

NATURE ALBERTA

MAGAZINE

SPRING 2021
VOLUME 51 | NUMBER 1



A COMMUNITY
CONNECTED BY A
LOVE OF NATURE

**The
Saw-Whet
Effect**
Owl in the Family

**The Return
of the
Swift Fox**

**Where
Beavers Go,
Surprises Follow**

**The Rise
of Citizen
Scientists**



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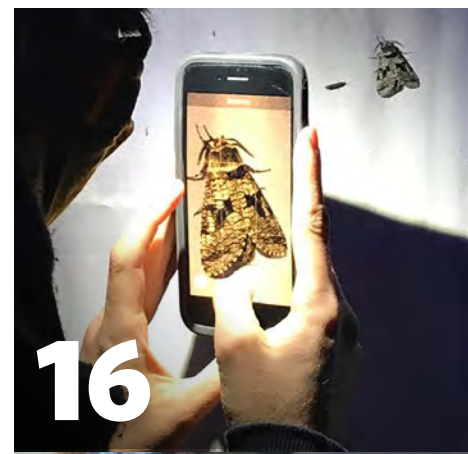
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About Nature Alberta

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

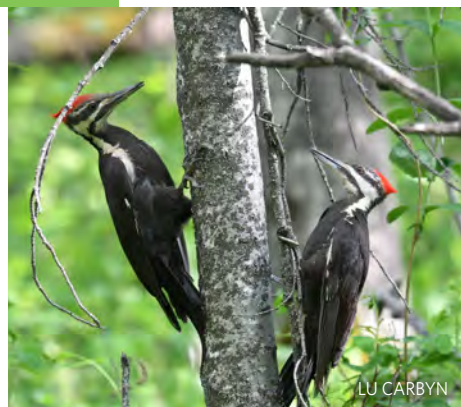
Spring is sprung, the grass is riz

I wonder where the boidies is

They say the boid is on the wing

But that's absoid, the wing is on the boid!

—Anon.



As I write this, you can feel spring in the air. The birds are calling, hammering, and chattering. Mammals large and small are prepping for this year's young. Insects are reappearing. Just under the last snowfall you can almost hear the grass waking up, and new buds quietly develop, waiting for the sun. Even when another cold snap happens, it doesn't seem as harsh as the last one and somehow, when its over, spring is a little bit closer. Three steps forward — only one step back!

I notice that week by week the birdsong around our acreage has increased in frequency and volume. In particular, the family of pileated woodpeckers that live in the bush beside the house have been more visible, coming daily to the back deck where they like to drum on the wooden structure and peck at the large suet ball we put out for them. They are extremely bold and don't mind telling us off if we get too close, and for me these remarkable birds are a sure sign that spring is on its way. I look forward to spring and summer as then I will see and hear much more of these birds and their young.

For the natural world, spring means building and new life, and for Nature Alberta this means planning our projects and events, adapting our processes to the new "COVID culture" of safe distancing and virtual get togethers, and building a Nature Network to champion conservation issues. Recent events have shown that people need nature. Nature offers a break from the constraints of daily life, giving us a chance to recharge and rebuild ourselves. In order to fully appreciate what nature has to offer we need to become guardians, to protect and nurture the beauty of the Albertan countryside. The mountains, forests, wetlands, and prairies are all around us and they need our help. As the year unfolds, we will be announcing exciting new ventures that everyone can participate in. It's time to stand up for nature and embrace the role of defender for life.

ELIZABETH WATTS

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Nature Alberta News

Welcome our New Nature Network Coordinator

To serve our mandate of supporting and promoting the activities of our member clubs, Nature Alberta has added Stephanie Weizenbach to our staff as our Nature Network Coordinator.

Steph brings over 10 years of experience in program delivery and relationship-building in the environmental non-profit sector. She studied environmental and conservation sciences at the University of Alberta. She gained hands-on experience rehabilitating injured and orphaned wildlife with Wild North while also growing their education pilot project into a wildly

successful, permanent program. She advanced outreach initiatives for the Edmonton and Area Land Trust while working as part of the team to conserve natural areas in the field.

Steph says, "I have been welcomed by Nature Alberta's team and network with great enthusiasm — thank you. I am excited to be working with such amazing people and clubs, who all share my immense passion for nature. Every interaction with our Nature Network inspires me. I see great potential and opportunity. I am thrilled to be collaborating with such a unique and eager community, to bring all Albertans closer to nature."



If you have any questions related to the Nature Network or an event you want to promote, please contact Steph at info@naturealberta.ca.

Urban Nature Initiative — Bats and Birds

We have some excellent new video additions to the Support Urban Nature page of our website (naturealberta.ca/support-urban-nature) thanks to our Communications team and Ryan Northcott of Panoramic Media (panoramicmedia.com).

First up is **Build Your Own Bat Box**, a video tutorial to accompany downloadable instructions that show you how to create a safe, bat-friendly space in your own yard by building a four-chamber bat nursery. Our design team adapted and clarified available

instructional materials to create a comprehensive, step-by-step guide that sets a new standard for ease of use. We hope it proves useful to bat box builders across the province and beyond!

Then we have the **Create a Bird Oasis in Your Backyard** series. With many native bird species in decline, you can help by creating a safe, welcoming space for birds on your property. These videos discuss and demonstrate methods for naturalizing your yard; providing appropriate food, water, and shelter; and keeping bird visitors safe.

