@naturealberta.ca).

## Bidders Win Big, Nature Wins Bigger!



Circumstances this year pushed us to get a little creative with fundraising. In November, we ran our first-ever online E-Auction, featuring 88 items and experiences curated especially for nature-lovers. Winning bids totalled \$6,434. Through a series of donation-matching programs, this amount was matched six-to-one for a total contribution of \$38,604 to the Nature Alberta Endowment Fund. Thanks to all the companies and individuals who donated items, and to everyone who placed bids.

## Year in Review

Through a challenging year, Nature Alberta has experienced phenomenal revitalization. Read all about the exciting changes and achievements in our 2020-2021 Annual Report at [naturealberta.ca/annual-reports](https://naturealberta.ca/annual-reports).

## Correction:

An incorrect citation was printed in the Fall 2021 issue in Colleen Cassady St. Clair's "Bear Tracks" article. Reference 2 should read:

St. Clair, C.C., J. Backs, A. Friesen, A. Gangadharan, P. Gilhooly, M. Murray and S.J. Pollock. 2019. Animal learning may contribute to both problems and solutions for wildlife - train collisions. *Philosophical Transactions of the Royal Society B-Biological Sciences* 374, 20180050, doi:10.1098/rstb.2018.0050.

# Trails Act Heading in the Wrong Direction

On the surface, the proposed *Trails Act* (Bill 79) sounds like a good thing. According to the government's press release, the new legislation is a response to the recent surge in trail use and is intended to "protect our public land."

The uncontrolled use of Alberta's public lands has long been of concern to Nature Alberta and other conservation groups in the province. According to government data, Alberta has over 13,000 kilometres of designated and managed trails and hundreds of thousands of kilometres of seismic lines, utility corridors, and industrial access roads that serve as unintended trails. The creation and use of these trails have been neither planned nor controlled and this has led to significant ecological damage, particularly in the Eastern Slopes. Sensitive species have declined and the overall ecological integrity of these lands has been greatly diminished.

Legislation designed to tackle these problems would be very welcome. Unfortunately, the *Trails Act* falls short of the mark. It is what's referred to as "enabling" legislation, meaning it gives the Minister of Environment and Parks the authority to manage trails without actually defining what that management will entail. It amounts to the minister saying, "Trust me, I've got

this." This would be the same minister who rescinded the Coal Policy, removing long-standing environmental protection measures in the Eastern Slopes. The same minister who tried to delist 164 parks from the provincial parks system. The same minister who is planning to increase forest harvesting by 30%, ignoring existing limits designed to ensure sustainability. Given the UCP government's profoundly retrogressive track record on environmental protection, "trust me" is just not a viable foundation for managing trails.

Any meaningful legislation concerning trails needs to recognize that our landscapes have become too crowded to simply tweak management at the margins. The current philosophy that everyone has a God-given right to do whatever they want, wherever they want on public lands is no longer tenable, if it ever was. The *Alberta Land-Use Framework*, released in 2008, made it clear that trade-offs among land uses need to be tackled and limits need to be set: "What worked for us when our population was only one or two million will not get the job done with four, and soon five million. We have reached a tipping point, where sticking with the old rules will not produce the quality of life we have come to expect... We need a new land-use system."

The UCP government seems to have forgotten the lessons learned by its predecessors and the commitments that were made. The minister has gone on record to say, "What this Act will not do is close trails," making it clear that the government has no intention of examining trade-offs among land uses and setting limits on activities and where they can occur.

So, what then is the point of the *Trails Act*? Stripped of the rhetoric about the government being "absolutely committed to protecting and preserving our public spaces," the Act is basically just about managing existing trails. The focus seems to be on promoting partnerships with user groups for the purpose of trail maintenance, along with increased enforcement tools to rein in bad actors.

Rather than proceeding with the *Trails Act*, the government should restart the process of regional planning, which began under the *Land-Use Framework* but has since ground to a halt. Albertans want an encompassing vision for public lands that ensures sustainable ecosystems, not just sustainable trails. Please write to Minister Nixon ([aep.minister@gov.ab.ca](mailto:aep.minister@gov.ab.ca)) and your local MLA to encourage them to undertake this process. ■





A black-capped chickadee emerges at first light on a bitterly cold morning, a dusting of frost covering its face. MYRNA PEARMAN

# Weathering Winter with Chickadees

BY MYRNA PEARMAN

**A**lberta is home to four chickadee species. Black-capped chickadees are the most common and widespread. They are found across the entire province and are not only the easiest bird species to attract to backyard bird feeders, but also hold the distinction of being Canada's most common feeder species. Their small size, cheery countenance, and remarkable hardiness endear them to their human neighbours.

Black-capped chickadees visit winter feeding stations in loose groups consisting of about a dozen adults, each of which has left its smaller breeding territory in favour of a much larger (about 8 hectares) winter territory. Along with these adults are juveniles from other areas. Winter flocks rarely contain parents and offspring from the same family. Although a flock usually keeps to the confines of its territory, lively skirmishes will result if the group is caught intruding into the domain of another flock.





Top: Black-capped chickadees love sunflower seeds. They will even extract them directly from the seed head.

Middle: Boreal chickadees have a brown cap, grey collar, small white cheek patches, greyish-brown back, and cinnamon flanks.

Bottom: Chestnut-backed chickadees have a dark brown, almost black cap and chestnut-brown back and sides.

MYRNA PEARMAN



Chickadees prepare for winter by storing food in late fall. They deftly wedge seeds and other tidbits into bark fissures and various other hiding spots. Researchers have found that the size of a chickadee hippocampus, the part of their brain responsible for memory and spatial organization, expands in volume each fall, when most caching occurs. This would explain their astounding ability to keep track of thousands of hidden seeds through the winter.



Long, cold winters can severely challenge the survival skills of chickadees and other resident birds, especially the smaller ones. To keep their tiny but highly revved gas tanks full, they must spend their waking hours in a ceaseless quest for food. Despite being readily attracted to supplemental food (sunflower seeds, peanuts, and suet are their favourites), they still spend a good part of each day searching out their own wild buffet, including frozen insects and spiders and other tidbits found on tree branches and trunks. During mild weather they will search widely, including high up in the treetops, but during windy conditions, they tend to concentrate their feeding activities low in shrubbery and other sheltered locations.





Above: A black-capped chickadee fluffs up its feathers to keep warm, drawing its feet in close to prevent heat loss. TONY LEPRIEUR

Right: You can tell mountain chickadees apart from black-capped chickadees by their distinctive white "eyebrow." MYRNA PEARMAN

To survive cold winter nights, chickadees must eat as much as they can just before nightfall to provide the energy needed to sustain them until daylight. If the temperature is fairly mild, a flock will roost together in the dense foliage of evergreens. On colder nights, each chickadee sleeps alone in the snug confines of a pre-selected winter roost cavity and may even conserve energy by going into nightly hypothermia. During extreme cold, they will plunge under the snow to take advantage of the insulating snowpack.

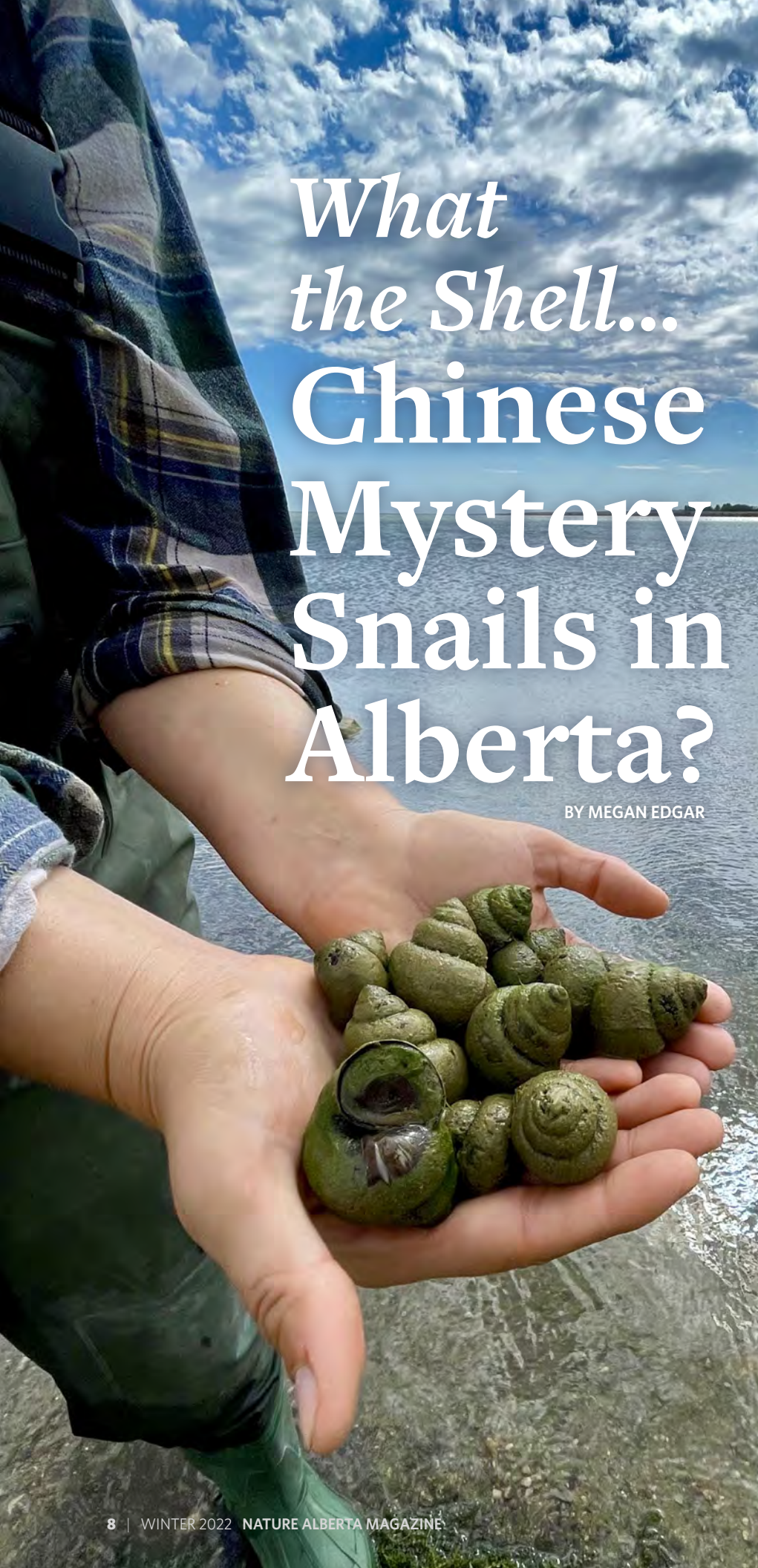
When daytime temperatures remain frigid, chickadees will sit with their feathers fluffed up. This fluffing, caused by skin constriction, provides increased insulation by trapping air between the erect feathers. Their feet are fairly immune to the cold, thanks to a network of arteries that interweaves warm blood from their hearts with the veins carrying cold blood from their feet and legs. However, if daytime temperatures are extreme, they will hunker down on a branch so their fluffed feathers envelop their feet. They will also draw their feet up closer to their bodies for warmth.



