

Nature Alberta

CELEBRATING OUR NATURAL HERITAGE



RUFFED GROUSE IN WINTER; FEATURE PICTORIAL STARTS [PAGE 16](#). JOHN MCFAUL

feature article

Winter Images. Just for You!



A COMMON REDPOLL DOESN'T MIND THE SNOW AND COLD AT ALL. CAROLYN SANDSTROM

GREAT-TAILED GRACKLE; SEE "ON THE COVERS" AND THE STORY [PAGE 3](#). DENNIS JARVIS 2010 (WIKIMEDIA)



*Nature Alberta:
Celebrating our natural heritage*

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Nature Alberta is composed of natural history clubs from across the province. The aims of the Federation are:

- To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
- To promote an increase in the exchange of information and views among natural history clubs and societies in Alberta;
- To foster and assist in the formation of additional natural history clubs and societies in Alberta;
- To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
- To organize, or coordinate symposia, conferences, field meetings, nature camps, research and other activities whether of a similar or dissimilar nature;
- To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed, so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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CELEBRATE NATURE ALBERTA

50 YEARS IN 2020!



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Editor's Page

BY BROOK SKAGEN, ASSISTANT EDITOR

The Souvenir

This winter I was fortunate enough to embark on my first ever trip to Mexico, trading the whistling winds of Lethbridge, AB for the bustling beaches of Puerto Vallarta, the second largest city in the state of Jalisco, Mexico. From the very first moment my foot touched Mexican soil, a wave of pure wonder swept through me, filled with the excitement of encountering a world of new biota, and the many new scents, sights, and sounds that came with it.

A land filled with the promise of “lifers”, never before seen species in birder’s personal collection of

NOT UNLIKE THE NORTHERN FLICKER OF HOME, THE GOLDEN-FRONTED WOODPECKER WAS A COMMON BACKYARD SIGHT, ENTHUSIASTICALLY CALLING FROM THE PALM TREES. BECKY MATSUBARA 2017 (WIKIMEDIA)



observations, is more than enough to excite any “bird nerd.” I spent countless hours roaming the sandy beaches, winding paths, and cobblestone alleys of the city and surrounding countryside, my eyes widening and my heart skipping with each unfamiliar organism encountered.

The eruption of feathers as Snowy Egrets, Green Herons, and Anhingas flushed from the bay, the vibrant chatter of a Golden-fronted Woodpecker picking at the palms above, and the silent silhouettes of Magnificent Frigatebirds soaring over the Bay of Banderas are some of the many exhilarating encounters with

THE STILL AND CALM DEMEANER OF THE GREEN HERON AS IT WAITED FOR UNSUSPECTING CRABS CONTRASTED GREATLY AGAINST THE BACKDROP OF SCURRYING TOURISTS. BECKY MATSUBARA 2017 (WIKIMEDIA)



nature experienced throughout the trip. And yet throughout all of these moments, the crowds walked on by, seemingly oblivious to the marvels of nature which surrounded them.

At first, I couldn’t fathom such wonders of the wild fading into the backdrop of everyday life, when the realization that they already had soon hit me. Here I was, captivated by the iridescent sheen and elegant tail of a Great-tailed Grackle (pictured on the Inside Front Cover; also known as the “Mexican” Grackle, an indicator of its commonality) as it patrolled the city streets in search of scraps; yet the brilliant contrast of shimmering purple,

green, black, white, and blue as Black-billed Magpies casually stroll the sidewalk seems hardly worth turning a head for. Each *Kree Kree* of a Great-Kiskadee, a common Mexican flycatcher species, left a glimmer in my eyes as it greeted the morning sun; the nightly *tchak tchak tchak* of House Geckos welcoming

the moon felt as spectacular as it did soothing. Yet the chipper harmony of an American Robin at dawn often goes unnoticed, and the distant Vees of honking geese seemingly fade into the background with little impact.

It's not to say that I or any one of us don't enjoy the presence of our more common birds. Of course we've all grown to admire the critters in our "Great Backyards". However, there is no denying that, in general, the beauty of "every day wildlife" is all too often lost, the sense of novelty worn down with each encounter over time.

Since returning home, every Magpie, Raven, and House Finch encountered brings with them the memories of Great-tailed Grackles, Black Vultures, and Yellow-eyed Juncos, and a new-found appreciation. Gratitude: a lesson learned 4,200 kilometers from home, and my most cherished souvenir.

THE CONTRASTING BLACK AND WHITE HEAD AND BRIGHT YELLOW BELLY OF THE GREAT KISKADEE REMINDED ME OF THE WESTERN MEADOWLARK. THE BIRD WAS ALWAYS THE FIRST TO EAGERLY SING A MORNING MELODY DURING MY STAY IN PUERTO VALLARTA. GREGORY SMITH 2014 (WIKIMEDIA)



On the Covers:



FRONT COVER

John McFaul introduces this edition's Feature Story with his photo of a Ruffed Grouse, which blends in quite nicely with its surroundings. John (who writes the regular feature article "Starry Nights") and Holle Hahn searched their photos and came up with lots of "Winter Images, Just for You!" The pictorial begins on [page 16](#).



INSIDE FRONT COVER

There is good reason why the Common Redpoll is often referred to as the Christmas bird: the blushes of soft red, the idea that it appears around the same time as Christmas and its robust cheeriness! The photo (©) is by Carolyn Sandstrom, who takes a wide variety of fabulous wildlife images.



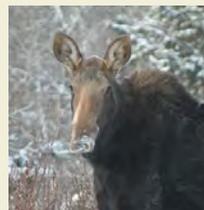
"I found myself," said Brook Skagen, "enamoured with the iridescent sheen and exaggerate tail of the Great-tailed Grackle, with many features paralleling those of the Black-billed Magpie." For the rest of the story, see "The Editor's Page: The Souvenir," [page 2](#).



INSIDE BACK COVER

Now that is a real grass! Unfortunately, it is also a very destructive grass Read why on [page 5](#).

Holle Hahn wrote on Feb 13th: "We just had a Moose stomping through our backyard. It was a beauty and a poser 😊 What a treat!" Holle, of course, is one of two people (the other being John McFaul) who contributed to this month's Feature Story, beginning on [page 16](#).



BACK COVER

This Long-tailed Weasel is one of the animals that takes advantage of old farm buildings, whether they are abandoned or not. Myrna Pearman got this image on Oct 29, 2018, when the graceful weasel was already in its winter garb. Old buildings provide a plethora of homes and/or shelter for many species, as Myrna's story, starting on [page 23](#), explains.

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ALBERTA ISSUES IN BRIEF

Three Cheers for Scrapping Icefields Bicycle Trail

INFORMATION FROM THE ALBERTA WILDERNESS ASSOCIATION (AWA) NEWS, JAN 23, 2019

The Government of Canada has announced that it is cancelling the proposed Icefields Trail in Jasper National Park. It will instead reallocate the \$65.9 million earmarked for this project to priority areas in Canada's National Parks.

"AWA congratulates Parks Canada for deciding against further paving paradise," says Ian Urquhart, AWA Conservation Specialist. "This is an important win for ecological integrity." Urquhart added, "We hope this announcement signals a shift from Parks Canada to seriously refocus on its mandate within the National Parks, which is to enhance and maintain ecological integrity."

Environmental groups had voiced serious concerns about the project, pointing out that it would cut through critical habitat for caribou, grizzly bears and migratory birds. Parks Canada had proposed a separate, paved road buffered from the busy Parkway by 10 to 20 metres of trees, plus pullouts and rest stops built every five to 10 kilometres and connected by pavement

to campgrounds and other infrastructure.