Thanks to the Edmonton Community Foundation for funding the Urban Nature Initiative.

Create a Bird Oasis in Your Backyard



Naturalize Your Yard to Create a Bird Oasis

Many bird species are in decline, but you can help by creating a bird-friendly oasis in your own yard. Taking steps to naturalize your outside spaces provides an inviting environment to welcome birds.



Food, Water, and Shelter in Your Bird Oasis

Naturalizing your yard with heat-loving native plants is a great way to provide birds with both habitat and a source of food, but a well-stocked bird feeder, clean water in bird baths, and nesting boxes are also welcome additions!



Bird Oasis Safety

When you're creating your backyard bird oasis, you want to make sure your guests are safe. Learn how to help birds avoid window panes and predators that annually kill over 100 million birds in Canada.



Last Call for \$10 Lifetime Memberships

Our \$10 Individual Lifetime Membership offer ends April 30, 2021. Don't miss your chance to show your lifetime commitment to nature for an incredible one-time deal! Join us, for the love of nature, at naturealberta.ca/membership.



Making Sense of the Situation in Alberta's Eastern Slopes

If you are like most people, you may be having a hard time keeping track of what is going on in the Eastern Slopes. First, the Coal Policy was rescinded. Then it was reinstated — sort of. Leases were awarded and then leases were cancelled. Yet a major coal mine is in the final stages of review. It's enough to make your head spin.

To understand what has been happening, and where things now stand, it's best to start at the beginning. Alberta's Coal Policy was developed in the mid-1970s as part of a broad planning initiative undertaken by the Lougheed government. The industrialization of Alberta's vast hinterland was rapidly advancing, and with it came rising concerns over the environment. Lougheed believed that a balance between development and protection was necessary, and therein lay the seeds of the Coal Policy (and other land-use policies). In his view, the economy, the environment, and social issues represented the three legs of a stool, and if any of the legs were shorter than the others, the stool would tip over.

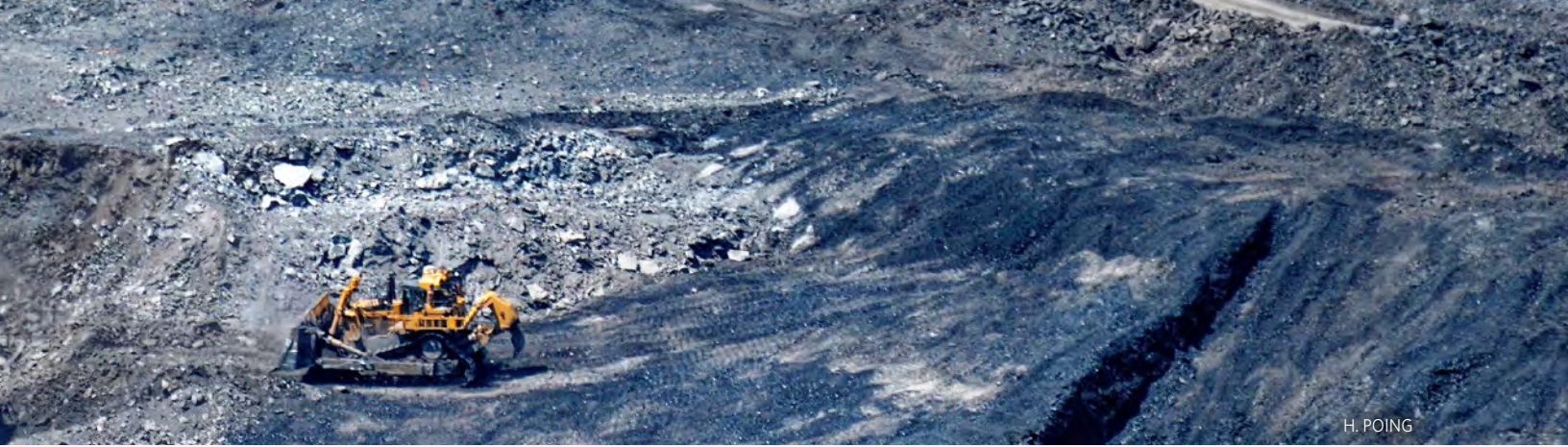
In subsequent years, efforts to balance economic development with environmental protection have waxed and waned. A high-profile effort occurred in the early 2000s, with the development of the Alberta Land-Use Framework and the initiation of regional planning. Unfortunately, these efforts ground to a halt under the NDP government and have gone into reverse gear with the UCP government. The flurry of policy changes announced last year — including rescinding the Coal Policy, delisting of parks, increasing the rate of forest harvest, and selling of public lands — reflect an ideology that is focused on development at all costs.

Although the UCP government seems unabashedly at ease with abandoning the environmental commitments made by previous (Conservative) governments, the public is not. Moreover, the government's decision to undertake this policy shift without any public consultation has proven to be a serious political miscalculation. Albertans of all stripes, including environmentalists, rural landowners, Indigenous groups, and even country singers have risen in

opposition. And these individuals are not a fringe element. A poll conducted in February by Think HQ Public Affairs indicates that 69 percent of Albertans oppose development of new mines in areas of the province protected by the 1976 Coal Policy. A similar proportion oppose the delisting of provincial parks. Clearly, the government is wildly out of step with the public it was elected to serve.