I hope you take some time this winter to watch and truly appreciate our tough little wild neighbours — perhaps at your own backyard feeder. ■

Myrna Pearman is a retired biologist, nature writer, photographer and author of several books. Her books are available at [www.myrnapearman.com](http://www.myrnapearman.com). She can be reached at [myrna@myrnapearman.com](mailto:myrna@myrnapearman.com).





# What the Shell... Chinese Mystery Snails in Alberta?

BY MEGAN EDGAR

Since the Age of Exploration, the transfer of plants and animals across continents has been very common. For example, 25% of Canada's vascular plants are introduced, non-native species. Many of these transfers were intentional, and others were by accident. Regardless of the reason, the unintended and unwanted consequences of such introductions are now, in hindsight, much better appreciated.

One of these non-native species is the Chinese mystery snail (*Cipangopaludina chinensis*), first introduced to North America in the 1890s through food markets in San Francisco. Since its introduction, the snail has become established in 34 U.S. states and has also been found in Eastern Canada and British Columbia. In 2019, it was officially sighted in McGregor Lake Reservoir, near the village of Milo in southern Alberta. Its method of spread remains unclear. It could be from deliberate "seeding" into lakes, release from the ornamental pet trade, unintentional spread by recreationists, or even birds carrying them.

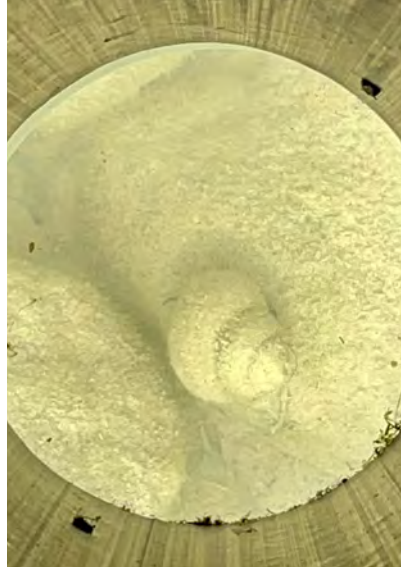
Now, you might be thinking, what's all the fuss about a snail? Well, in Alberta, they are classified as an aquatic invasive species. A species is considered invasive if it spreads readily upon entering an area outside of its native range and has

Left: Field technician Kathleen Lalor holding Chinese mystery snails handpicked out of McGregor Lake, Alberta. MEGAN EDGAR





A deceased Chinese mystery snail, with juvenile Chinese mystery snails preserved within. MEGAN EDGAR



A live Chinese mystery snail, spotted through an aquascope. Chinese mystery snails are very difficult to detect when they are covered in periphyton. MEGAN EDGAR



A Chinese mystery snail emerging from its shell. OREGON FISH AND WILDLIFE

adverse economic and ecological effects in the new area. Not all non-native species are invasive — some merely extend their range into a new region without causing adverse effects.

A feature of the Chinese mystery snail that enhances its ability to survive in new regions is its ability to tolerate being out of water for up to nine weeks. It does this by tightly sealing the opening of its shell with an operculum, or a “trapdoor,” effectively protecting it from drying out when water levels are low. This mechanism also helps it withstand unfavourable water conditions. You can imagine how this adaptation facilitates the snail’s spread — successfully evading chemical management or helping them survive transportation out of water by recreationists!

Another important attribute of the Chinese mystery snail is that, instead of laying eggs like many other snail species, it releases fully formed young, typically between May and October. When these juveniles emerge, they are larger than many of our native snail

species, potentially outcompeting them for resources. Chinese mystery snails may also alter nitrogen-phosphorous ratios, increasing the likelihood of lake eutrophication (which leads to algal blooms and reduced lake oxygen levels) and food web changes. These snails also have the potential to block water pipes. Finally, their shells can wash up on beaches, making these areas less desirable for recreationists.

Given its recent arrival, we do not yet know the extent to which freshwater ecosystems in Alberta will be impacted by the Chinese mystery snail. I am currently conducting research at the University of Alberta that will hopefully shed some light on this question.

At present, resource managers are trying their best to manage the spread and population growth of the snail. Monitoring is essential since small organisms like this may otherwise not be noticed until the moment they are actually causing problems that are difficult to reverse. Think of the impact of the zebra mussel in the Great Lakes region!

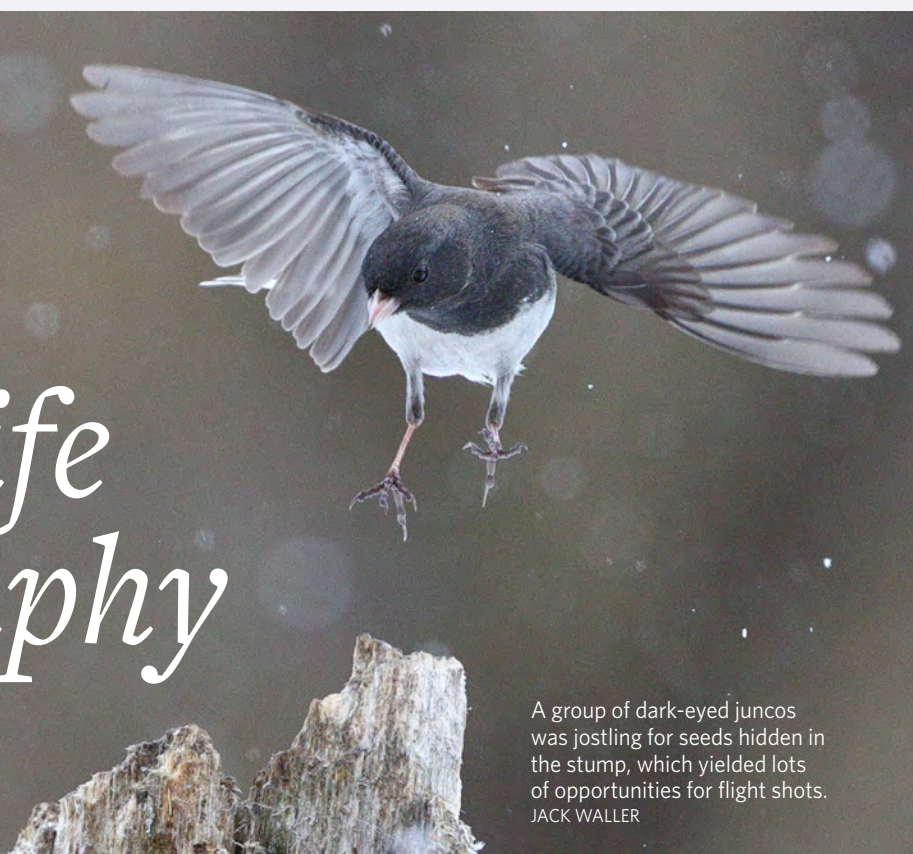
Though the Chinese mystery snail may be a problematic species here in Canada, they are actually an essential bioindicator within their native range, representing healthy freshwater systems. In their native range, they help remove sewage contaminants and heavy metals, and are used to increase water clarity and restore natural wetlands.

If you see this species in Alberta, make sure to report it to the Alberta Invasive Species Council, [abinnovatives.ca](http://abinnovatives.ca), or on the Early Detection and Distribution Mapping System website, [eddmaps.org](http://eddmaps.org). Citizen reporting is beneficial for tracking and monitoring introduced species! ■

Megan Edgar is a current graduate student studying conservation biology in the Poesch Lab at the University of Alberta. Megan’s lifelong goals are to contribute to big-picture science, fight for climate justice and conservation, and appreciate all the critters on the planet (especially fish and birds; they’re just so cool!).

# Hooked on Wildlife Photography

BY JACK D. WALLER



A group of dark-eyed juncos was jostling for seeds hidden in the stump, which yielded lots of opportunities for flight shots. JACK WALLER

**W**ildlife photography is a truly rewarding hobby. It's great for physical and mental health as you get out in the fresh air and take a break from the hectic pace of life. And of course, you are rewarded with beautiful photographs that allow you to relive special moments and share your experiences with others. With advances in digital photography, it's possible for everyone to capture great images. In this great province there are many natural areas teeming with wildlife; you just have to make an effort to investigate the many opportunities available.

My interest in nature and photography began early. I grew up in Edmonton, only 10 minutes from Mill Creek Ravine. I practically lived in the ravine, except when we were out at the cottage at Half Moon lake, which in 1958 was wilderness. Sadly, the numbers of many of the birds I remember back then are

significantly reduced today. We must be diligent in protecting nature, and sharing wildlife photos is one way of promoting conservation.

As a young adult, I owned an SLR film camera, but sadly it was only used for vacation photos and the like. About 10 years ago, I was blown away when I learned just how powerful and easy to operate modern DSLR cameras had become. I haven't looked back.

If you are new to photography, your own backyard is a great place to start, even if you are a city dweller. For example, my daughter lives in south Edmonton, and a pileated woodpecker has been a regular visitor in her yard, without any incentive other than a dead tree. All the images in this article were taken on my small acreage in Strathcona County.

Birds are likely to be your initial subjects — a feeder (or two) generates

good photo opportunities. However, having the feeder in the picture doesn't make for a very compelling photograph, so you will want to explore options. For example, you can position the feeder where there is a natural perch nearby that is easy to photograph. This way, you can capture the birds coming or going, either perched or flying. Check with local backyard bird supply stores to get recommendations on your local birds' preferred feed. Suet and black oil sunflower seeds are favourites around here. Stock up and be creative with how you deliver the food.

One of my most popular chickadee flight shots was acquired this way. If your goal is to capture flight, it is worth knowing that even the most expensive gear is not, or is just barely, capable of auto-focusing on fast-moving birds at close proximity. But there are solutions, and they don't require the





This chickadee flight shot was the best of probably 300–400 taken over two or three days.  
JACK WALLER

most expensive gear. The trick is to position the camera so that the birds are flying to the feeder from the left or right, rather than towards you. You want their flight path to be equidistant to your lens, as much as possible. That way, you can pre-focus on a test object placed along the flight path and lock the

focus there, guaranteeing mostly sharp shots. I went so far as to insert a painted sheet of plexiglass, with a hole cut out for my lens, in my bedroom window. For successful pictures you will need a high shutter speed and lots of practice in timing your shots in order to capture the bird as it is heading to or from

the feeder. No one has to know that dramatic in-flight shot was captured while the bird was on its way to lunch!