Park Officials acknowledged in the document that the trail could create encounters between grizzly bears and cyclists, who are less likely to carry bear spray and who travel quietly at much higher speeds than hikers.

Parks Canada said it would "reallocate the funds to priority areas with Parks Canada."

In fact, the total budget for the project was about \$86 million with the parking lots, campsites and washrooms.

Over the years, AWA has raised awareness about privatization of park experiences and

prioritizing 'visitor experience' over conservation within our National Parks. Concerns include increasing commercialization and development pressures in the Rocky Mountain National Parks, including expansion of the Lake Louise ski area, proposals for hotels near Maligne Lake, and other developments such as the Glacier Skywalk. AWA believes that visitor experiences and ecological integrity can co-exist, by increasing interpretive experiences and effectively protecting the wildlife and habitats that brings millions to the parks each year.

FOR MORE INFORMATION: IAN URQUHART,
ALBERTA WILDERNESS ASSOCIATION,
403.283.2025

ATHABASCA RIVER IN JASPER NATIONAL PARK. C. OLSON



It's Here – and it's Nasty!

It's hard to believe that a grass grows this tall but believe it! The grass is *Phragmites australis* and came to us courtesy of Eurasia and (it is believed) the CPR. It may also be spreading in shipments of grain, hay or straw. It grows so thick, dense and tall that it chokes out everything.

Officials say there is a native variety of *Phragmites* and stress it doesn't pose an ecological threat. *P. australis* is an introduced species that can choke out other plants and destroy wetland

ecosystems. It reduces habitat for fish and wildlife, and its dead stalks can be a fire hazard. It is tall, with feathery seed heads, and it favours standing water or generally moist conditions.

The plant has been found as far north as Grande Prairie (mostly at sites associated with railways) but most of the sites are in south/southeastern Alberta. Before *Phragmites australis* was banned,



it was once sold as an ornamental plant, along with other varieties of *Phragmites*, for lawns and ponds. Officials believe two of the thirteen identified Alberta *Phragmites australis* sites were intentionally planted, including one at the Calgary Zoo.

Conservatives (Again!) Want to Sell Off Alberta Public Lands

FROM ALBERTA WILDERNESS ASSOCIATION NEWS RELEASE

In a recent speech, Jason Kenney, Leader of the United Conservative Party (UCP), expressed interest in selling a significant area of public lands in Alberta's northern Peace River Country should the UCP win the next provincial election. The sold parcels would then be converted to agricultural land.

The area falls within the Boreal Forest Natural Region, a landscape of extensive mixedwood forests and wetlands. Northern wetlands are not only important habitat for wildlife, but they also provide essential ecological services such as water retention, water filtration and carbon capture, helping to buffer climate change impacts.

Alberta Wilderness Association (AWA) opposes the sale of public lands and is concerned that through the years, sales have continued without meaningful and transparent public participation.

These are Alberta's public lands; they are owned by the general public, and therefore, need to be kept within the public realm.

"Our public lands, and in particular wetlands, are incredibly important for our health and wealth, and act as a critical source of water and carbon storage," says Carolyn Campbell, AWA Conservation Specialist. "We are

concerned that the proposal to convert wetlands and other natural habitat into cropland may not have a net carbon benefit but may release more carbon emissions, in addition to eliminating wildlife habitat and corridors."

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403.283.2025

GOING, GOING, GONE?



FROM THE PRESIDENT

From a President's Perspective . . .

BY LINDA HOWITT-TAYLOR

As I begin to write this column, it is still January. Other than changing my mind about New Year resolutions, nothing else seems to change much except the weather in Alberta. Well, maybe that's not true...

My grandsons certainly changed since July, the last time I saw them. My hair colour has changed, landscapes and communities seem to change ever more rapidly. The make-up of our Nature Alberta Board changed slightly at our AGM in December with some representatives stepping down and others joining in. When Nature Alberta used to be known as Federation of Alberta Naturalists, we changed the moniker even though its registered name remains the same. Even the Queen has changed royal protocols and procedures over the decades. Organizations embrace change either by choice or because of necessity and it seems that 2019 may be a good year for Nature Alberta to make changes in some of the ways we do things.

Some of us find it difficult adapting to change but change is a sign of renewal. It should be a welcome, beneficial and often essential process within a community or an organization

when it takes place within an environment of cooperation and consultation. Think of it this way...I don't drive the same vehicle I drove in 1969. Not many of us do. We're happy to drive an updated model that navigates busy roads and changing driving conditions with a better technological system to improve interconnectivity and improved safety systems. To update these, engineers, electricians, technicians and advisors collaborated to provide us with better performance. And there was another motive for change... to market better "deliverables" and expand recognition and support in a changing market.

How can Nature Alberta improve our "deliverables" in our own changing not-for profit environment? What should NA focus on? Are we an organization that delivers programs, and if so, which ones? Do we serve as an advocacy group, and if so how do we differentiate ourselves from other, more established

advocacy organizations like AWA, CPAWS or Pembina? Or should NA focus on providing services to our supporters (i.e. members) as identified by them at the local level and encourage and facilitate sharing of resources as clubs determine?

Over the past several months the Executive of Nature Alberta along with members of the larger Board of Directors have been asking ourselves some hard questions. The not for profit landscape has changed over the past 50 years with many other provincial environmental organizations sharing in the same pie and competing for grants from the same sources of funds. What still works well within the 1970 FAN model and what needs an upgrade? What kind of "model" or vehicle would the membership like to invest in to put the organization in good stead for the foreseeable future and beyond?

In a changing market there are activities, programs, benefits and opportunities that might be

offered to our membership in a more efficient and effective way. In the early days of NA, we spent most of our time assisting clubs with getting established and helping with governance and in providing print materials based on topics that seemed to resonate with the membership. That isn't the case today. Nature Alberta needs to clarify what our role is within Alberta with our members, individual provincial partners and our national affiliate Nature Canada for us to move into the future.

We have an opportunity for NA to re-imagine what and who Nature

Alberta is and how we fill a gap within the Alberta landscape that isn't in competition with other organizations but where we all collaborate together for the protection and enjoyment of nature as we love it in Alberta. We will revise and update NA's strategic plan to determine our focus while building the foundation to continue NA's mission to "encourage Albertans to increase their knowledge and understanding of natural history and ecological processes" until 2025 and beyond.

With input from members and at the Board level we will

contemplate the vision, mission, and goals and structure of the organization together and rebuild Bylaws and Policies to reflect a renewed organization and an invigorated Board. I am confident that when the summer of 2020 arrives, we will indeed celebrate Nature Alberta's 50th Anniversary and our journey together as we take our "renewed model" out for a run.

If others can make changes to improve "deliverables" and services provided to members while making an organization more efficient and more effective, so can we...The good work begins now.



In the last edition, under "Issues: A Case of Poaching?" and in reference to the photo, it was stated that "all three of [the men] appear masked"; in fact, a photo later received by the Editor showed the men without masks. As well, the caption should have been followed by a question mark to read, "Poachers?", as to date, it has not yet been proven that the men killed the animals illegally.

In the last edition, George Scotter's review of the book, *The Magnificent Nabanni: The Struggle to Protect a Wild Place*, one of the photos didn't appear to fit the caption. That's because it wasn't the right photo. Here are the right ones (thanks, George!):

ORNATELY SCULPTURED TERRACES AT RABBITKETTLE HOT SPRINGS, RANGING FROM A FEW CENTIMETRES TO THREE METRES IN HEIGHT, DESCEND IN STEPS FROM CLEAR, WARM-WATER AT THE TOP.



Nature Alberta NEWS

MEET THE BOARD

The following is the Nature Alberta Board of Directors for 2019.