Recognizing the political consequences of their misstep, the government has been frantically backpedalling over the past couple of months. First came an announcement that no parks would be delisted. Then Energy Minister Sonya Savage announced that the government was reinstating the Coal Policy. So, can we conclude that it was all a bad dream and everything is back to normal? Not quite.

What we have is a temporary reprieve. The government has not actually committed to protecting the Eastern Slopes — far from it. The expansion of coal mining in the region remains a high priority. The only commitment the government has made is



H. POING

to consult the public on how development should proceed. The parameters of this consultation are not yet known, but given what has transpired to date, the level of trust in the process is low.

What about those coal leases that the government has cancelled? Surely that is a positive sign. It is, but it is less significant than it appears. Though the Coal Policy placed restrictions on mine development in certain areas, it permitted the protected lands to be leased. Companies have been buying these leases hoping for a regulatory exemption that would allow them to begin mining, or perhaps strategically waiting for the eventual demise of the Coal Policy. According to David Luff, who helped implement the province's Coal Policy in the 1970s, these leases now cover roughly 420,000 hectares of protected Category 2 lands. The 11 leases that were cancelled in February cover only 1,800 hectares — a fraction of one percent of the existing leases. In other words, most of the horses remain at the starting gate waiting for the pistol to fire.

In fact, in reaction to the pro-development signals from the government, several companies have begun putting together mining proposals. Some of these initiatives are in previously protected lands and some are in adjacent unprotected lands. The most advanced project is the Grassy Mountain mine, on

unprotected lands north of Blairmore. Public hearings on the project were held from October to December and a joint federal-provincial review panel is now reviewing the evidence before making a final decision about whether the project should proceed.

Through the Grassy Mountain hearings, we have learned of the many environmental risks associated with mining in this sensitive region. In addition to the land disturbance caused by a massive open pit mine, experts have

What we have is a temporary reprieve. The government has not actually committed to protecting the Eastern Slopes — far from it.

raised concerns about the far-reaching effects of water pollution. We know, for example, that the leaching of selenium is a perennial problem with open-pit coal mines. There are also concerns about ecological impacts. For example, according to the mine proposal, approximately 21,000 whitebark and limber pine trees will be destroyed. These are both endangered species in Alberta and therefore no removal can be deemed acceptable.

An overarching issue, and one that is not addressed by individual project assessments, is that of balance. Over the past 100 years, we have progressively transformed our landscapes such that few wild places remain in Alberta. The Eastern Slopes is one of them and most Albertans consider it to be one of our province's crown jewels. Though we do need industry to support our economy, the development-at-any-cost ideology of the UCP government is out of touch with today's public values. We need to harken back to Lougheed's concept of balance, and that means leaving some parts of the province in a natural state.

The intensity and breadth of the public opposition to coal mining in the Eastern Slopes seems to have caught the government off guard. Its recent abrupt change in direction indicates that it is now paying closer attention and also that it appreciates the political liabilities of its earlier actions. However, this is not the time to become complacent. The real battle for the protection of the Eastern Slopes will be played out in the upcoming consultations, and nothing should be taken for granted. We all need to remain engaged and make our voices heard. That, and a bit of luck, will ensure the protection of this special region. ■

The Swift Fox

A Canadian Conservation Success Story

BY LU CARBYN, KRISTY BLY,
NIKKI PASKAR, AND
RICHARD SCHNEIDER



GORDON COURT



The sweeping vistas of Sweetgrass Hills. GORDON COURT

Clocked at 60 kilometres an hour, the swift fox is the fastest member of the wild dog family in North America. It's also the smallest, roughly the size of a house cat. Its home is the open prairie, and it once ranged across much of the Great Plains of North America. Active mostly at night, it is an opportunistic predator that eats a wide variety of small mammals, birds, insects, and other small creatures. During the day it is usually hidden away in a burrow, except when playing with pups in summer or sunning itself in winter. In contrast to other canids, it uses burrows all year long to stay safe from larger predators and extreme weather.

Swift foxes were once common on the Canadian Prairies, but populations underwent precipitous declines in the late 1800s with the influx of Europeans to the West. By 1900, reports of swift foxes were rare in Canada and the northern United States. The last Canadian sighting was made near Manyberries, Alberta, in 1938. In 1978, the swift fox

was officially designated as extinct in Canada, though fortunately some populations persisted in the U.S.

An initial contributor to the decline was unsustainable trapping in the 19th century. Later, with the influx of settlers, swift foxes also became unintentional victims of poisoning programs to kill wolves and coyotes on the plains. In addition, campaigns by ranchers and farmers to kill badgers, prairie dogs, and ground squirrels reduced the number of escape holes and denning sites. But the overriding factor in the decline of swift foxes was the transformation of the natural shortgrass prairie ecosystem, dominated by bison herds, to one of croplands dominated by the plough.

With the disappearance of bison from the plains, scavenging opportunities for swift foxes were much reduced and the simplified grassland ecosystem supported fewer small prey. With the concomitant loss of the plains wolf, coyote populations increased and became a major cause of swift fox

mortality. Finally, a large proportion of swift fox habitat was converted to cropland and tame pasture.