My suggestion for beginners is to create some props using natural objects such as stones, stumps, and freshly cut branches and position these advantageously. If you are handy, cut a modest-sized stump that is half rotten and drill or carve some holes in it to hide some treats. You'll be thrilled at the high-quality shots you'll get of downy woodpeckers, white-breasted nuthatches, chickadees, and



Squirrels can be fun to shoot in many different poses if you put some sunflower seeds in the cavity of a stump and sit close by. JACK WALLER



One of my most exciting shots was when this pileated woodpecker landed on my stump with both his kids while I was set up in the observatory. JACK WALLER



The blue jay was unaware of me in the observatory as it peered this way and that. This is one of my favourite poses. JACK WALLER

goldfinches, to name just a few. For birds such as the white-throated sparrow, just spread seed on the ground.

I'm a handy individual who likes projects, so I added a "bell tower" observatory to the upper level of my barn and installed a two-way mirror with a feed tray in front for close observation of birds, just inches from my nose. I also installed tall stumps that the birds would land on and photographed them from that vantage point — a unique perspective. The accompanying shots of a pileated woodpecker male feeding his son and daughter and the exquisitely posed blue jay were captured this way.

Success at home might motivate you to head out into the countryside to search for more subjects. My local beaver pond produces an abundance of touch-me-nots, which are a favourite of the ruby-throated hummingbird. Once I became aware of that, I was able to approach reasonably close and get some amazing photos. Keep your eyes open for the fruit trees that

attract relatively tame birds such as waxwings and grosbeaks. And watch for birds attracted to the fruit still on the ground in spring. Sometimes, you can sit in a vehicle and shoot out of an open window.

You'll also want to get out to some of Alberta's great wilderness areas. Your best bet is to head to a location noted for the species you are hoping to capture and then hunker down. While a bird blind or hide is a great idea, I have



Ruby-throated hummingbirds were plentiful while the touch-me-nots were in bloom, yielding many great shots. JACK WALLER



found that sitting motionless in a chair, camera at the ready, works amazingly well, provided your motions in capturing the subject are slow and smooth.

Knowing where to find your desired subjects can be a long trial-and-error process, but you can also seek advice from the birding community, who will be most obliging. There is bound to be a good, accessible location somewhere nearby. My favorite spot is Miquelon Lake, which is where I have captured avocets, Baird's sandpipers, and barn swallows, among others.



Top right: Backgrounds are important. My observatory looks out over a variety of trees, including a mountain ash that yields the wonderful reddish shades that complement this red-breasted nuthatch. JACK WALLER

Above: When I discovered this tree swallow nest, I had to put on hip waders and venture into a creek to get close enough for a good shot. JACK WALLER

Learn where and how birds nest and then park yourself unobtrusively at a respectful distance and wait for the action. This is how I got the accompanying tree swallow photo. Lakes will have waterbirds that are often quite approachable but my general advice is to let the birds come to you. Although a hike through the woods is fun and great exercise, it isn't going to give you many shots because the birds usually flit away as you approach.

If you get hooked on photography, you will likely end up buying a DSLR or mirrorless camera, allowing you to switch lenses depending on the need (e.g., telephoto, wide-angle, etc.). For wildlife photography, a good telephoto lens is a necessity. Especially with birds, you will rarely get close enough to fill the frame using a standard lens. My starter long lens was a 70-300 mm zoom; more is better, but also more expensive. If you



Top: Sometimes it's the pose that makes a photo special, as is the case with this Bohemian waxwing sitting on a snow pile in my driveway. JACK WALLER

Above: I was sitting by the slough when this baby muskrat, small enough to fit in my hand, surfaced almost at my feet. Seated on a small tripod stool, I slowly contorted my body in order to get him in my viewfinder without alarming him. JACK WALLER

must compromise, try not to do so on the lens. Provided you have technical support, used gear can be inexpensive and perfectly adequate. Remember, it's all about having fun and sharing your love of nature, not competition, ego, or having the most expensive gear!

Although there are certainly benefits to having good equipment, upgrades are subject to diminishing returns. Quadrupling the cost of your gear will only net you about a 30% technical improvement in your photos. The fact is, fancy gear will not help unless you have developed skill and an eye for what makes a photo great. That takes practice and a desire to improve. So shoot a lot, join a photography club, and share your photos online with those who are experienced and can offer insightful critiques. A willingness to accept constructive criticism is a must!

When you're just starting out, seek out online forums for discussing wildlife photography. The community will be happy to answer questions and offer advice. But there's no substitute for practice and experience, so get that camera and long lens out and start shooting! Good luck! ■

Jack Waller and his wife Noemi are longtime residents of Strathcona County. They love to travel Western Canada in their motorhome. A retired electrical engineer, Jack is the proverbial "all trades" guy, always building something. You can see more of his photography at [gurushots.com/JackDouglas/photos](https://gurushots.com/JackDouglas/photos)



# Deadly Highway

## Road and Rail Fatalities are Decimating Jasper Park's Wildlife

BY DICK DEKKER

Walking along the muddy shore of Jasper Lake one fall afternoon, I was startled when a large wolf suddenly sprang up out of the bushes, practically at my feet. In an instant, the animal streaked across some open ground, splashed through a shallow arm of the Rocky River, and vanished into the woods on the other side.

It was readily apparent that there was something wrong with this animal. Its back was hunched and its body was low to the ground, as if one or both of its hind legs were broken.

When I reported the incident at the Pocahontas park station, I was told that a few days earlier a passing tourist had stopped by to say that he had just hit a wolf running across the Yellowhead Highway. The warden had gone out to look for the wounded animal but had found no sign of it in the roadside woods. "This road is a killer," he said. "The traffic is getting busier all the time, especially transport trucks. On their way to the west coast, they don't stop for the night. One day, a truck hit a herd of elk and killed six of them. The guy did not even report it to us."

Over the years, he and other wardens had been called out many times to pull dead or wounded animals off the pavement.

Since 1980, Jasper National Park staff have kept track of wildlife casualties on the Yellowhead Highway. As of 2018, the roadkill of elk has risen to 1,140 and an additional 560 have died on the CN railway that transects the national park.<sup>1</sup> The toll of bighorn sheep killed by vehicles and trains has climbed to 1,039. During the same period, 70 wolves have been hit on the roads and 31 on the rails.

Besides tracking road mortalities, park staff also conduct roadside counts and aerial surveys of live animals to determine the status of their wildlife populations.



Protected from hunting year-round, Jasper Park's elk have lost their fear of humans, and tend to concentrate along highways and in the townsites. There are two main reasons for this: they are attracted by the grassy clearings, and there are fewer wolves here than in the backcountry. However, the elk's anti-predator strategy of staying near human habitation increases the risk of colliding with vehicles and trains. LEO DE GROOT

Elk populations were estimated at about 1,000 in 1975 but have dropped to just over 300 today.<sup>1</sup> Helicopter surveys over all sheep habitat in the park have reported a decline of about 60% compared to 1987. The size of Jasper's wolf population is not exactly known.

The inescapable conclusion is that the Yellowhead Highway and the CN railway are a serious threat to the lower Athabasca valley — Jasper Park's most important montane habitat for wintering hoofed animals and their predators. Over time, the traffic corridor has become much busier, and the future looks even more so. Alberta Transportation data for vehicles passing the park's east gate have grown from an annual mean of 2,180 per day in 1980 to 4,900 in 2018. In an average year, 1.7 million vehicles drive through the lower Athabasca valley. Moreover, cars and transport trucks often exceed the posted 70–90-km/h speed limit.

To mitigate the wildlife collision rate, Jasper National Park might have to replicate Banff National Park's solution, where the Trans-Canada Highway west of the townsite has been twinned and fenced. Today, there are six overpasses and 38 underpasses for the safe crossing of wildlife on the Trans-Canada over its 82-km distance to the British Columbia border.

"The decision to go for fencing," says Dr. Clifford White, retired manager of ecosystem research in Banff National Park, "was made after losses for several species of animals had exceeded 20% of their estimated population in the Bow River valley. For example, it was 20% for elk, 30% for moose, and over 30% for wolves and grizzly bears." How nature-minded tourists would react to the construction of highway fences in Jasper Park remains to be seen.

There is an additional historical explanation for the popularity of Jasper's main roads. The Yellowhead pass was already a well-established travel route through the Rocky Mountains long before the national park was established in 1907. The first recorded use by Europeans was in the early 1800s, when David Thompson and other fur company men used this pass on their way to the west coast.



As long as there are some steep slopes nearby to escape from wolves, bands of bighorn sheep often graze on highway margins and lick salt or other chemicals from the pavement. Habituated to the passage of vehicles, sheep are slow to react to oncoming traffic. MARK BRADLEY



Elk bulls in Banff townsite. DICK DEKKER





Roadside barriers designed for vehicles do not deter bears and other animals. RICK PRICE

The traffic situation in Alberta's other national parks, such as Waterton and Elk Island, is much less problematic. The reason is simple: except for a local access road, there are no major highways transecting these landscapes.

For an overall review of Jasper's elk, sheep, and wolf populations since the park's establishment in 1907, email the author at [ddekker1@telus.net](mailto:ddekker1@telus.net) ■

Dick Dekker is an independent field researcher of mammals and birds in Alberta. He has authored a long list of publications and ten books. Read John Acorn's review of his latest book, *Stories of Predation: 60 Years of Watching Wildlife* on page 23.



The number of road casualties among park wolves is surprisingly high. The dark colour phase is not unusual — 50-70% of wolves in Jasper have black fur. BRIAN GENEUX

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# When Bison Fly

BY WES OLSON

**M**illions of bison once roamed across the Great Plains of North America, but by the late 1880s they were almost extinct, victims of uncontrolled hunting. Some free-roaming wood bison remained in Alberta's far north, but the only surviving plains bison were in small captive herds in the United States. One of these captive bison herds was purchased by the Canadian government in the early 1900s and they became the foundation of the plains bison herd that currently exists in Elk Island National Park. In later years, a herd of wood bison from northern Alberta was established in a separate section of the park. These bison herds have prospered and the surplus animals have been used to support bison reintroduction programs across Canada and internationally.



I worked as a National Park Warden for Parks Canada for over three decades, and for the majority of that time, I participated in the reintroduction of plains and wood bison from Elk Island National Park into the wilds of Western Canada. These translocations usually entailed loading a herd of bison into conventional horse or stock trailers. But on three occasions I had the rare opportunity to see bison fly — albeit by airplane and helicopter.