*(An asterisk * beside name indicates a new Director.)*

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Margot Hervieux | Peace Parkland Naturalists

Anthony Blake | Red Deer River Naturalists

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Nature Alberta Endowment Fund is Launched!

BY BRIAN ILNICKI

On behalf of the Board of Directors, I am pleased to inform our network of supporters that Nature Alberta has partnered with the Edmonton Community Foundation to create the **Federation of Alberta Naturalists - Nature Alberta Endowment Fund**. The establishment of this fund is another step in helping to ensure the long-term financial sustainability of Nature Alberta, providing an opportunity for our supporters to direct resources into a secure and managed account that will continue to grow over time.

Since 1970, Nature Alberta has been actively connecting Albertans with the natural world that exists all around them. By encouraging Albertans to learn more about and understand natural history and ecological processes, we can help to ensure that Alberta's natural heritage and its biodiversity is widely enjoyed, deeply appreciated and thoroughly protected.

It is with the launch of the **Federation of Alberta Naturalists - Nature Alberta Endowment Fund**, coupled with our ongoing fundraising and development activities, that we will be able to continue to ensure that Nature Alberta programming continues to grow and meet the needs of our members and supporter over the next 50 years.

For more information about the **Federation of Alberta Naturalists - Nature Alberta Endowment Fund** or any of our other fund development options, please contact me directly.

Thanks

Many thanks to the most recent donors who gave to Nature Alberta. Your generosity is sincerely and graciously appreciated. Being a volunteer organization, Nature Alberta could not operate as it does without the meaningful help of its donors. Tax receipts have gone out.

Here are the names we have at this point:

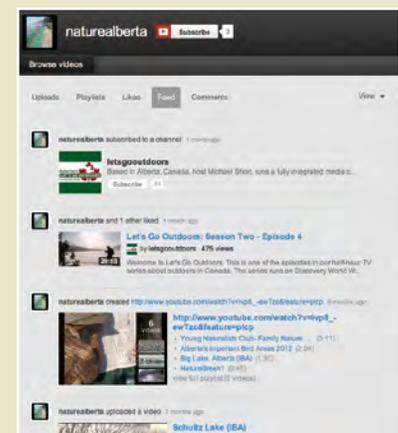
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Eyes on IBAs

“Pterodactyl” Lake

BY BROOK SKAGEN

Beneath the bogs and black pine stands of Northern Alberta lies a rich prehistoric history, deposited between the surface and bedrock as bitumen oil.

Over millions of years, the organic remains of ancient organisms, exposed to intense heat and unrelenting pressure below the earth's surface, have formed the hydrocarbon-rich petroleum crucial to the world economy today. However, there are places in the region where living “prehistoric” organisms still dwell.

With massive bills, scarcely-feathered faces, and an impressive wing span of up to 10 feet, the American White Pelican (*Pelecanus erythrorhynchos*), one of the world's largest birds, in many ways resembles the flying

reptiles which soared the skies millions of years ago. Though the Pterodactyls of the late Cretaceous were not feathered, and do not in fact share any avian lineage, the resemblance between these organisms is at times uncanny. Pelicans arrive in Alberta in late April, forming colonies in lakes and other large waterbodies of the Boreal, Parkland, and Grassland Natural Regions. The American White Pelican is Designated as ‘Sensitive’ in the province and is protected by the Alberta *Wildlife Act*, as the species is especially prone to nest abandonment from

anthropogenic disturbance. Less than ten of the bird's 20 historic nest locations in Alberta remain active today.

Located approximately 40 km southeast of Wabasca and 110 km northeast of Slave Lake, AB, The Pelican Lake Important Bird and Biodiversity Area (IBA) is one of 15 IBAs in Alberta's Boreal Natural Region and is one of the few remaining pelican breeding sites in the province. A mosaic of wetlands and mixedwood stands surround the remote lake's shore, with several small islands scattered across the open water. Though oil and gas exploration

ONE OF THE LARGEST BIRDS ON THE GLOBE, THE AMERICAN WHITE PELICAN CAN WEIGH AS MUCH AS 18 POUNDS. IN COMPARISON, THE BALD EAGLE WEIGHS LESS THAN 14 POUNDS.

USFWS 2014 (WIKIMEDIA)

A CREST FORMS ON THE BILLS OF BOTH MALE AND FEMALE PELICANS DURING THE BREEDING SEASON, WHICH THEY USE FOR DISPLAY WHEN SEEKING A MATE.

USFWS 2017 (WIKIMEDIA)

COLONIAL NESTERS, AMERICAN WHITE PELICANS BUILD NESTS IN SHALLOW DEPRESSIONS ON THE GROUND, WHERE THEY WILL LAY A CLUTCH OF USUALLY 2 EGGS. USFWS (WIKIMEDIA)



Brook Skagen



and development is prevalent throughout the region, there is no direct access to the isolated waters of Pelican Lake, buffering the lake from surrounding disturbances.

Aptly named, the Pelican Lake IBA hosts a globally-significant concentration of American White Pelican annually, with thousands of pelicans breeding on two isolated islands of the lake annually. Recognizing the importance of these breeding sites, the provincial government has placed a 1000-meter development buffer around the islands so as to mitigate for any future industry activities. The IBA is not only important for pelicans, but also provides valuable

habitat for provincially significant concentrations of nesting Double-crested Cormorant, as well as falls within the range of the West Side Athabasca Woodland Caribou unit. Canada Lynx, Fisher, Great Blue Heron, and Wolverine have also been documented in the IBA.

The American White Pelican is perhaps the species that most closely resembles the flying reptiles which once ruled the Cretaceous skies. With an enormous wing span, massive orange bill, and piercingly-light eyes, one glance of the impressive white bird, soaring effortlessly above bobbing waters, is all one needs to travel back in time.

Sources:

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- Bird Studies Canada. 2018. Important Bird Areas Canada: Pelican Lake (Alberta). Webpage. Available at: <https://www.ibacanada.org/site.jsp?siteID=AB100>

New Mite Discovered

BY SUSAN VAN HOERK, INFORMATION FROM RDRN NEWSLETTER

Dr. Lisa M. Lumley, a taxonomist in the Department of Natural History, Royal Alberta Museum, has discovered an oribatid mite in the ABMI 2017 collection that appears to be new to science. It is the 4th species in the genus *Eupelops* to be documented in Alberta.

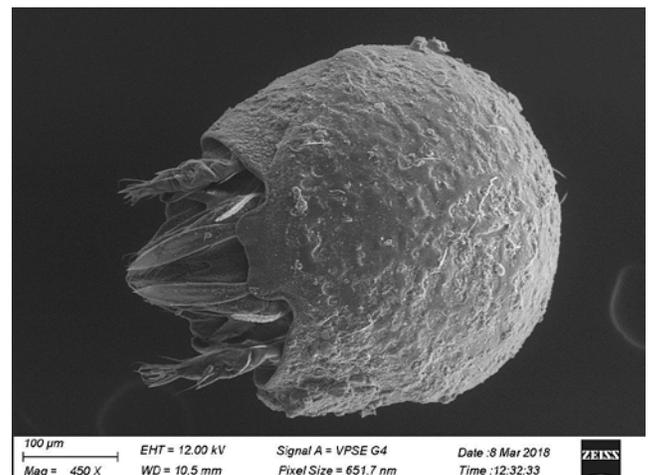
Twenty-five specimens were collected at Site 1579 in mixed-grass prairie near Cypress Hills. Oribatid mites comprise about 11,000 described species distributed across about 1,300 genera and approximately 175 families depending on synonymies (more than one name for given taxon) and the interpretations of various taxonomists.