The Reintroduction Program

Efforts to restore swift foxes in Canada began in the mid 1970s, and many individuals and agencies were involved over time. The first release of foxes was actually an illegal one. A game farm owner released four captive foxes from his facility onto the prairies. No permits, no studies, no health checks — just a brazen effort to gain publicity. It was even filmed.

More structured efforts soon followed. As a first step, wild foxes were imported and raised at a wildlife facility near Cochrane and at three zoos. It turned out that these little carnivores took exceptionally well to being raised in captivity and they became the stock for future releases, augmented by additional wild-caught foxes. By the early 1980s, a formal reintroduction program was underway, involving the



Swift fox adult and pup. MYRNA PEARMAN

federal and provincial governments, the University of Calgary, and several zoos and conservation organizations. It was an ambitious collaborative effort.

Fox releases began in 1983 and continued until 1997. The releases occurred within the core of the historical Canadian range, in two main areas: one centred on the border between Alberta and Saskatchewan, and the other in south-central Saskatchewan (see map). A total of 932 foxes were released. Of

these, 841 were reared in captivity — the descendants of 17 wild pairs from Colorado, Wyoming, and South Dakota. The remaining 91 releases were wild foxes obtained from Colorado and Wyoming.

Initial releases involved a technique known as the “soft” release method, in which pairs of foxes were penned and fed over winter at selected prairie sites. These pairs would mate and produce pups. Once the pups were large enough, the pens were opened and the foxes

were free to leave but could still use the pens as shelter. A second method, termed the “hard” release, was subsequently used, in which wild-caught stock and captive-reared foxes that were old enough to disperse were released directly into the wild.

The overall program to 1997 cost an estimated \$5 million and was highly successful. After the first surveys in 1991, an estimated 250 or more swift foxes were roaming wild and free in Canada. The species was sighted, or recorded as present, in at least 278 sections of land in southern Alberta and southern Saskatchewan. By then there were also 12 records of swift foxes in northern Montana that had originated from the Canadian reintroduction program. Good news for both countries.

The population estimate from the latest survey, in 2015, is 870 individuals spread across an area of 23,964 km² spanning the Canada-Montana border. Although populations have fluctuated over the decades since the program began, the core populations have persisted, making the swift fox reintroduction effort one of the most

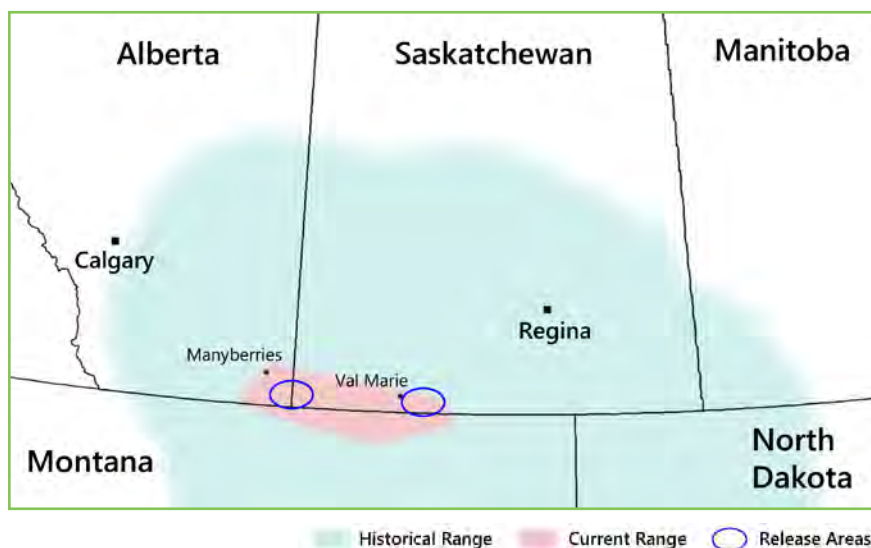


Figure 1. The historical and current range of northern swift foxes. The two reintroduction areas are also shown. R. SCHNEIDER

successful mammal reintroduction programs in North American history. Following the reintroduction program, the official status of foxes in Canada was changed from Extirpated to Endangered and then to Threatened, in 2009.

The U.S. Dimension

Swift foxes in the U.S. also experienced major declines in the 19th century; however, there were significant regional differences. Populations in the southern Great Plains persisted, whereas populations in the north (i.e., Montana, North Dakota, South Dakota) were largely extirpated. This suggests that factors specific to the northern part of the swift fox range, such as winter climate, may have been a contributing factor in the eventual loss of the species in these areas.

The successful Canadian reintroduction program became a prototype for U.S. reintroduction efforts, which began in 1998; three in Montana and three in South Dakota. These reintroduction efforts were augmented by the natural migration of Canadian swift foxes across the border into Montana. Today, swift foxes occupy about 40% of their former range in the U.S.

Despite these valiant efforts, the Canada/Montana swift fox population remains separated from the larger core population to the south. Why an estimated 322-km gap exists between these populations is unclear. Models evaluating swift fox habitat indicate suitable habitat exists, though the presence of large rivers and highways could serve as barriers to expansion.

Hopefully, if both the northern and southern populations continue to grow, dispersing foxes will eventually occupy available habitat in the gap. Connecting the northern population to the larger southern population is an important conservation goal. It will ensure that genetic diversity of the northern population is maintained and it will provide the population with greater resilience to changing environmental conditions.