## Off to Siberia

The first aerial translocation was to Siberia in 2006. This adventure began when we received a request for wood bison from a Russian biologist named Sergei Zimov. He was determined to demonstrate that large-bodied herbivores grazing the arctic vegetation could return the ecosystem to the productive state it was in at the end of the Pleistocene. The Russian diamond mining company Alrosa offered the free use of their huge cargo plane, an Ilyushin IL-76, to transport the bison.



Now boarding... 30 wood bison are loaded for shipment to Siberia at the Edmonton International Airport. JOHANE JANELLE

Translocating bison to Siberia is not as strange as it may seem. All North American bison evolved from the extinct steppe bison, *Bison priscus*. The last member of this species trod the grasslands of eastern Siberia around 10,000 years ago. Given that today's wood bison are the closest living relative of the steppe bison, they were the logical choice for the reintroduction, and the logical place to get them was Elk Island.

I still vividly recall the first shipment. It was 4 a.m. on April 5, 2006 when I started my old warden truck. My wife Johane hopped in beside me and in pitch darkness we made our way from our warden station to the wood bison handling facility in Elk Island National Park. It was a surreal feeling, knowing that in just a few hours, I would be sitting in the belly of a Russian cargo plane, inhaling the deep, moist aroma of 30 wood bison as they milled about in three stock trailers beside me. And, after more than 30 hours of non-stop travel, these bison and I would set foot on Russian soil, deep in the heart of Siberia.

Rather than transporting the bison directly to Pleistocene National Park, which is very remote, we brought them to Lenskiye Stolby Nature Park, 100 km south of the city of Yakutsk. In four shipments over the next 14 years,





Parks Canada transported a total of 120 young wood bison to this site. The plan is to allow the new herd to grow under careful management and then later begin moving bison to Pleistocene National Park, in the far north, where they will roam freely and contribute to the restoration of the ecosystem.

### **The Alaska Wood Bison Herd**

The return of wood bison to central Alaska, in the spring of 2015, has a convoluted history. Its roots lie in an earlier translocation from Elk Island National Park to the southwest corner of the Yukon, in March 1986. The Yukon bison quickly adapted to and thrived in their new range, but like many new populations, they also began to explore. This eventually got them in trouble when they discovered the roadside grasses along the Alaska Highway. After several vehicle collisions, a decision was made to capture the bison that routinely used the highway and relocate them to the Alaska Wildlife Conservation Center, near Girdwood, Alaska. They remained there, as a captive herd, from 2006 to 2014. At this point, a change of government authorized the shipment



Preparation for the Banff reintroduction. JOHANE JANELLE

of the herd to the vast wilderness of Alaska's Innoko river drainage area, near the tiny village of Shageluk.

My involvement with the Alaska translocation began during dinner at a bison conference in September 2013. As often happens at such events, a group of strangers settled around a dinner table. Beside me sat a bearded man, burly of build, soft of voice, looking like someone who just put down his chainsaw after cutting and stacking

a couple cords of firewood before breakfast. His name was Tom Seaton and he was the biologist responsible for wood bison in Alaska. He was to become a lifelong friend, one Johane and I would spend a month living with in a winter camp in the middle of Alaska, preparing to release a herd of 100 wood bison into the wilderness.

Our chance meeting at that bison conference led to Johane and I heading north to help with the reintroduction.





Left: Parks Canada capture team on a radio-collaring mission. KARSTEN HEUER

Centre: Kamov heavy-lift helicopter flying a container of bison into Banff. JOHANE JANELLE

We spent the first week assisting in building the temporary holding pens where the herd would be held prior to release, and moving tonnes of supplies out of the cargo hold of a Hercules C-130 airplane. This plane was then used to haul 100 wood bison, in repurposed shipping containers, from Anchorage to the gravel runway at Shageluk. All went well and the herd was released from its holding pen into the wild in early April 2015.

### **Banff National Park**

My third encounter with flying bison involved a reintroduction into Banff National Park in 2017. I still clearly recall the first time I thought about this reintroduction, almost 40 years prior. I was relaxing in my saddle, high on a mountain pass overlooking the Panther River valley, deep in the heart of Banff National Park. It had taken Dave Fanjoy, Cliff White, and me three long days to ride here from the trailhead far to the south. We had stopped for a rest, tuckered out after the last climb up to the pass.

"What do you think, Wes?" asked Cliff. "This valley once had bison grazing those slopes. Do you think we'll ever see the day when they'll do so again?" We had seen some circular depressions, saucer-shaped dents in the brown



grasses, scattered across a couple meadows on the ride in; these had prompted Cliff's question.

"No, I doubt it," I replied. "I mean, where would they even come from?" There had not been a bison hoof on this

landscape since before 1880. While the thought was intriguing, it also seemed more like a dream. So we put the question aside and continued our park warden patrol, searching for poachers going after bighorn sheep. Little did I know that almost four decades later, the dream would become a reality, and I would be spending the winter feeding a herd of bison at  $-45^{\circ}\text{C}$ , in the valley below us.

In 2017, under the watchful eye of Banff National Park biologist Karsten Heuer, a small herd of 10 pregnant cows and 6 young bulls were trucked from Elk Island National Park to the remote Ya Ha Tinda horse ranch, owned and operated by Parks Canada on the eastern edge of Banff National Park.

Early the next morning, the five shipping containers holding the bison were flown, one at a time, to a holding pen within the park by a Kamov heavy lift helicopter. Once all five containers, and their precious cargo, were safely in the pen, the doors were opened and for the first time in 140 years, plains bison once again began to leave their impressions on the soil of the Panther River and adjacent meadows.

### **The Ecological Benefits of Bison Reintroductions**

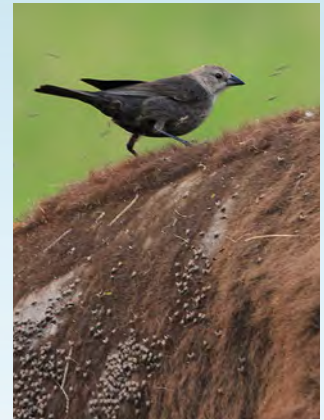
The driving force for the many bison reintroductions undertaken in recent decades has been the re-establishment of critical ecological and cultural roles that bison bring to the landscapes they occupy.





The ecological benefits begin within a few hours of the bison's arrival at their destination. Bison deposit upwards of 10 to 12 manure patties — patches of highly concentrated nutrients — every day. Each patty can sustain well over 1,000 individual invertebrates, from more than 100 different species, while it exists on the landscape. No other native North American animal can lay claim to such a valuable contribution to the diets of insectivores. Small mammals, birds, amphibians, and reptiles all benefit from the abundance of prey these manure patties provide for. And, like all food webs, the ramifications are huge when the foundations of a healthy ecosystem are functioning as they have for tens of thousands of years.

The benefits don't stop there. Bison have the second-warmest coat of all North American mammals, second only to qiviut, the underfur of the muskox. The underfur of bison grows in densities of upwards of 18,000 hairs per square inch. This dense mat of winter hair is shed each spring, snagging itself onto everything it bumps up against.



The benefits of reintroducing bison to local ecosystems are immediate and far-reaching:

Top left: Many species of birds and rodents collect shed bison fur for nesting material (and some look quite dapper while doing so!). JOHANE JANELLE

Top centre: Mother and calf grazing (step one of making nutrient-rich manure patties). RICK SCHNEIDER

Top right and above: Brown-headed cowbirds dine on a bug buffet. JOHANE JANELLE



And bison do love to rub and wallow, scratching where it itches and leaving scattered clumps of hair over their entire range. These are then gathered by nesting birds and small mammals to be used as nesting material. Its superb warmth and water repellency protect the eggs and hatchlings of countless bird species, newborn baby squirrels, and a host of other species.

In addition to their keystone ecological role, bison play important cultural roles. The Indigenous people of North America have had an intimate relationship with bison since they both walked across Beringia, the land bridge that once connected Eurasia to North America, and continued southward through the ice-free corridor and onto the grasslands of what is now Alberta. Evidence of this was found in Banff National Park, adjacent to Vermilion Lakes, when excavations revealed a campsite that dated back more than 10,000 years. These ancient people probably hunted bison as they followed the edge of the continental glaciers, deep into the heart of Alberta.

Across the historic range of bison, Indigenous people are re-establishing their ancestral cultural connection to bison, to their ceremonies and societies, and through bison, improving their lives, both physically and spiritually.

You can read more about the keystone role of bison in my and Johane's new book, *The Ecological Buffalo: On the Trail of a Keystone Species*, published by the University of Regina Press and scheduled to hit bookstore shelves in May 2022. ■



Since their reintroduction to Banff National Park, bison have adapted well to their new home. The Banff herd is seen here grazing an alpine meadow. KARSTEN HEUER

## Banff Reintroduction: Current Status

The 16 bison reintroduced into Banff National Park in the spring of 2017 were initially kept in a large, fenced holding area, allowing them to acclimatize and bond with their new home. It was expected that, after calving there for two seasons, the reintroduction area would form the core of the herd's range. The herd was released from the holding area in the summer of 2018 and has been free-roaming ever since.

Since their reintroduction, the herd has been doing very well. Last spring, 16 calves were born, bringing the total herd to 66 animals. With the exception of a few dispersing bulls, the herd has remained within the 1,200-km<sup>2</sup> reintroduction area centred on the Panther River valley. Low-stress herding is used to keep the herd from straying out of this zone, though this has only been required a dozen times in two and a half years. The animals are moving among preferred habitat areas and have spent three straight summers using high alpine areas, perhaps to escape bugs and heat or to feed on more nutritious forage.



The first bison calves born in Banff National Park in over 140 years. WES OLSON

So far, mortality has not been an issue, as expected with a young herd. Wolves have encountered the bison on several occasions, but have not yet figured out what to do with them. Bison form a core part of the diet of wolves in Wood Buffalo National Park, so the lack of bison predation in Banff is unlikely to last.

To learn more about the Banff bison herd, you can visit the Parks Canada bison blog at [bit.ly/pc-bison-blog](https://bit.ly/pc-bison-blog) or watch their video series about the reintroduction at [bit.ly/pc-bisonproject](https://bit.ly/pc-bisonproject). ■

Wes Olson has spent almost 40 years working with bison and trying to understand the complexities of bison societies and the keystone roles they provide to the ecosystems they occupy. After 32 years as a National Park Warden, Wes retired and, with his wife Johane Janelle, settled down on an 80-acre parcel of bush and beaver ponds beside Elk Island National Park, where they could be close to bison.