Most described species of oribatid mites inhabit the organic layers of soils where they feed on microbes, detritus, and smaller, soft-bodied invertebrates such as nematodes. Their comminution of litter, regulation of fungal growth by grazing, and dispersal of microbial propagules are considered important contributions to the functioning of the decomposer subsystem in terrestrial ecosystems.

Oribatids usually dominate the abundance and

diversity of the soil mesofauna in forest habitats and are prominent in grasslands, deserts, freshwater habitats, and peatlands. Oribatids have proven useful as bioindicators, especially of heavy metal pollution.

LISA LUMLEY,
DISCOVERER OF THE
NEW MITE



Braking for the Planet — Learning the Limits

BY LORNE FITCH, P. BIOL.

It would have been the wildest hyperbole to have called my father a patient teacher, especially in coaching someone to drive a car. He came from a lineage where sons were expected to observe and then flawlessly perform whatever action was demonstrated. Thankfully my mother enrolled me in a driver training course, or I would still be a pedestrian.

There, under the tutelage of a very patient instructor, I learned many important driving tips, not the least of which was the idea that stop signs meant stop. They were not yield signs to motor through when the traffic seemed light. The other was the concept of leaving suitable distances between yourself and other moving vehicles to allow safe stops. I wasn't to realize until much later what a grounding in ecology these fundamental driving tips were.

Technology has gotten in the way of good driving skills. Cruise control, a standard feature on most modern vehicles is a servomechanism that takes over the throttle of the car to maintain a steady speed as set by the driver. It is a curious bit of technology, at least as far as most of us use it. Watch, on

any highway, as other drivers with cruise control engaged are reluctant to disengage it when approaching another vehicle, coming into a curve or an area of traffic congestion. Cruise control can be disengaged with a flick of a finger, yet the tendency is to keep speed up, despite looming danger. Brake lights flash at the last possible moment. Failure to disengage in a timely way can lead to unsafe and dangerous responses, collisions and death.

I offer the unsafe use of cruise control as a metaphor for our over-consumptive lifestyle. We happily give control over to a machine, are reluctant to slow down to match changing conditions and believe things will all work out. This is resource use on autopilot, mind unengaged, attention unquestioning, using things up

at a speed that isn't safe and hoping we can steer around the issues coming up much too quickly in front of our grill. Rather than cruise control, it really is cruising with little or no control.

My driving instructor instilled in me the concept of defensive driving, being observant, engaged and understanding limits. Perhaps these principles have application to how we manage the earth's resources and our future.

So, braking for the planet before the planet breaks is essential. Fundamental to this is the reality of finite limits to space, resources and energy. This is coached in a variety of terms. A *tipping point* happens when a small shift in pressure or condition occurs that brings about a large, often abrupt change in a system. Often



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synonymous with *threshold*, the beginning of a change, which once passed an ecosystem may no longer be able to return to its previous state because the resilience of a system is compromised. There are also *regulatory limits*, points in some variable up to which a risk of system change is permitted (as in legislation or policy) or accepted (as in social or economic values).

What are some safe speeds for resource use and what are the limits, tipping points, and thresholds and, where should we stop?

The concept is, before a certain point is reached, populations, habitat and ecosystems have the ability to bounce back, to rebound from pressures and stressors. Once that point is reached and exceeded, like a rubber band stretched too much, elasticity is lost, a snap occurs and the ability to rebound back to a robust form is lost.

It may be the change is dramatic, like a light switched off. Fish disappear with a chemical pollutant above a certain concentration, a swift change in the pH, an exceedance of thermal limits, or a stream drying up due to drought or diversions. For many species of wildlife, the cause is too much human traffic and the associated disturbance.

Arctic Grayling population declines in the Wapiti

River watershed were studied by Adam Norris for his 2012 MSc thesis. Many things can individually kill fish, but usually it is a combination which work together synergistically. The Wapiti watershed has an extensive land use footprint of logging, petroleum development, agriculture, motorized recreational uses, high road density and losses of riparian buffers. With less water came higher water temperatures; more nutrients, like phosphorus in the runoff, depleted dissolved oxygen, especially under times of low flow. High water temperatures coupled with low dissolved oxygen levels led to losses of Arctic Grayling in many streams. But, the critical threshold, the line between extant populations and missing ones was a threefold increase in phosphorus concentrations over pre-development levels, a function of changes from land use.

Recent University of Alberta research on the relationship between roads

and Grizzly Bears indicated that areas with road densities greater than 0.6 km/km² had fewer bears. Areas with quality habitat and fewer roads had the most bears. Clayton Lamb, the principle researcher summarized the work with:

“Not only do bears die near roads, bears also avoid these areas making many habitats with roads through them less effective.”

Other wildlife, like Elk, avoid roads and areas within 500 meters of roads (and the human/vehicle traffic) which constrains effective use of habitat in landscapes with high road densities. Research on Elk populations and their reaction to roads shows a threshold of 0.55 km/km², beyond which Elk avoid such busy landscapes.



The change might be less dramatic, more gradual, like a dimmer switch, where a population declines on a gradient, until the light of resilience goes out. Fish and wildlife populations require a critical mass, a minimum viable number, to maintain themselves. This is expressed as the smallest number of individuals in a population capable of persisting over time without winking out from natural and human causes. Once the numbers drop below that point, the chances of successful reproduction to fill the void are overwhelmed by additive mortality, such as changes in suitable habitat conditions and/or competition with non-native species. The end happens, not with a bang, but with a whimper.

The density of roads and trails that bisect the landscape is a case in point. Roads and native trout don't mix well. All linear features - roads, trails, pipelines, skid trails and the like - intercept runoff, capture and redirect it downhill faster, increase erosion along the way and then dump excess water and sediment into a watercourse, to the eventual dismay of trout. Fisheries biologists generally agree that the best road density to protect trout is zero roads/km².

Travis Ripley, in his MSc thesis research, found increasing road density in the Kakwa sub-watersheds from 0 km/km² to 0.6 km/km² is associated with a decline in the probability of occurrence of Bull Trout from

60% to 20%, a 67% drop. David Mayhood, an independent fisheries biologist, points out, based on the literature, there is no road density threshold below which there is no effect.

In stark terms this means with any road development in a watershed, the best available science shows that Bull Trout and Cutthroat Trout populations can be expected to decline. All native trout populations are at risk in the Eastern Slopes and many species like Bull trout, Cutthroat Trout and Athabasca Rainbows are "threatened".

Highways, roads, railways and to a great extent pipelines, powerlines, logging roads and Off Highway Vehicle trails are the fracture zones, the schisms separating and impacting intact landscapes and the creatures dependent on them. Where linear density has been calculated for the Eastern Slopes, it currently exceeds 2.0 km/km² and is as high as 5.0 km/km². Clearly, these are levels that exceed limits by several orders of magnitude.

Road density can be an index for many other factors like the total human land use footprint and the overall effects of that footprint on runoff patterns in a watershed. The land use footprint affects how water flows off the landscape, when it does and the extent of runoff. Removal of forest canopy, by logging, can increase flows in the spring but result in lower late season flows. This can exacerbate both flooding and

droughts. Neither benefit native fish.

A collaborative research effort, undertaken in the lower Athabasca region (that includes the Athabasca tar sands area) and published in the *Environmental Review* journal (2015), documented the effect of land use on flow patterns and fish. The researchers found an increased flow variability of 20% in hydrologic patterns over time from land clearing, logging, road building and mining (including the diversion of streams to accommodate tar sand removal). This shift, from land use, increased sediment loads, contributed to other changes in water chemistry, increased the flashiness of watersheds and changed base flows from pre-development conditions. The effect of this on three native, migratory fish species was a 53-100% decline in populations following a 15% change in the landscape due to the footprint of human land uses.