The Role of Public Rangelands

Another dimension to the swift fox story is the availability of suitable

created with the goal of rehabilitating and conserving eroded or fragile land. A total of 85 pastures encompassing more than 9,000 km² were ultimately operated under the PRFA: 24 in Manitoba, 60 in Saskatchewan, and one in Alberta near the Suffield Military Base.

The PFRA program ran for decades and was widely thought to be one of the most successful grassland conservation efforts in Canada, addressing some of the prairies' most pressing problems. However, the Harper government disbanded the program in 2012, asserting that the program had fulfilled its original intent. The PFRA lands were transferred to the provinces over the following six years.

Given how successful the program had been, its termination provoked a strong public backlash. Concern was highest in Saskatchewan, where the provincial government had signalled its intention to sell the PFRA pastures, along with the province's own community pastures, to private owners. In response to public pressure, the Saskatchewan government conducted a survey and engaged in stakeholder consultations. The message was clear. A strong majority of participants were against land sales and placed a higher importance on ecological

preservation of the land than economic opportunities (GOS 2017).¹ Nevertheless, the province has continued to sell Crown lands to existing lease holders and via public auction. For example, according to the Ministry of Agriculture Annual Report, over 26,000 acres were sold in 2019-2020.² Smaller-scale sales



The Canadian reintroduction program releases a swift fox into the wild.
LU CARBYN

habitat. Much of the Canadian swift fox population has been using native grasslands that, up to 2012, had been administered as Prairie Farm Rehabilitation Administration (PFRA) lands. The PFRA was a federal program initiated in response to the prolonged drought in Western Canada in the 1930s. Under this program, community pastures were



Left: A swift fox adult with pups.
MYRNA PEARMAN



Below: A swift fox pup, 2-3 months old.
MYRNA PEARMAN

of Crown grasslands have also occurred in Alberta.

Post-Reintroduction

Following the reintroduction program, wildlife managers focused their efforts on ensuring that the new swift fox population would grow and remain viable over the long term. A key step, as required under the Species at Risk Act, was to characterize critical habitat for the foxes and to determine where it existed on the landscape. Additional effort went into understanding the

impacts of human land uses on swift foxes. The results of these studies, and appropriate management responses, were captured in a federal action plan published by Environment and Climate Change Canada in 2017.³

A notable feature of the action plan was that it focused on a specific region — southern Saskatchewan — rather than a specific species. Wildlife managers recognized that the challenges faced by the swift fox were shared by other threatened grassland species and

that more could be accomplished by conserving the entire grassland community than by trying to manage each species separately. At heart, this was a regional issue that required a regional management approach. Therefore, the action plan applied to nine species at risk and four species of special concern.

Managers also understood that habitat disturbance per se was not the problem. Historically, the grazing, trampling, and wallowing of millions of bison had an enormous impact on grassland systems. So did fire. The problem with human-origin disturbances is that they differ in significant ways from natural disturbances that native species are adapted to. For example, we try to eliminate ground squirrels and anything else that tries to eat our calves or crops. We stop fires. We introduce foreign species as forage crops. The list goes on.

If species conservation was the only objective that mattered, the obvious solution would be to put bison and fire back on the landscape and allow predators to roam freely. This is in fact what is happening on a large scale in Montana, where wealthy philanthropists are building the American Prairie Reserve. Through a non-profit foundation, ranches are slowly being purchased from willing sellers, and cows are being phased out and replaced with wild bison (originating from Elk Island National Park). The idea is to stitch these private properties together with vast tracts of neighboring public lands to eventually create one giant, rewilded prairie over 12,000 km² in size. (Visit americanprairie.org for more information.)

A similar effort is happening on a smaller scale in Grassland National

Park in southern Saskatchewan. Habitat restoration efforts are underway and a successful bison reintroduction program has taken place. However, at least for now, there are no plans to significantly increase the size of the park beyond its current 900 km².

Though the rewilding efforts in Montana and Grasslands National Park are very promising, the hard reality is that they account for only a fraction of one percent of prairie grasslands. The remaining lands have all been allocated to ranching and farming. The implication is that the future of swift foxes and other threatened grassland species will depend in large part on gaining the cooperation of ranchers and farmers in supporting conservation.

The forestry sector provides us with a workable model. As a guiding principle, forestry companies (at least the progressive ones) try to make their harvesting operations approximate natural disturbances as closely as possible. While this approach is not practical on cultivated agricultural lands, it holds great promise on the vast rangelands that constitute the core habitat of swift foxes and other threatened grassland species. Cows are clearly not bison, but it is possible to approximate many of the key ecosystem effects of bison through careful management of cattle grazing patterns and intensity. Other important steps include retaining native grass species, retaining natural wetlands, stopping ground squirrel eradication programs, applying prescribed fire where practical, and minimizing roads and other infrastructure.