# Book Review

REVIEW BY JOHN ACORN

Dick Dekker is a remarkable individual, and *Stories of Predation* is a remarkable book. The subtitle, *60 Years of Watching Wildlife*, hints at the fact that this is actually an autobiography, summarizing Dekker's accomplishments over the years. On page 209, he can't resist letting us know that this was his original choice for the title. Still, the book is indeed about predators, mostly, and there are plenty of well-told stories here about wolves, falcons, and eagles. But the book also contains tales of shorebirds, ungulates,



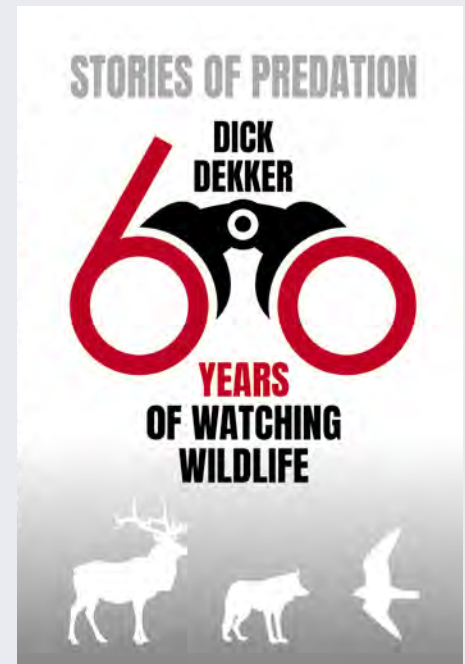
Photo of the author, Dick Dekker.

forests, and water levels, and on another level, it chronicles Dekker's opinions on various aspects of park management (and mismanagement), conservation, life in the backcountry, and life as a Dutch immigrant to Canada.

It is important to realize that in many ways, Dekker's perspective is singular. He is not a university academic (although he now holds a

PhD), though his publication record looks a lot like one of theirs. Likewise, he is not a government biologist, or a typical environmental journalist. Instead, Dekker describes himself as an independent naturalist. In a world where most biological studies take place over one or two "field seasons," Dekker's datasets were amassed over decades. Whereas most biologists frame their studies in terms of "hypothesis testing," Dekker is relentlessly inductive, mulling over thousands of observations before suggesting a general explanation for what he has seen. Even among birders and weekend naturalists, Dekker's observational record stands out prominently. For this reason, *Stories of Predation* should be right there on the bookshelf of anyone interested in the natural history of Western Canada, be they professional or amateur. Recognizing the importance of diverse perspectives on all environmental issues, a voice as unique and powerful as Dekker's deserves to be heard, and this book will ensure his legacy as a truly insightful naturalist. ■

John Acorn is a naturalist, biologist, author, photographer/videographer, and former television host. He currently teaches at the University of Alberta in the Department of Renewable Resources and he proudly serves as Patron of Nature Alberta.



***Stories of Predation: 60 Years of Watching Wildlife* by Dick Dekker, 2021, 240 pp. Hancock House Publishing.**

**For ordering details, contact [sales@hancockhouse.com](mailto:sales@hancockhouse.com).**



# Space: A Frontier No Longer?

BY LORNE FITCH

Outer space may still be a frontier, but the space we call wilderness is getting increasingly crowded. The refrain I hear, from people who remember the Eastern Slopes from a previous era, echoes Yogi Berra's enigmatic statement that "No one goes there, it's too crowded." I know I'm reluctant to visit there now, based on my memories of a place much quieter, with less traffic and fewer people.

Some might retort, with some accuracy, that this is typical complaining from an old grump. There is, though, a yin-and-yang aspect of growing old. On the minus side you have constantly forgetting where the car keys were left. On the plus side are vivid memories of the "good old days" which form a significant benchmark against which to measure changes.

My formative years were spent in the Rocky-Clearwater and Bow-Crow forests, from the late 1950s through to my entry as a biologist in the early 1970s. During family excursions along

the Forestry Trunk Road we would rarely encounter another vehicle. When camping at Ram Falls, we mostly had the place to ourselves. As I started independent hunting, fishing, and hiking journeys it was similar — few other people and you could scan for game from the middle of the road without getting run over. I thought it was paradise.

Henry Stelfox, who immigrated to Alberta in 1906 and became a conservationist and unpaid game guardian based near Rocky Mountain House, might have felt differently. He would have found the Forest Reserve in the 1970s crowded by comparison to his earlier memories. Stelfox roamed the upper Clearwater watershed when caribou were still present, prior to the construction of the Forestry Trunk Road in the early 1950s. The Eastern Slopes might have been described as the "Big Empty" in Stelfox's time. Without benchmarks the sense of paradise shifts and erodes imperceptibly to a shadow of a former time.

History teaches lessons in limits. Alberta has been through an earlier era of abundance; we are now in an era of over-exploitation. We need to move on to an age of prudent conservation and protection of what's left.

It's said, with evidence, that "the army of ecological destruction comes by road." It might be just as true that the decline in recreational quality does so as well. Crowding, noise, and declining fish and wildlife populations have those of us with long memories sensing the balance has tipped, or is close to it.





Our recreational demands on the Eastern Slopes grow every year. LORNE FITCH

At least 20 cumulative effects studies involving portions of the Eastern Slopes by government and arm's-length organizations provide a compelling picture that road density and the logging footprint will shortly reach, or has already exceeded, ecological thresholds. The risks to water quality, hydrologic response (including more and bigger floods), threatened trout species, and several wildlife species are clear.

It's also clear that recreational interests are at odds with one another. We can't continue to do everything, everywhere, all the time, any time and not start running over each other, figuratively and literally. It's time for a day of reckoning and that includes all of us who recreate in the Eastern Slopes.

Space, once abundant and taken for granted, has shrunk to the point that the Eastern Slopes are not the place to "get away from it all," but rather the place where "all have come to get away." Added to a very busy economic landscape of logging, livestock grazing, petroleum development, gravel mining, and coal exploration (and a few struggling coal mines) are random campers, off-highway vehicle users, mountain bikers, e-bikers, hikers, anglers, hunters, geocachers,

climbers, cross-country skiers, equestrian riders, paddlers, wildlife viewers, photographers, snowmobilers, and drive-through tourists. The landscape is crowded, and if the experience

of the Covid years is any indication, our love affair with the Eastern Slopes isn't over, it is just beginning.

When I started my rambles in the Eastern Slopes, Alberta's population was 1.3 million. Now it's 4.4 million with an average annual growth rate of 1.4%. That sounds low, but the math tells us that in another 25 years an additional two million people with economic and recreational interests will make Alberta home. Like the principle of compound interest, if the Eastern Slopes are busy now, imagine the future.

Fire marshals set capacity limits for buildings, restaurants can only serve as many as they have table space for, and there are only so many seats on the bus. There is

a direct parallel to the Eastern Slopes — it is not an expanding universe, like outer space. It is a fixed space, with only so much room for our economic and recreational pursuits. The more we ask that space to do, and the more of us doing it, the less able these landscapes are to provide their watershed function,

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The OHV footprint has grown rapidly over the past decade, and off-trail use has led to significant ecological damage. C. TOIVO

a haven for fish and wildlife — as well as quality recreational opportunities.

Everyone has experienced the frustration of a decline in quality, whether from a product, a service, or an experience. It leaves us feeling cheated somehow, as though things could — and should — be better. But as quality continues to decline, we realize that without an intervention it's just going to get worse.

Recreation management entails increasing the quality of recreation by resisting the things that will diminish the experience. For decades we have set limits on livestock grazing on public lands through assessments of carrying capacity. If we can do it for cows, we should be able to do it for humans in the Eastern Slopes. Recreational carrying capacity is concerned with determining the number of users that can be accommodated in a given area without loss in the quality of the natural environment and/or the recreational experience. It is challenging, but not impossible, to integrate human values into resource management decisions.

Other jurisdictions facing human population pressures have addressed the protection of landscapes and essential ecological functions while at the same time providing quality recreational experiences. The consistent theme is that recreation is treated as a land use requiring planning, management, evaluation and enforcement.

While there is no magic formula for setting recreational capacities, the beginnings might be found in the policies that

initially established the forest reserves, national parks, and provincial protected areas within the Eastern Slopes. Watershed protection, either explicit or implicit, is a priority for all of these zones, in spite of repetitive resource management decisions that run counter to good words and intents.

If we can agree there are ecological capacities that shouldn't be exceeded, that is a starting point. However, that is a big if, since some refuse to acknowledge their recreational pursuits diminish environmental quality. Paradigm shifts are hard because Albertans seem hardwired to view use of the Eastern Slopes as an entitlement.

To a degree the argument might hinge on how one defines "quality." Recreational quality can be related to perceptions of crowding, or exceeding physical capacity. It can be tied to facility capacity, as in what amenities like campgrounds, parking lots, or restrooms are available. How one defines quality is also tied to social capacity, freedom of choice, or how one reacts to crowding, competition, noise, and possibly the perception of threats or danger from other recreationalists.

To some, an accumulation of recreational vehicles scattered over every level piece of a streamside meadow, at the hub of a spiderweb of muddy off-highway vehicle trails, with random firepits, hacked-off trees, and no toilet facilities might be considered a quality recreational experience. This does not meet the test for environmental quality because of compacted soils, loss of water infiltration, erosion and sediment additions to streams, displacement of wildlife, loss of riparian vegetation, and possible contamination of water quality from the lack of toilet facilities.

Since this is an issue of regional planning, where is the Alberta government headed? Only two of seven regional plans have been published and there are glaring deficiencies in these. The rest are dead in the water and indicate an antipathy to regional planning, the logical place to have discussions on a variety of land uses, including recreation.

In southern Alberta, the Livingstone-Porcupine Hills Land Footprint Management Plan plotted a course to deal with a very busy landscape that was screaming for attention like a boiling tea kettle. The issue of road and trail density was addressed



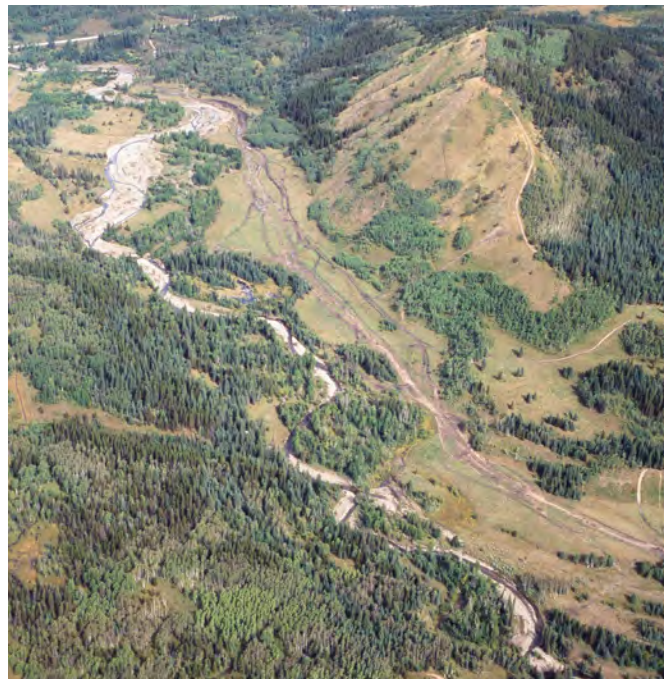


Economic interests add to the strain on the Eastern Slopes' ecology.

with a line-in-the-sand threshold. This was subsequently blown out of the water with the Alberta Energy Regulator approving new coal exploration roads which now exceed the thresholds for linear density. The recent *Trails Act* is a blatant attempt to circumvent the ecological thresholds for road density and jump over a subregional plan that had broad public involvement and consensus. The Livingstone plan promised spatial footprint thresholds to deal with industrial land uses like logging. Three years later, there is no indication that the spatial footprint is being addressed. Continual failures to address carrying capacity compound over time.