Prairie grasslands and many of the bird species that nest there are not immune from human footprints. Jason Unruh, in his 2015 Master's thesis "*Effects of Oil Development on Grassland Songbirds and their Avian Predators in southeastern Saskatchewan*" noted effects from noise, well density, conversion of native grassland, traffic and human activity. Limiting relationships on sensitive species became apparent at a disturbance threshold of only 3% of the landscape. As Unruh pointed out:

“These are not large scale disturbance factors yet they still have detectable effects on grassland songbird abundance.”

At a global scale, given current rates of greenhouse gas emissions, the temperature is projected to rise 1.5 C. Doesn't sound like much; an insignificant threshold. But, with that temperature increase comes the real risk of tipping points for the melting of Arctic sea ice, the Greenland ice sheet and the Antarctic ice sheet. Melting ice causes a rise in sea levels, maybe by a meter - again seemingly insignificant, except for people living on coast lines. Currently the storm surge risk for New York City is once every 100 years. With a one meter rise in sea level the storm surge risk for the city changes to once every three to four years, hardly insignificant.

A threshold is a line drawn in sand that an ecologist or a climatologist says is a stop sign, not to be gone beyond without consequences and repercussions. But the line seems so tenuous, innocuous or unbelievable that we cross it and redraw it a little further on, to allow another wellsite, road, cutblock or another degree of warming. Once we're accustomed to crossing the line, it gets easier to cross and redraw it again, for it does not seem anything catastrophic happens. And, nothing does, initially. The effects become clear, too late, in retrospect.

Extreme weather events, plummeting populations of grassland bird species, native fish hanging on by a fin and crashing Caribou numbers are all grains of sand in the beaches of evidence indicating we have exceeded critical ecological and climate thresholds in our pursuit of economic advantage.

We are at a time where too many wants now compete with too few remnants of wild places and wild things. Because we did not want to think about or engage in limits, we have landscapes replete with consequences and complications. It is easier to dream than to unseat a culture drunk on the illusion of plenty, impatient with restrictions, determined to wring more from a landscape than can be done sustainably.

Our lives should provide guidance since they include speed limits (which would reduce injury and death if we adhered to them), spending limits (but Canada's credit card debt is at an all-time high), eating limits (obesity is a growing problem), drinking limits (impaired driving is still a concern), physical limits (but we engage in little exercise) and so it is probably evident why land use limits are still ignored. We would be better served to understand and observe the thresholds.

We could still be considered lucky by others in the world not so fortunate with natural resources. We can be smart and live reasonably well for

much longer with a degree of ecological integrity, or continue to be profligately stupid and crater soon, with our resource exploitation cruise controls locked on full bore.

Cruise control for our cars was an invention that made us lazy and complacent in our driving habits. Ignoring or avoiding ecological limits has had a similar effect on our decision making function for appropriate amounts of land/resource use. New cars with advanced safety systems, to help avoid or mitigate collisions are already on the market. Examples include automatic emergency braking, forward collision warning and blind-spot warning. Imagine if we applied the concept of this technology to the landscape to help us avoid approaching or crossing essential ecological thresholds.

It isn't technology we need, but rather the discipline of setting and maintaining limits on our activity. How hard can it be to apply the brakes? Perhaps, if we learn to use the brakes, the next step will be to shift into reverse and begin the task of restoration of the places where we've exceeded the limits.

FEATURE ARTICLE

Winter Images. Just for You!

PETER LOUGHEED PARK. JOHN MCFAUL

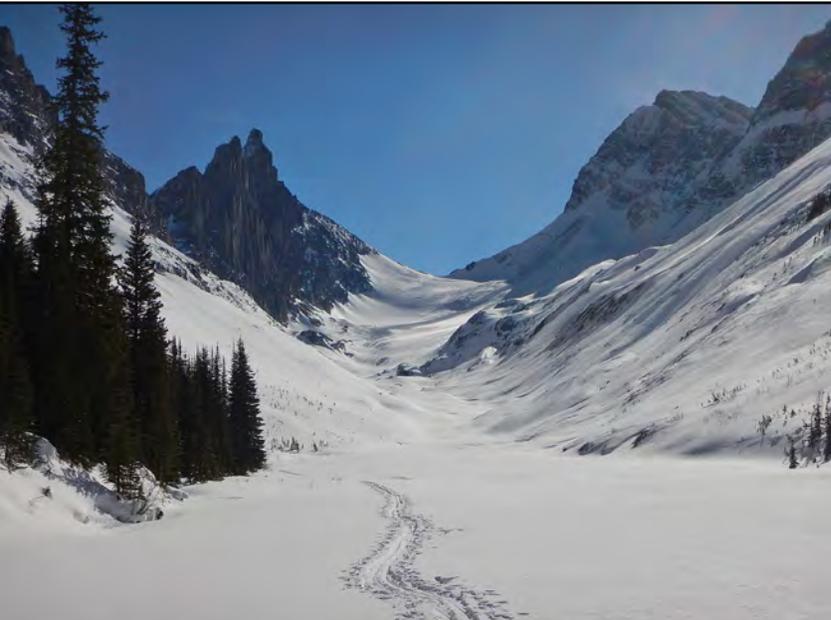


FRESH SNOW IN THE ELK PASS AREA. JOHN MCFAUL



BIGHORN SHEEP IN KANANASKIS. JOHN MCFAUL





ROBERTSON GLACIER. JOHN MCFAUL



MOUNT PACHENHAM. JOHN MCFAUL



SUN DOGS IN CALGARY. JOHN MCFAUL



MOUNT ROBERTSON AND MOUNT SIR DOUGLAS. JOHN MCFAUL

WHITE-TAIL DEER. HOLLE HAHN



NO MORE WASPS!
HOLLE HAHN





AN EARLY SNOWFALL. HOLLE HAHN



BLUE JAY ON
A FROSTY
MORNING.
HOLLE HAHN



COTTONTAIL RABBIT. HOLLE HAHN



FROSTY MORNING. HOLLE HAHN



GREAT
GREY OWL.
HOLLE HAHN



First Hand: Convocation of Eagles

BY BROOK SKAGEN

While driving the country roads southeast of Lethbridge in the hopes of expanding their winter bird lists in late January, Ken Orich and Earle Covert stumbled upon quite the sight: a lone tree, with Bald Eagles filling every space between its otherwise bare branches.

Referred to as a convocation or congress, the group of eagles, at least 25 birds strong, was spotted southeast of Lethbridge. The site has been aptly named “Eagle Tree” by Ken on



HOW MANY CAN YOU SPOT ON THE BRANCHES OF EAGLE TREE? KEN ORICH 2019

eBird. Interestingly, Earle had encountered a convocation of 24 eagles at the same tree during the 2015 Lethbridge Christmas Bird Count, accounting for nearly half of the 54 Bald Eagles documented on count day.

Typically solitary, Bald Eagles may form large groups outside of the breeding season, congregating near roosts or in areas of high

food resources. During the 2015 sighting, Earle noted the nearby remains of a cow carcass. According to Ken, it was likely another carcass or source of food that drew the birds back. Eagle Tree is located just east of a chicken farm, and Ken has seen firsthand the eagles feeding in the surrounding fields.

How many eagles can you see?

Rare Visitor to Lethbridge a First for the Province

BY BROOK SKAGEN

On January 9th, 2019, David Scott of Lethbridge, AB came across an extraordinary sighting. Contrasting against the grey and brown wash of a Canada Goose flock was a pair of bright orange legs, belonging to none other than a Tundra Bean Goose!