The main challenge in implementing these ideas is gaining the support of the agricultural community. This brings us back to the issue of land ownership and the PFRA. Once public lands are sold to private owners, the government has very little control over

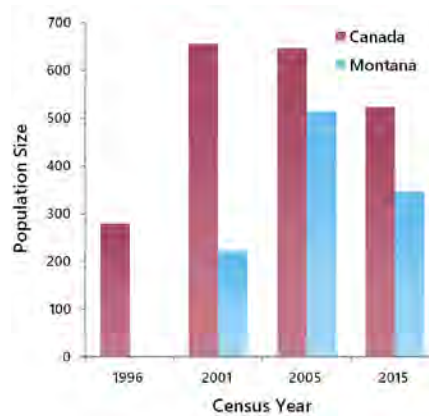


Figure 2. The estimated change in size of the reintroduced swift fox population based on successive field surveys.

how it is managed. Land ownership conveys strong property rights, which governments are reluctant to challenge for fear of political backlash. Moreover, a heavy-handed approach would likely do more harm than good because conservation efforts on private lands will ultimately depend on the actions, and hence goodwill, of ranchers. This is why it is so important to retain the public ownership of rangelands, and why Crown land sales need to stop.

On Crown lands there is greater scope for conservation, since the lands must be managed in the broad public interest. Moreover, provincial governments must adhere to the conservation requirements prescribed by the Species at Risk Act. Nevertheless, the ranching community still has a powerful voice in what happens — or does not happen. Consequently, the path forward must still entail education and collaboration.

Progress could be greatly improved if provincial governments made grassland conservation a higher priority and provided greater guidance and resources to the ranching community for conservation. How can we expect ranchers to change their practices when their government remains wedded to goal of optimizing productivity? The

conservation-minded public should demand this of its elected officials. It is only through such pressure that significant change will occur.

For now, the swift fox appears to be holding its own. The population declined somewhat in the last survey, in 2015, rather than continuing its growth trajectory. Hopefully, this was just a hiccup attributable to a bad winter. Time will tell. But clearly, if we want the swift fox to thrive in the years ahead, it's up to us to provide it with a good home. ■

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Nikki Paskar is the conservation coordinator with the Edmonton & Area Land Trust.

Richard Schneider is a conservation biologist and serves as the Executive Director of Nature Alberta.



The Saw-Whet Effect

BY MYRNA PEARMAN

In late May 2020, a family out enjoying an evening stroll along a public trail in Sylvan Lake noticed a group of little owls perched together on a low branch. They took a few cellphone pictures and sent them to a local photographer. The photographer, who immediately recognized them as northern saw-whet owl fledglings, hurried over to the spot and got some excellent images. Her subsequent Facebook post resulted in a surge of interest in these adorable little soon-to-be-superstars.

As an observer of nature and passionate wildlife photographer, I am acutely aware of how people — innocently or otherwise — can cause stress to wild animals, especially during the breeding season. Owls are particularly vulnerable because we humans have an almost irrational fascination with them. I was worried

for the owlets because their roosting area was adjacent to the trail and their distinctive juvenile plumage made them highly visible.

When I arrived for the first of what would be many visits, two young local families joined me, the parents excitedly showing the owlets to their children, who squealed with delight at seeing some “real live baby owls!” I watched the owls carefully to see if they were disturbed. One of them opened one eye and then fell back asleep. The others didn’t even stir.

And so it was during my subsequent visits: adorably contented little sleeping owls with groups of human admirers staring up at them. I was often joined by trail users, including runners, cyclists, seniors, and young families. All were smitten.



Young saw-whet owls displaying their striking juvenile plumage.
MYRNA PEARMAN

Some took a quick peek while others lingered to wait for a little owl yawn, scratch, or wing stretch. Photographers from across the province made the pilgrimage to get pictures, which was often a challenge due to the lighting and the owlets' habit of hiding behind leaves. Conversations, teachable moments, photography tips, and even new friendships were formed among those sharing this unique wildlife watching opportunity. I did hear grumbles about a couple of insensitive photographers, but most people were quiet, respectful, and awestruck.

The owlets would sometimes be all lined up together on one branch, while other times they'd be tucked away alone or in groups of two or three. Sometimes they would have a dead mouse or vole dangling from their tiny talons — midday snacks





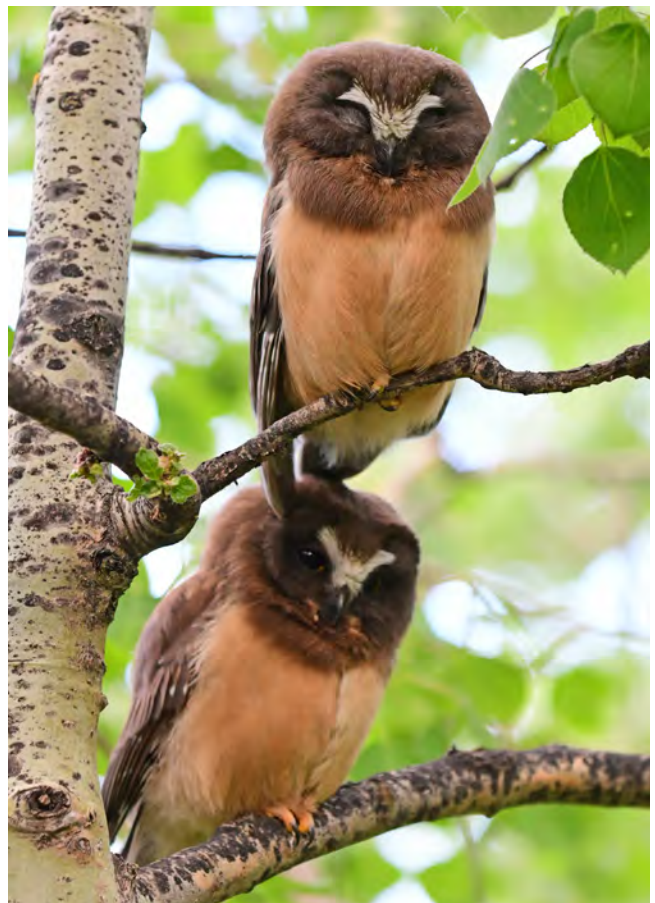
The contrasting appearance of adult (above left) and juvenile (above right and right) saw-whet owls. MYRNA PEARMAN

that been delivered by their vigilant parents before they too set off for their own daytime slumber.