When it comes to recreation, it seems the government is oblivious to the existing and future recreational pressures in the Eastern Slopes. It's hard to see clearly when there are loonies over your eyes. A government-funded study by the Tourism Industry Association of Alberta (2021) had six recommendations about growing recreation, but made no mention of how to manage growth to protect ecological values or how to maintain recreational quality. We have yet to learn that more is not better.

Would limiting recreational use to enhance recreational experiences be easy to implement in the Eastern Slopes? Hardly! Given our tendencies toward individualistic freedom, this would not be viewed as visionary, but rather as overreach and too restrictive. However, if we took a clear view of crowded parking lots, increasing levels of frustration and anger between recreational interests, biodiversity concerns, an increasingly trashed landscape, and a decline in perceptions of recreational quality, we might at least be moved to start a conversation.



Trails criss-crossing the Willow Creek area. LORNE FITCH

With population pressures and expectations, the reality is we are not going back to an era of abundant empty space and fewer people. What we can do is start working, with vision and restraint, on a way to salvage recreational experiences in the face of increased population pressures. It's not too late, but it will be soon. If we don't acknowledge the trends, the fear is we will kill the goose that lays the golden eggs — that is, the Eastern Slopes landscapes that provide those quality recreational experiences we hold dear in our hearts and memories. ■

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



# What Happened to the Northern Leopard Frog?

BY LAURA SOUTHWELL

The northern leopard frog is an iconic amphibian, likely the very image that comes to mind when you hear the word “frog.” This once ubiquitous resident of prairie wetlands has faced an ongoing struggle against a changing and increasingly human-centric environment. Its abundance in Western Canada has been greatly reduced since the 1970s, and the remaining populations are fragmented and widely scattered.<sup>1</sup> It is now classified as threatened in Alberta. Fortunately, these amphibians are still thriving in Eastern Canada and the U.S., yet it is troubling that a species can go from being successful to threatened in the space of a few decades.

Several species of leopard frog exist in North America; however, the only species found in Alberta is the northern leopard frog. Its greenish-brown colouration (varying among individuals from bright green to dark olive brown), namesake dark spots, and white underbelly make it easy to distinguish from Alberta’s other frog species (wood frog, boreal chorus frog, and Columbia spotted frog, as well as several toads).

The northern leopard frog is a medium-sized frog that can grow up to 13 cm in length. Far from being simple pond dwellers, these frogs also inhabit marshy areas and moist grasslands. They generally prefer shallow, still, or slow-moving water for breeding and deeper permanent water bodies that do not completely freeze for overwintering.



Leopard frogs are easy to identify because of their dark spots and white bellies. Their skin color is variable, ranging from bright green to dark olive. LEFT: ERIC BÉGIN; RIGHT: ANDREW DUBOIS

Adult northern leopard frogs, like many amphibians, will venture out from ponds to hunt. They are mainly sit-and-wait predators that ambush anything that fits in their mouths. They eat a wide range of invertebrates, small mammals, reptiles, and other amphibians, including their own species. Aquatic larval frogs, or tadpoles, are herbivorous and consume easily accessible aquatic plant matter like algae.

Leopard frogs themselves fall prey to many species including fish, heron, snakes, otters, foxes, as well as other frogs, during all stages of life. They must rely on evasion and their cryptic colouration to avoid predation.

In late spring, largely depending on temperature and ice conditions, sexually mature adult frogs congregate in still or slow-moving bodies of water to breed. The northern leopard frog has a distinctive, rumbling, snore-like call used for attracting potential mates. During mating, the male grasps the female and sits on her back until she lays her eggs. He fertilizes the eggs as they are laid and may then leave to find



Leopard frogs were once ubiquitous residents of prairie wetlands, but are now rare. LORIE SHAULL



other mates. Typical egg masses contain up to a thousand eggs and are often laid close to other egg deposits.



Leopard frogs lay up to a thousand eggs at a time. CHARLES PETERSON

After about two weeks, the eggs hatch into tadpoles. At this stage they are at their most vulnerable and are often subject to predation by fish, water beetles, large invertebrates, and other frogs. Over the course of several months, tadpoles metamorphose, losing their tail and growing limbs as they transition to their adult terrestrial lifestyle. Young frogs forage and continue developing for between two to three years before becoming sexually mature.



Young leopard frogs are initially aquatic tadpoles. They lose their tail and grow legs as they mature into adults. HELEN LITTLETHORPE

## Causes of Decline

Ecologists believe that the decline in northern leopard frogs is the result of several factors working in combination. The main threats fall into three categories: habitat deterioration, chemical pollutants, and diseases.



Leopard frogs do an excellent job of blending in with their environment, which helps reduce predation. CHARLES PETERSON

Leopard frog habitat includes wetlands (for larval growth, breeding, and overwintering) and adjacent upland areas (for foraging). Not only must these habitats be present, the frogs also need to be able to move freely between them. Human activities such as farming, wetland drainage, and roadbuilding have reduced the amount of habitat available to the frogs and restricted their movement.<sup>2</sup> These activities have also reduced the quality of the remaining habitat and caused habitat fragmentation. Cumulative habitat changes have had a significant negative effect on leopard frog survival and reproduction.

Another significant threat to the northern leopard frog is chemical contamination. Amphibians in general are very vulnerable to harm from

pesticides, herbicides, and industrial chemical wastes because their skin is permeable and because these chemicals accumulate in the wetlands where they live. In high concentrations, exposure can have a direct impact on tadpoles and frogs. But perhaps even more significantly, these chemicals can harm the aquatic invertebrates that the frogs eat, leading to reduced food intake and ultimately lower reproduction.

The decline in northern leopard frog populations has also been linked to disease. The main culprit is the chytrid fungus, which has been implicated in the mass die-off of many frog species around the world since the 1990s. This fungus has been identified in many Alberta wetlands and in numerous northern leopard frog populations. It infects the skin and inhibits the



ability of frogs to breathe, hydrate, and regulate their temperature correctly. Other diseases identified in western populations of northern leopard frogs include ranavirus infection and “red-leg,” both of which can cause death in infected individuals.

Other threats to northern leopard frogs include being killed on roads and increased predation from the introduction of new predator species — particularly fish stocking in lakes. In addition, poorly managed livestock can cause erosion and habitat disruption in wetland areas from grazing and physical disturbance close to shorelines.

## Conservation Efforts

Efforts to recover Alberta’s northern leopard frog population began with its listing as a threatened species by the Alberta government in 2004 and the development of a recovery plan in 2005. Conservation efforts have involved surveys to determine where the remaining frogs were located, conservation research, and outreach to local landowners to educate them about stewardship opportunities.

Recovery efforts have also included frog reintroductions.<sup>3</sup> Alberta’s remaining frog populations are fragmented and widely separated, and this limits the potential for natural population expansion. To speed the recovery process, wildlife managers have been physically moving egg masses and tadpoles to suitable habitat within the frog’s former range. The eggs have been obtained from sites with stable frog populations.

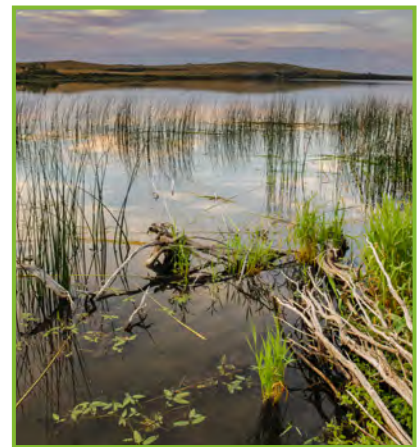
Of course, reintroductions will not be successful without attention to the factors that caused the frogs to decline in the first place. The protection of frog habitat, including wetlands



Leopard frogs are ambush predators with keen vision, ready to pounce on anything that crosses their path. ANDREW CANNIZZARO

and surrounding upland areas, is paramount. The problem is that most of the northern leopard frog’s range coincides with Alberta’s agricultural zone. In this, the frog is in the same precarious position as many other threatened species in Alberta; this is a working landscape with little native habitat remaining and few options for large-scale protection. Conservation programs, such as Multiple Species at Risk (Multi-SAR) and Cows and Fish, do exist; however, they rely largely on voluntary stewardship efforts by landowners. Progress is being made, though not at the pace and scale needed to ensure the recovery of the many species at risk that rely on healthy prairie ecosystems.

There is not much that can be done about diseases directly, since medicating individual animals is not practical. However, as with most diseases, individuals that are in good condition and live in a healthy environment stand a much better chance of surviving infection. Therefore, conservation

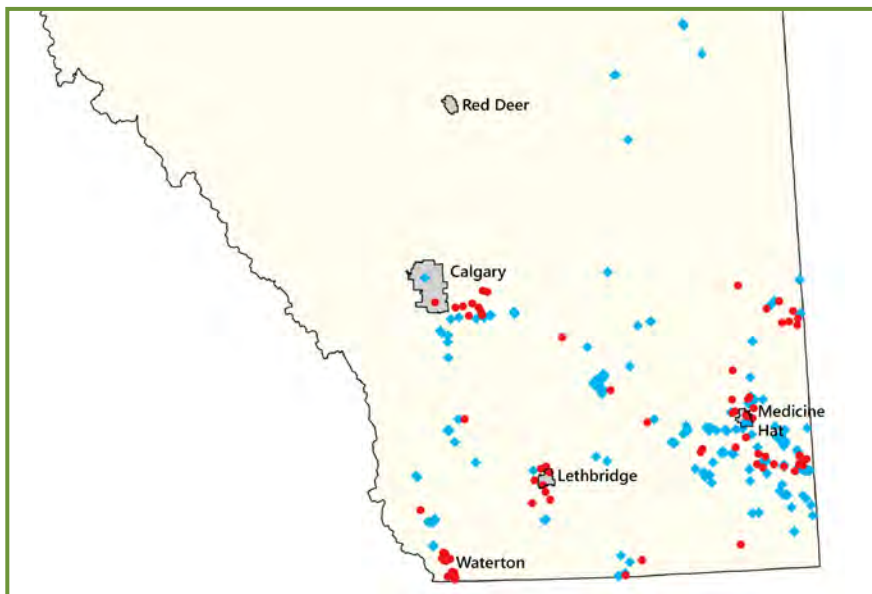


Shallow wetlands are the preferred breeding habitat for leopard frogs, and where tadpoles mature.

efforts that improve habitat quality and reduce chemical contamination serve as important preventative measures. In addition, natural selection often leads to genetic changes that improve resistance to serious pathogens.