The unusual visitor was observed in Lethbridge’s Peenaquim Park, situated along the Oldman River, where it was mingling with the larger and much more common

Canada Geese. The sighting is the first confirmed report of the bird in Alberta, which typically migrates from the Russian tundra to overwinter in coastal Europe. The Tundra Bean Goose was last spotted on January 10th.

You can find the eBird checklist, including photos of the sighting, here: <https://ebird.org/view/checklist/S51499965>

**ON FIRST
GLANCE,
THE TUNDRA
BEAN GOOSE
(TOP) MAY BE
MISTAKEN FOR
THE SIMILAR
GREATER WHITE-
FRONTED GOOSE
(BOTTOM),
A COMMON
WINTER
MIGRANT
THROUGH
ALBERTA.**

ASA BERNDTSSON 2006 (WIKIMEDIA)



ANDY REAGO & CHRISSEY MCCLARREN
2018 (WIKIMEDIA)

RED FOX "KITS" AS THE YOUNG ARE CALLED,
UNDER A GRANARY NEAR ALBERTA BEACH.

CANADIANGEOGRAPHIC.CA



Up Close Naturally: Looking for Red Foxes

BY MARGOT HERVIEUX

Whenever I'm out for a walk or a drive I'm always hoping to spot a Red Fox. Despite their somewhat secretive nature, even city residents like me have a chance to see these fascinating creatures.

Foxes belong to the dog family. They are smaller than their cousins the Coyotes and Wolves but have the same long snout, pointed ears and bushy tails. Red Foxes usually wear their trademark red coat, but you will also occasionally see dark coloured animals. No matter what their fur colour, however, they always have a white tip on their tail and white on the ears and chest.

We most often see foxes when they are out hunting. Mice and voles make up most of their diet, but they also eat other small mammals, birds, insects, eggs, fruit and even fresh

carrion. When hunting rodents, you will often see them pause and listen before pouncing on their meal. They can even hear mice moving under the snow and dive in front feet first once they pinpoint the sound.

Red Foxes aren't as social as Coyotes and Wolves, but a

mated pair does spend most of the year together. Their territories are centred around one or more

"RED FOXES USUALLY WEAR THEIR TRADEMARK RED COAT, BUT YOU WILL ALSO OCCASIONALLY SEE DARK COLOURED ANIMALS."

[THECANADIANENCYCLOPEDIA.CA/
EN/ARTICLE/FOX](http://THECANADIANENCYCLOPEDIA.CA/EN/ARTICLE/FOX)



A RED FOX IN JASPER NATIONAL PARK.

JESS FINDLAY



Margot also writes a column for the Peace Country Sun, archived copies of which are available at www.peacecountrysun.com.

den sites but during the fall and winter the adults usually just shelter under dense shrubs. When it's cold, they use their bushy tail as a scarf to protect their face.

Fox kits are born in May, in a den that was dug or enlarged by the vixen. A litter can contain from one to ten pups but three to five is most common. The youngsters are old enough to leave the den in June and parents continue to bring them food and teach them hunting skills until summer's end.

Foxes are quite common in the agricultural parts of the province. They are comfortable living near people because food is plentiful, and they are less likely to run into their major predator, the Coyote. I once watched a fox follow a Coyote through its denning area barking as it went. The noise would alert other foxes that a predator was in the area.

The relationship between foxes and Coyotes has also been linked to Lyme disease in the eastern US. Mice and voles are a major carrier

of Lyme disease and foxes play a critical role in controlling rodent numbers. In areas with lots of Coyotes, however, there are fewer foxes and higher levels of the disease.

Red Foxes may not be quite as devious as they are in cartoons, but they are clever and resourceful. The risk they pose to the occasional chicken is far outweighed by the large number of mice and voles they eat each year.

RED FOX. ISTOCKPHOTO.COM



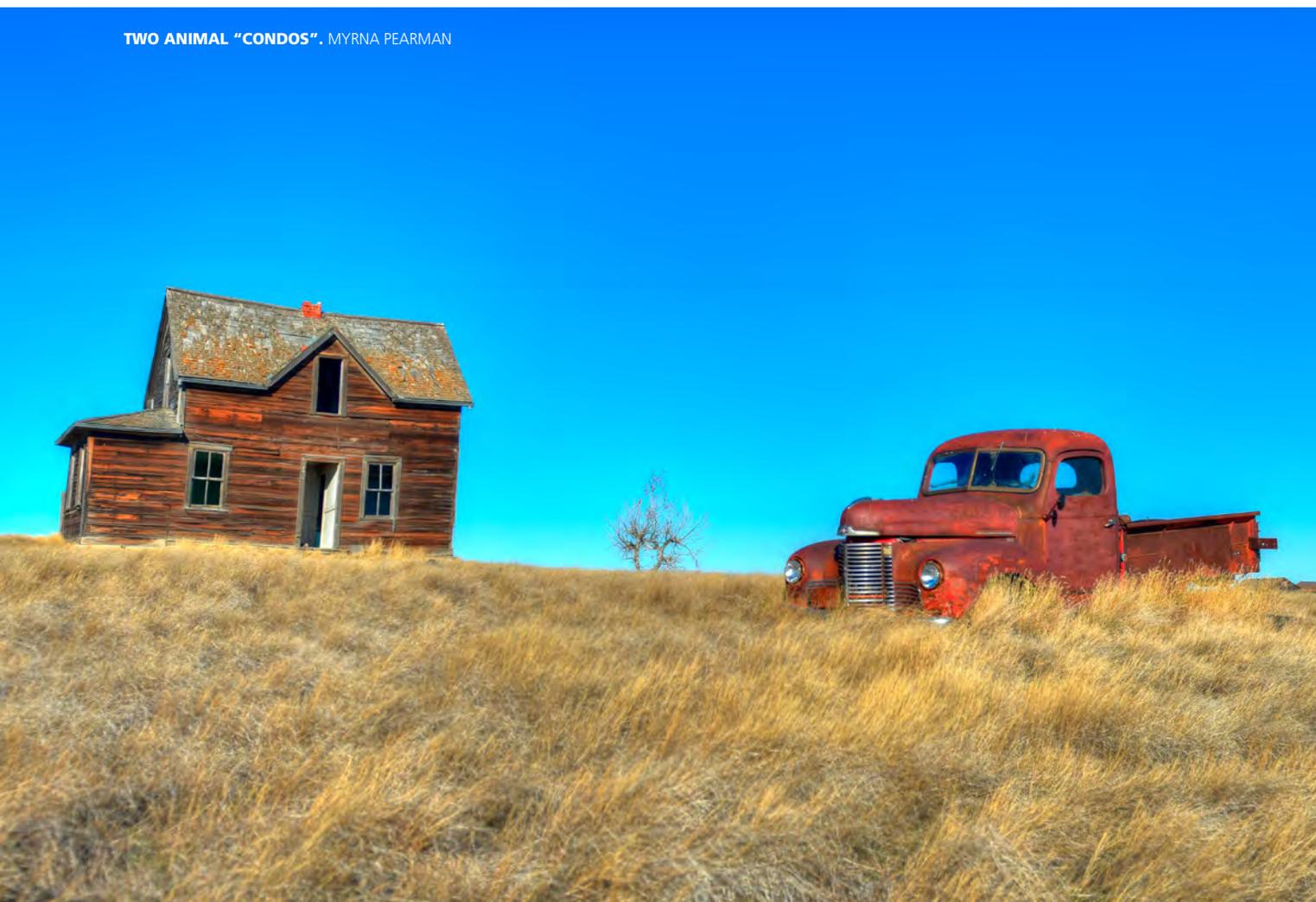


How Humans Unwittingly Lend a Helping Hand: Abandoned Buildings

BY MYRNA PEARMAN

While wandering the backroads of this great province, I pay special attention to abandoned buildings and farmsteads. These ghostly, decaying sentinels bear silent witnesses to the march of time: wordless storybooks whose sagging walls whisper of long-lost laughter, hopes and dreams. They are also home to a surprising diversity of wildlife.