No formal reports on the status of Alberta’s northern leopard frog have been published in the past decade. However, wildlife managers believe that populations within the core





The distribution of northern leopard frogs in southern Alberta, 2016–2021. The red circles are iNaturalist observations and the blue diamonds are from the government's wildlife monitoring database (FWMIS). Though leopard frogs are still found throughout the grassland region, the population is fragmented and overall abundance is low. Prior to 1980, the frogs were also found in central Alberta and in the foothills, but few frogs remain in these regions today.

of their range are currently stable. Reintroduction efforts are generally on hold, with the notable exception of Waterton National Park, where an active reintroduction program is underway. The most recent recovery plan covered the period from 2010–2015 and no new version has been developed.<sup>2</sup>

## How You Can Help

There are several things that you can do to support Alberta's struggling leopard frogs. To begin, you can assist in population monitoring by participating in citizen science initiatives such as iNaturalist ([inaturalist.ca](http://inaturalist.ca)). It couldn't be easier: get the app, put on your hiking boots, and snap pictures of the species you encounter (especially leopard frogs). Your observations are verified and added to a publicly available database that's easy to search and view on a map. These citizen science observations

play an important role in uncovering new populations, complementing government monitoring efforts which are currently focused on periodically checking the status of known sites.

You can use your voice to speak up for the northern leopard frog. Consider writing to the Minister of Environment and Parks, Jason Nixon, to ask him why more is not being done to recover this threatened species in Alberta ([aep.minister@gov.ab.ca](mailto:aep.minister@gov.ab.ca)). As a general rule, governments pay attention and provide resources to issues the public cares about. Therefore, part of the leopard frog's problem may be its relative obscurity. It needs a higher profile as well as funding to pay for

endangered species biologists and substantive habitat protection efforts.

You might also consider supporting groups such as the Nature Conservancy and other land trusts that protect prairie ecosystems through land purchases, donations, and easements. There are also groups that specialize in wetland conservation, such as Ducks Unlimited, the Alberta Riparian Habitat Management Society (Cows and Fish), and local watershed groups.

Though Alberta's northern leopard frog populations are certainly struggling, they can recover if the necessary conservation steps are undertaken. It's mainly a matter of getting enough people to care, and to translate that caring into appropriate management action. ■

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Laura Southwell is a recent computer science and ecology graduate currently working in the field of artificial intelligence-based insect identification. She also keeps up her passion for herpetology and frog conservation through her small art business, Frog Tree Games ([frogtreegames.com](http://frogtreegames.com)).

# Nature Kids



## My BIG Alberta Backyard

BY KATRINE KONOPNICKI

**A**lberta is a great place to live. It's a big, beautiful province full of all kinds of natural wonders. This is where we introduce you to the diversity of wildlife, and unique and interesting wild spaces, that are part of your Big Alberta Backyard. This time, let's explore the **Inglewood Bird Sanctuary** in Calgary.

### What is the Inglewood Bird Sanctuary?

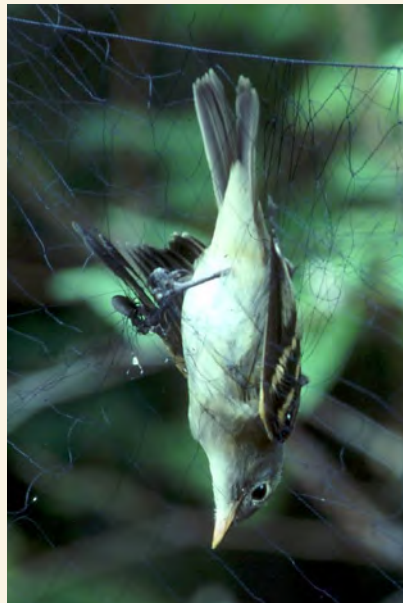
The Inglewood Bird Sanctuary (IBS) is part of a network of 92 Federal Migratory Bird Sanctuaries across Canada. It's unique because it's one of the only bird sanctuaries inside a city. It's also one of the smallest at 36 hectares. Being a Migratory Bird Sanctuary gives this area special protection with strict rules to keep the area as natural as possible. You can't bike, walk your dog, or feed the animals. There are also areas where people are not allowed to go, so make sure to stay on the pathways.

These special protections make this a great natural area that is attractive to migrating birds. Since 1969, there have been 278 species found at the sanctuary.

### What happens at the Inglewood Bird Sanctuary?

Since 1995, the Calgary Bird Banding Society (CBBS) has studied the populations of migrating boreal songbirds in the IBS. It's hard to

study these birds in the Boreal Forest because it is so big. It's easier to catch them when they migrate in the spring and fall. There is a reserve at the east end of the IBS where they set up special "mist" nets that catch and hold birds safely in pockets until a bander comes to get them. Banders then measure, weigh, and age each



Least flycatcher hanging out in a mist net, waiting for its turn to be examined, banded, and released.  
CALGARY BIRD BANDING SOCIETY

bird. They also carefully place a metal band on their leg so that if it is recaptured scientists can compare the information on the bird. Birds from the IBS have been recaptured across the prairies. Kids who are 14 and older can join the CBBS and take

part in bird banding activities at IBS ([calgarybirdbandingsociety.org](http://calgarybirdbandingsociety.org)).

### What birds live in the Inglewood Bird Sanctuary in the winter?

On the lagoon, look for the wood ducks who love to spend time on the fallen logs. Great horned owls roost in the poplar trees. Look up high and close to the trunk; their feathers are brown and mottled to camouflage them against the tree bark. On the river, you can find big flocks of Canada geese and mallards. You can also find diving ducks like common goldeneye and buffleheads. Watch for them to dive and then pop back up a few metres away. In the spruce trees, look for tiny birds like chickadees, nuthatches, woodpeckers, and even brown creepers. You can also look for signs of birds, like nests in branches and holes in tree trunks.

### What else lives in the Inglewood Bird Sanctuary?

There are lots of mule deer in the park; they have ENORMOUS ears and a black-tipped tail. Near the Colonel Walker House, look up into the spruce trees — you might just spot a sleeping porcupine! Occasionally, you can glimpse a coyote wandering through. More often, you will find signs of coyotes, like their scat (poo) and tracks on the pathways.





The natural beauty of a misty morning at Inglewood Bird Sanctuary. NICK BARTOK

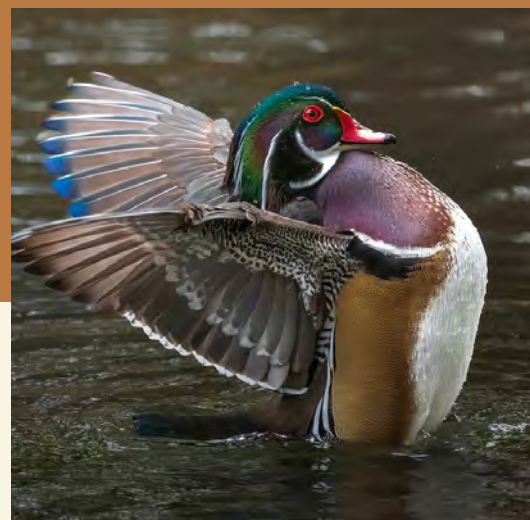
## Observe, Investigate, Explore, and Be Amazed!

You can visit the Nature Centre to investigate interpretive exhibits and then head out to explore the 2.3-km self-guided loop trail. You might be one of the lucky ones to spot a rare bird! In 2021, visitors spotted a yellow-crowned night heron. This was only the second time one has ever been seen in the WHOLE province. There were rare sightings of a yellow vireo by the bird banders as well. And keep an eye out for the river otters who have been observed using the lagoon! ■

Katrine Konopnicki is a Nature Alberta Board Member and the Director of Communications for Nature Calgary. Thanks to Doug Collister from the Calgary Bird Banding Society for information about bird banding at Inglewood Bird Sanctuary.



Colourful wood ducks are just one of the amazing bird species that you can see!  
DAVID CAMPBELL





# Out and About

BY STEPH WEIZENBACH, NATURE NETWORK COORDINATOR

## Swans & Snowshoes

The trumpeter swan is the largest bird that migrates through Alberta, in the spring and fall. They nest in select areas such as the Saskatoon Lake Migratory Bird Sanctuary. It takes this massive bird 100 metres of swimming, flapping, and running over water to gather enough speed to take flight. In this activity, you will learn what it's like to be a trumpeter swan! Trumpeter swans have large webbed feet, so you will need snowshoes to get into character.



Trumpeter swans taking off in Sylvan Lake in early winter. LEO DE GROOT

### What you need:

- ✓ Snowshoes
- ✓ 100 metres of open space covered in snow

### What to do:

- 1 Find a 100-metre-long area that is covered in snow. A football or soccer field is 100 m in between goal posts so is the perfect size. If you do not have a football field nearby, try measuring and estimating 100 m using Google Earth. Use the ruler to measure 100 m of space in a nearby park and identify landmarks that will help you estimate the distance when you get there on foot.
- 2 Get on all your winter gear and head out to your 100-m flyway.
- 3 Strap on your snowshoes, which will be your giant flipper swan feet. Practice walking around with your snowshoes to get the hang of it. Imagine you are a graceful swan.
- 4 Line up at the start line. Ready, get set, go! Snowshoe the full 100-m distance. If you are an experienced snowshoer, see if you can run the distance. If you are a beginner, walking speed will be challenging enough.
- 5 Appreciate how much effort it takes a 25-pound (11-kg) trumpeter swan to gather enough momentum to take flight from the water on a 100-m flyway! ■

## BONUS: Egg Warmer Challenge

Trumpeter swans use their giant webbed feet to gently wrap around their eggs to keep them warm. See if you can warm up an egg using only your feet, for 2 minutes, without breaking it!

- 1 Ask your adult if it's okay.
- 2 Take an egg out of the fridge and set a timer for 2 minutes.
- 3 Using only your feet, see if you can warm up the egg, without breaking it!



# Ask Stuart

BY ABIGAIL STOSKY, NATURE NETWORK ASSISTANT



**W**elcome to Ask Stuart, a regular feature in which Stuart, our Nature Kids mascot (who just happens to be a swift fox) responds to questions asked by kids across Alberta. From time to time Stuart will also ask local experts to help him answer these questions. If you have a question you would like to ask Stuart, send it along to our Nature Kids Program Coordinator at [naturekids@naturealberta.ca](mailto:naturekids@naturealberta.ca) and it may be featured in a future issue.

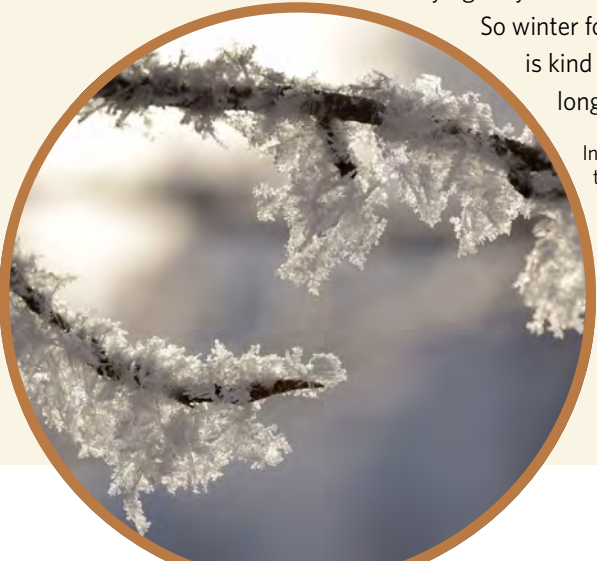
## Q How do trees survive without leaves?

First, let's talk about what leaves are. Leaves help trees turn sunlight into energy, but only if they are uncovered. If snow covers the leaves, they can't make any more energy. One of the reasons some trees lose their leaves in the fall is because they won't be able to use the leaves during the winter. So instead, trees take some of the extra energy the leaves make in the summer and store it away for winter.

But where do they store this energy? Trees don't have refrigerators or pantries. Instead, they store it in their roots, which are the parts of the tree that grow underground. Leafy trees will use that stored-up energy throughout the winter until they regrow their leaves in the spring. Since winters can be very long in Alberta, trees have to be careful not to use up their energy too quickly. To help slow their energy use, some leafy trees go through a process called "dormancy," which is a fancy way of saying they slow down and rest.

So winter for a leafy tree is kind of like one long nap! ■

In the winter, many trees have snowflakes covering their branches instead of leaves. This doesn't hurt the tree, and can help keep it warm against the cold wind.  
P. MARCINKOSKI



Unlike trout or pike fish, these white suckers stay at the bottom of the lake or pond almost all year round. DAVE FAIRLESS

## Q What happens to fish when the pond turns to ice?

Lakes and ponds that fish live in over the winter do not freeze all the way to the bottom. A layer of water at the top of the pond freezes. The ice and snow on top insulate the water, helping keep the water at around the same temperature throughout the winter. The air against your face as you skate on a pond can be very cold one day and then warm another, depending on the weather, but the temperature of the water under the ice doesn't change as quickly. So keeping from freezing under the ice is actually quite easy for a fish, even during the coldest winter day.

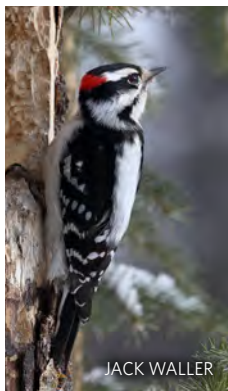
Fish are cold-blooded, so their body temperature changes as the temperature of the water they're swimming in changes. Most fish spend the winter at the bottom of the lake, where the water is the warmest. During the cold winter months, fish eat less, move around less, and they also don't need to breathe as much. That's really important, because oxygen can be hard to get from the water under the ice. Oxygen is something that all living things need to survive. We mammals get it from breathing air, but fish get it from the water. While the ice on top of a pond helps keep the water warm, it also makes it hard for oxygen to get into the water. Most of the time this is fine. The fish will slowly use up the oxygen in the water until spring comes and the ice melts. But certain types of pollution take away some of the oxygen inside the water, which makes it hard for fish to survive the winter. To help keep the water healthy for fish, make sure you avoid using chemical pesticides and fertilizers that can run off your lawn into waterways; don't dump soap, oils, or other chemicals down storm drains; and pick up litter. ■

# Watching Winter Woodpeckers

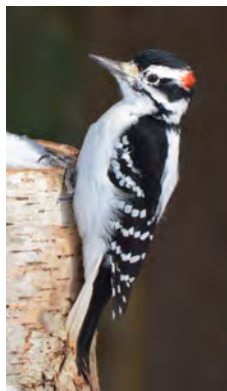
BY MARGOT HERVIEUX

**B**lack-capped chickadees are certainly our most common winter feeder visitors (see Myrna Pearman’s article on page 5), but downy woodpeckers are often a close second. Both downies and their larger cousins, hairy woodpeckers, are year-round residents in our winter forests.

Downy and hairy woodpeckers are two of six species of woodpecker found in Alberta. All of our woodpeckers, except the flicker, are black and white, but the downy and hairy have white as well as



Downy woodpecker.



Hairy woodpecker.

black on their backs and the males have a red patch on the head. The two species look very similar but with practice you can easily distinguish them by size. The downy is our smallest woodpecker, measuring about six to seven inches long, and its thin bill is shorter than the length of its head. The hairy is larger, nine inches or more, and has a chisel-like bill that is longer than its head.

As you might expect, woodpeckers have special adaptations for pecking on wood. Their chisel-shaped beaks easily cut into tree trunks and reinforced bones in the skull prevent brain injury. The birds also have two toes facing forward and two facing back to give them a better grip. Stiff tails help them brace themselves as they climb.

You can find both downy and hairy woodpeckers in poplar and mixed-wood forests all across the province, but the hairy tends to prefer older forests with large trees, while the downy is more common in open aspen woods.

Like most woodpeckers, these birds are insect eaters. They can regularly be seen moving up trees and along branches, searching for prey on and under the bark. The smaller downy often looks for food out at the ends of branches or on weed stalks, while the hairy prefers to dig beetles and their larvae out of the swollen growths or galls that develop on the stems of goldenrod. You can attract both species to your feeder with suet and beef fat as well as sunflower seeds.

Come early spring, you may start to hear drumming in the woods — the song of the male woodpecker. In April, mated pairs will begin the two-week-long task of digging out a new nest hole. Downy woodpeckers usually choose a dead tree or dead branch, while the larger hairy is also able to tackle a live tree with a rotting heart.

Once the eggs hatch, four or five chicks are fed by both parents for about three weeks. The adults are quite secretive around the nest site but, since they are safe from most predators, the young call almost constantly.

Downy and hairy woodpecker numbers are not declining as much as many of our songbirds, but they are still being affected by habitat loss. By leaving dead trees everywhere from backyards to cut blocks, we can provide important nesting and feeding sites for woodpeckers and the many creatures that use their nest holes after they leave.

In our quiet winter woods, you can often hear woodpeckers tapping away as they move through the trees in search of a meal. Their insect food may be invisible to us, but woodpeckers are well-equipped to find their favourite hidden morsels. ■

Margot Hervieux is a founding member of the Peace Parkland Naturalists, an honorary member of Nature Alberta, and a longtime Nature Alberta board member. A version of this article originally appeared in her “Naturally Yours” column in the Peace Country Sun, which she has been writing for 15 years. You can read more of her archived columns at [peacecountrysun.com](http://peacecountrysun.com).





RDRN stewards Butcher Creek Natural Area.  
SHAYE HILL PHOTOGRAPHY

## MEET A MEMBER CLUB

BY MYRNA PEARMAN

### Red Deer River Naturalists

**T**he Red Deer River Naturalists (RDRN) can trace the organization's history back over 120 years, to the Northwest Entomological Society, founded in Blackfalds in 1898 with the objective "to classify the flora and fauna of the Northwest Territories." The Society spent the next few years building up its collection of butterflies, beetles, and "other natural wonders" and establishing local Field Clubs.

After the Society's dissolution in 1902, it was replaced by the Alberta Natural History Society (ANHS), formed in Innisfail in 1906. They established other branches as well as small natural history museums and nature programs across the province. The ANHS counted among its members many renowned entomologists and naturalists. Unfortunately, ANHS branches declined as the founding members moved away or died in the late 1920s and early '30s. Remaining members, especially Red Deer's famed Kerry Wood, continued work on conservation and educational initiatives.

ANHS was relatively quiet until the early '70s, when growing public concern about pressing environmental issues gave rise to renewed interest in the club, which was then renamed the Red Deer River Naturalists.

In the 1980s, RDRN was actively involved in the planning and development of Waskasoo Park in Red Deer and the official protection of Gaetz Lakes Sanctuary. RDRN also supported a biological mosquito control program, helped establish Ellis Bird Farm, launched the Habitat Steward Program, relaunched the annual Christmas Bird Count, and became stewards of three natural areas.

Through the years, RDRN has been active on many fronts, including lobbying against developments in national parks and other ecologically sensitive areas and being proactively involved in both municipal and provincial environmental issues. Monthly meetings and a newsletter have kept members informed and engaged, and an annual Owl Award recognizes an outstanding member.

In the 2000s, RDRN received an Emerald Award for environmental excellence, published *NatureScape Alberta* (with Nature Alberta) and the *Mountain Bluebird Trail Monitoring Guide*, launched a Young Naturalists Club, secured a permanent office at Kerry Wood Nature Centre, hosted popular plant and bird focus groups, celebrated our 100th anniversary by hosting a second Nature Canada conference, published a bird checklist and two birding trail guides,

and supported initiatives at Ellis Bird Farm and Medicine River Wildlife Centre.

In 2020, RDRN received an unexpected bequest, resulting in the establishment of an RDRN Endowment Fund for Nature through the Red Deer and District Community Foundation.

Most recently, RDRN has updated our strategic plan, co-sponsored — with Nature Alberta — the Nature Central program to celebrate local protected areas ([naturecentral.org](https://naturecentral.org)), relaunched the Habitat Steward program, and launched an Adopt-a-Stream program. With committed volunteers supported by a part-time Managing Director, RDRN's future plans include supporting more conservation initiatives and community engagement.

To learn more about RDRN's programs and events and to join or support us, visit [rdn.ca](https://rdn.ca) ■

Myrna Pearman has been a member of RDRN since the early 1980s. She has held various positions, including President, Speaker Coordinator, Christmas Bird Count Coordinator, Habitat Steward Coordinator, and Volunteer Board Liaison for Nature Central. She has also been the RDRN newsletter editor for 30 years.



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