TWO ANIMAL "CONDOS". MYRNA PEARMAN





HOW MANY SPECIES OF ANIMALS INHABIT THIS HOUSE, I WONDER? MYRNA PEARMAN

Insects, especially ants and bees, will often be the first to colonize an old structure. Bird species, like American Robins, Barn Swallows and Eastern Phoebes, will readily build their nest on a protected outdoor ledge. Once the window glass is broken or

doors left ajar, all three of these species will move inside to nest, often on the top of a window or door casing. Outside walls will provide a substrate for Cliff Swallows to build their mud nests on, while cavity-nesting species such as Tree Swallows,

American Kestrels or even Mountain Bluebirds might find a suitable nesting hole somewhere.

Great Horned Owls will often choose the window of an old house, barn or outbuilding to sleep

Myrna is a very well-known author, photographer, biologist and naturalist. She is the Biologist and Site Services Manager at Ellis Bird Farm (ellisbirdfarm.ca). She can be reached at mpearman@ellisbirdfarm.ca.



the day away while Turkey Vultures depend on the attics of abandoned windowless structures to raise their young. Bats often take up residence in roof nooks and crannies while the floors and foundations are often occupied by mice, voles, squirrels, Badgers, Porcupines, Raccoons, foxes, Coyotes, woodchucks, Bushy-tailed Woodrats, skunks and weasels. Snakes, especially garter snakes

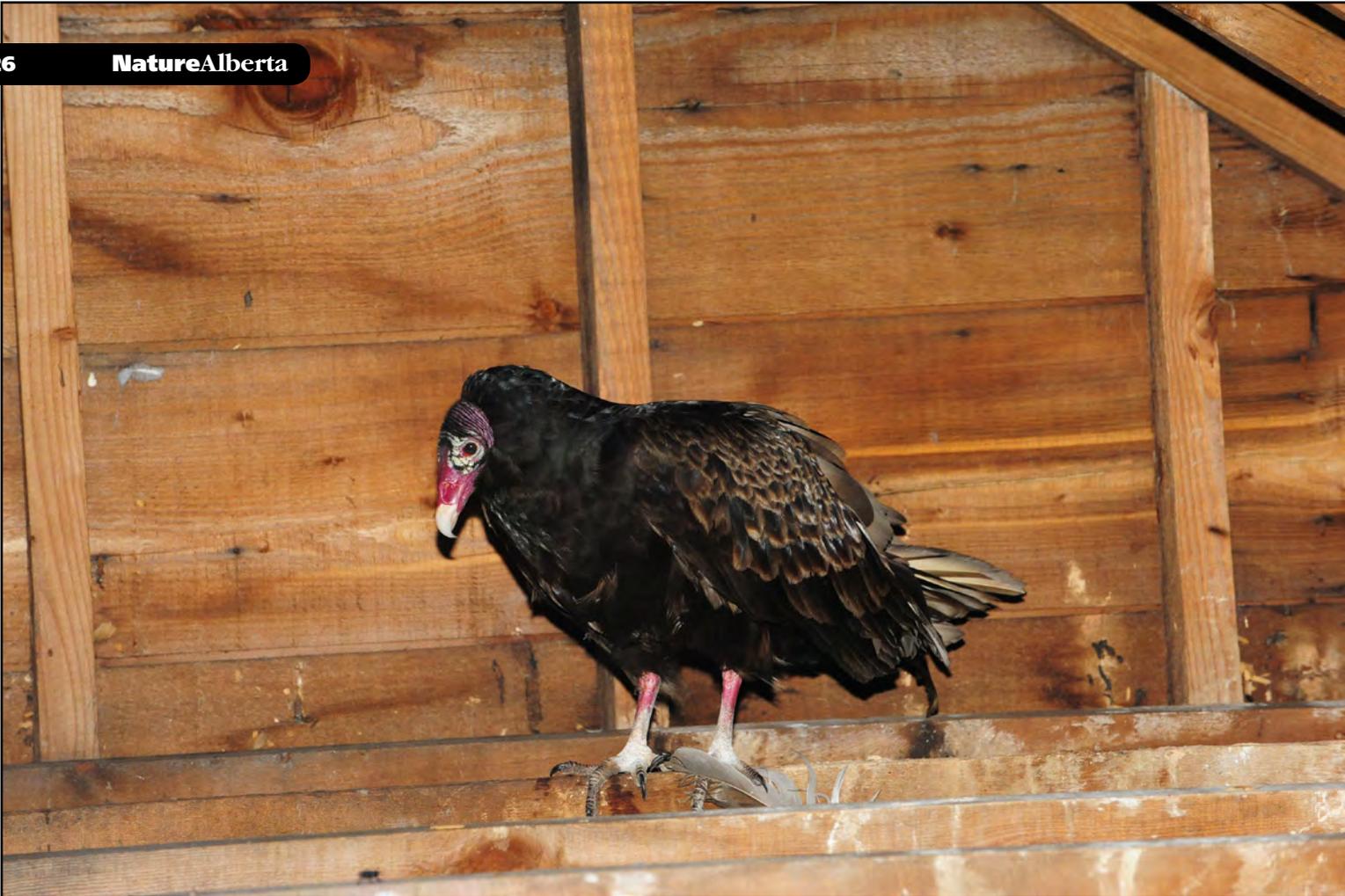
and rattlers, will also choose old foundations for their hibernacula.

Sadly, as old buildings collapse and decay, and as monster farm equipment continues to gobble up old farmyards - which are often the only remnants of local native prairie and parkland - both history and habitat are lost forever.

These images are of a few of Alberta's wild creatures that I have photographed in, on, around

SKUNK. MYRNA PEARMAN





"TURKEY VULTURES DEPEND ON THE ATTICS OF ABANDONED WINDOWLESS STRUCTURES TO RAISE THEIR YOUNG." MYRNA PEARMAN

EASTERN PHOEBE. MYRNA PEARMAN

or beneath abandoned buildings. It is my goal to photograph as many abandoned building inhabitants as possible. If you know of other species that I should look for (or buildings where they hang out), I'd appreciate being contacted. myrna@myrnapearman.com.



Nature Kids



ZOE MACDOUGALL

BY ZOE MACDOUGALL,
NATURE KIDS PROGRAM COORDINATOR

TO NATURE ALBERTA MEMBERS:

My name is Zoe and I am the program coordinator for Nature Alberta's Nature Kids. Nature Kids has been active in Alberta since 2003. This program was a vision of the Red Deer River Naturalists and Nature Alberta board members who wanted to create an extracurricular opportunity for children in Alberta to increase time outdoors by encouraging nature exploration, scientific investigation, and stewardship attitudes.

Today, we offer nature-based events to families across Alberta such as Christmas Bird Counts for Kids, Family Nature Nights, Bioblitzes, and Field Trip events. This year we are again taking on the long-standing Snow Goose Chase at the end of April so stay tuned!

We enjoy bringing these events to the families of Alberta as we understand that it is important for families to get outside and get active as well as learn about the nature in their own backyards. The events we offer are free to

the public and we bring in local experts to talk about anything from birds to trees to water to fungi. Families enjoy spending time together in the outdoors and also learning about the local green

spaces they can visit with their families.

With this nature education, we aim to engage the people of Alberta to build on existing stewardship, conservation, and



KIDS AT ONE OF OUR FUN EVENTS!

ZOE MACDOUGALL

outreach initiatives as these are key to a healthy Albertan environment. If you would like to learn more about the events that we offer across Alberta, be sure to follow our Nature Alberta Facebook Page!

We have included in this edition of the Nature Alberta magazine, an article all about the Canada Lynx that was written by Annie Langlois, the Hinterland Who's Who Coordinator at the Canadian Wildlife Federation. This is an

example of the types of articles we feature in our NatureWILD magazine for our Nature Kids members that we hope to feature in the Nature Alberta magazine more often!

Happy exploring,

Canada's Big footed Wild Cat

Learn all about the Canada Lynx, which is not to be mistaken for a Bobcat.

BY ANNIE LANGLOIS, CANADIAN WILDLIFE FEDERATION HINTERLAND WHO'S WHO COORDINATOR

The Canada Lynx is one of the three species of wild cats, or felines, living in Canada. Even if it looks a bit like your own house cat from a distance, they're pretty different! For example, the lynx has a much shorter tail with a black tip, longer legs, larger feet, and some black hairs sticking out off the top of its ears which your cat probably doesn't have. It's also about three times larger than a cat! Also, the Canada Lynx is not the type of cat that you can keep inside a home.

Canada Lynx can be found throughout Canada, from Newfoundland and Labrador in the east to the Yukon in the west, in the boreal forest. Most of the trees that grow there are conifer trees (like spruce, fir, pine and tamarack), and it is the home of other animals such as the Woodland Caribou, the Wolverine, and many species of birds.

Since this is our most northern forest, with long, harsh winters, the animals living there must be well adapted to survive the

cold season. To help it stay comfortable well below 0° Celsius, the Canada Lynx has a thick winter coat which is brownish grey with darker spots. Even its feet become covered in fur so that he can walk on the snow, just like if it had snowshoes on! When spring comes, it sheds this winter coat and grows a shorter, reddish brown one, better suited for the warmer summer months.

Unfortunately, you'll rarely be able to see a Canada Lynx. Unless it's a female with kits, it lives alone, quietly roaming around its large territory. This territory is often deep in the forest, where few humans go. Its mottled – or spotted - fur also helps it camouflage in the shadow of the trees. Plus, the lynx is nocturnal: it's more active at night, using its large eyes and awesome sense of hearing to spot prey.

But what exactly does the lynx hunt in the darkness? This animal is a strict carnivore (it only eats meat) and its favourite meal is the Snowshoe Hare. The lynx will go hide close to well-known trails used by hare, laying an ambush so that they can pounce on an



CANADA LYNX. DENALI NATIONAL PARK AND PRESERVE, [HTTPS://EN.WIKIPEDIA.ORG/WIKI/CANADA_LYNX](https://en.wikipedia.org/wiki/Canada_Lynx)

unsuspecting prey passing by. It likes this meal so much, that the number of lynxes goes up when more hare are around, and down when there are fewer hare. In years where a lot of hares can be caught, more lynxes survive, as they can eat their fill of one hare per day. But the Canada Lynx can hunt for other prey too in times of need, especially during the summer. These include grouse, voles, mice, squirrels, and foxes. It can also dine on carrion, or dead animals such as larger mammals,

which it wouldn't attack when they're alive.

In years where food is plentiful, an adult female lynx will be able to successfully raise her four kits until they become adults, when they are a year old. The kittens are born in April or May and are raised anywhere that gives shelter from the rain and cold. This place can be an uprooted tree, a brush pile or a hollow log.

Both adult and young Canada Lynxes need the cover of plants

and trees to thrive. They even prefer old growth forests where the trees haven't been disturbed in a while, if they have a choice. This is why habitat destruction by humans, for example clear-cutting a forest until there are no more trees standing, can be a huge issue to the species. Also, if lynxes are disturbed a lot by human noises and people driving around, they tend to move away.

Want to help the Canada Lynx out?

Learn everything you can about it and tell all your friends! Getting to know our wild neighbours is a great first step in conserving them!

Have a look at the Hinterland Who's Who video on the Canada Lynx at www.hww.ca



CELESTIAL HAPPENINGS

Spring (March to May 2019)

BY JOHN MCFAUL

Sun: Rise – March 1 (7:21 MST), April 1 (7:07 MDT), May 1 (5:59 MDT)
Set – March 1 (18:11 MST), April 1 (20:09 MDT), May 1 (21:03 MDT)
Times are for Edmonton.
Note: Day Light Savings Time will start on Sunday, March 10th.
Spring Equinox is on Saturday, March 20th, 2019 at 3:58 PM.

Moon: Full – March 20, April 19, May 18
New – March 6, April 5, May 4

Planets: **Mercury** will be best seen low in the west shortly after sunset during the first week of March. For the rest of this time period it will be hidden by the glare of the sun.

Venus will continue to shine brightly in the morning sky where it will be seen hugging the SE horizon in March to the NE horizon in May. On April 2 it will be joined by a very slim crescent moon.

Mars can be seen in the early evening sky above the western horizon throughout the spring. In March it can be found in the constellation Ares. It will move eastward as the months progress. By the end of May, it will be in Gemini. Look for the moon to be nearby on March 11, April 8 and May 7. On April 1, the red planet will be passing the Pleiades star cluster in Taurus.

Jupiter is a morning object about 25 degrees above the SSE horizon. Watch for the moon to be close by on March 26th and especially close on April 23rd.

Saturn is in the constellation Sagittarius and is best seen in the southern sky about 15 degrees above the horizon an hour before sunrise.

Meteor Shower: Lyrids (April 21, 15/hour in a dark sky)
Eta Aquirids (May 4th, 20/hour)
The predicted rate is for dark skies well away from city light pollution.

1ST DAY OF SPRING STARTS MARCH 20, 3:58 PM. TIMEANDDATE.COM



Wisdom

INFORMATION FROM RDRN NEWSLETTER

Wisdom is a wild female Laysan Albatross. She is the oldest confirmed wild bird in the world, hatched in or around 1951. In 1956, at the estimated age of five, she was tagged by scientists at the Midway Atoll National Wildlife Refuge for study, but then returned to the wild rather than being kept in captivity.

Albatrosses lay one egg per year and mate for life. Scientists have speculated that since Wisdom is so unusually old for her species, she may have had to find another mate to keep breeding. She - and her chick - survived the 2011 Tohoku earthquake and tsunami that killed a huge number of Laysan and Black-footed albatrosses at the refuge.

NATURE TRIVIA

Wisdom has successfully hatched a chick every year since 2006. In December 2018, USFWS Pacific Region reported that Wisdom was back on Midway Atoll and had laid an egg. [https://en.wikipedia.org/wiki/Wisdom_\(albatross\)](https://en.wikipedia.org/wiki/Wisdom_(albatross))



WIKIPEDIA

What Does a Cloud Weigh?

The water in an average white, puffy, cumulus cloud weighs about 550 tons or about the same as 100 elephants. A big storm cloud would weigh about 1,100,000 tons - the same as 200,000 elephants!

FROM THE OLDE FARMER'S ALMANAC 2018.



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PHRAGMITES AUSTRALIS; SEE STORY, PAGE 5. DUCKS.CA

A MOOSE IN THE BACKYARD! SEE "ON THE COVERS". HOLLE HAHN



Nature *gallery*



LONG-TAILED WEASEL; SEE THE STORY, ON [PAGE 23](#), OF HOW WILDLIFE HAPPILY MOVES IN WHEN WE ABANDON OLD BUILDINGS. MYRNA PEARMAN



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