Adult saw-whets are notoriously hard to find since their adult plumage provides excellent camouflage and they usually tuck themselves close to a tree trunk to roost. I was fortunate to have spotted one adult on one occasion, dozing behind a cluster of leaves.

While these now-famous owlets may have experienced some interrupted sleep during their Sylvan stay, there is little doubt that they were wonderful owl ambassadors — bringing immeasurable joy and opening the hearts of hundreds to the beauty of nature. ■

Myrna Pearman is a naturalist, writer, photographer, and recently retired as the Biologist and Site Services Manager at Ellis Bird Farm. She can be reached at myrna@myrnapearman.com.



Essential Beach Reading...

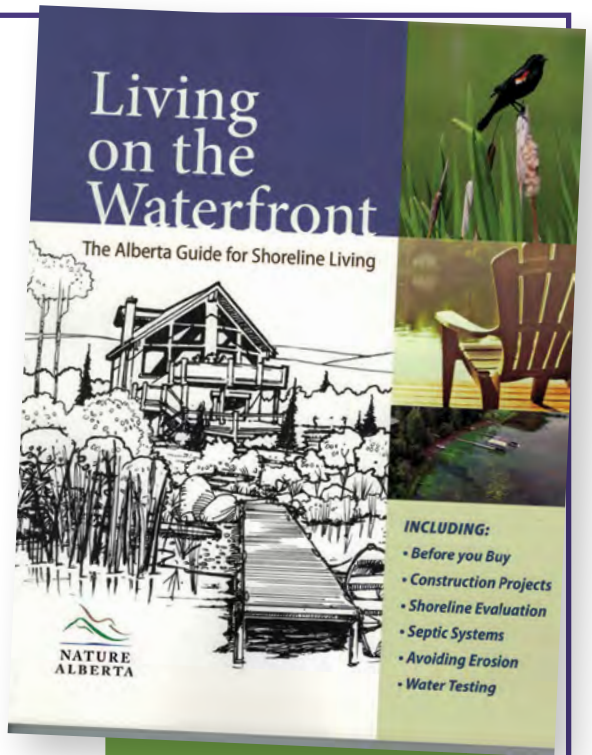
For the cottage crowd, a lakeside property is an oasis of calm—a welcome escape from the noise and pace of the city. And for thousands of Albertans, the lake isn't a getaway—it's home, year-round. Whether you're considering purchasing a dream home by the lake, or have a construction project in mind for an existing property, there's a lot to consider to make sure you're protecting both your investment and the shoreline environment.

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This comprehensive, 150-page book is filled with facts, tips, and practical advice on every aspect of lakeshore living, including:

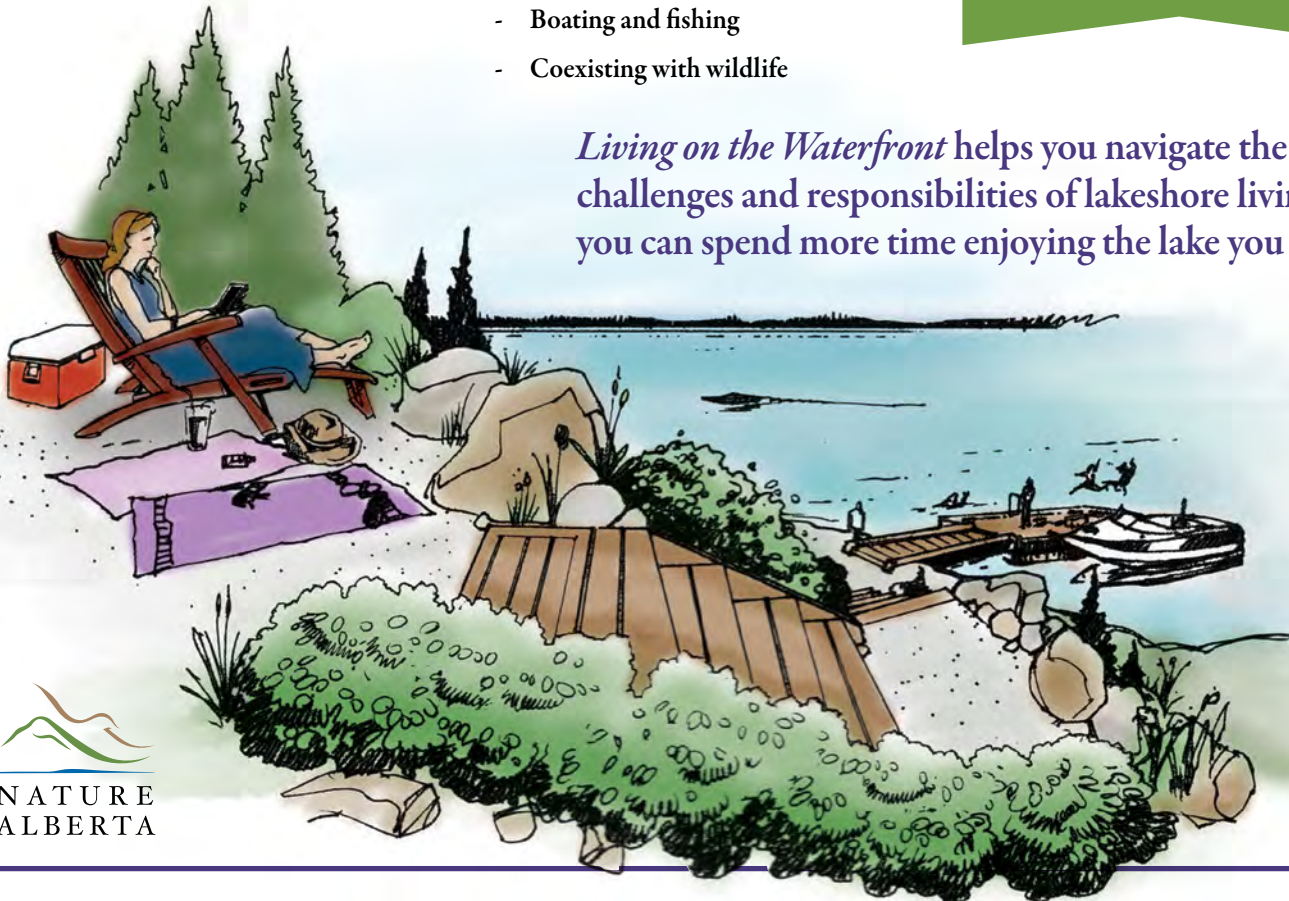
- Things to consider before you buy
- Shoreline erosion
- Protecting water quality
- Construction projects near the water
- Septic systems
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- Boating and fishing
- Coexisting with wildlife

Living on the Waterfront helps you navigate the challenges and responsibilities of lakeshore living, so you can spend more time enjoying the lake you love.



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NATURE
ALBERTA

The Rise of Citizen Scientists

BY MATT WALLACE

Nature photography has long been a tool used to document and share observations of the natural world. It inspires people to engage with nature in positive ways. With the recent advent of phone cameras linked to online social apps, ordinary people are now more than ever able to make valuable contributions to both social and environmental sciences. These individuals are called citizen scientists.

Citizen science — also referred to as community science — is a broad term but is generally defined as the practice of public participation and collaboration in scientific research and development of scientific knowledge. It is not exactly a new field, even within Alberta. For over 70 years, amateur birders have been sharing their observations in publications like the *Calgary Field Naturalist*. These records have been collected by individuals on their own and during community events like the Christmas Bird Count and the May Plant Count (both of which continue to this day). Through these efforts, and structured initiatives like the Breeding Bird Survey, citizen scientists have helped to fill data gaps that experts would not be able to address themselves under budgetary constraints. The data offer valuable insight into species diversity, ranges, phenology, and population trends.

Today, nearly everyone is equipped with the tools to make citizen science observations — even if they do not know a thing about plants or animals! Apps such as **iNaturalist** use artificial intelligence to help users immediately



Using iNaturalist is as easy as taking a photo with your phone. STEPHEN BURCHILL

identify the subjects of photos taken with their smartphone cameras. These are later confirmed by a diverse community of naturalists and the data are shared with national and global biodiversity data centres. iNaturalist differs from other citizen science apps because it covers the entire spectrum of species and locations known on Earth.

A major benefit of these apps is that they allow people to share their observations about biodiversity with local and global communities. What was once a few individuals sharing information in a local nature journal is now millions of people collecting lots of data about the natural world at the global scale. In Alberta alone, over 205,000 verifi-

able observations have been shared to **iNaturalist.ca**. This accounts for over 6,100 species including 847 deemed threatened. Across Canada, the number of observations exceeds 4.3 million.

Conservation groups and researchers are using iNaturalist to create "Projects," which allow them to filter observations by place, time, and taxa. The BC Parks iNaturalist project is one of the best examples of a project in use that now has over 270,000 observations, 6,915 species documented, and over 4,600 contributors in only two years of being online. Smaller groups, like the Weaselhead Glenmore Park Preservation Society in Calgary, created a project to understand park biodiversity

City Nature Challenge 2021 Alberta

April 30 - May 3

and engage park visitors. Their project has over 5,500 observations of 840 species made by over 250 observers. The Weaselhead group has found iNaturalist to be a great way to educate park visitors about the importance of urban natural areas for biodiversity while promoting passive (low-disturbance) recreational activities.

Citizen scientists' observations can have real-world applications that are benefitting nature and people's relationship with it. Over 400 scientific journals have sourced iNaturalist data in the past three years. These include articles on biogeography, expanded species ranges (including invasive species), urban biodiversity, and discoveries of new species. With more eyes on the ground, patterns in phenology and migration are now something people

can visualize. The data are also identifying the impacts that climate change and anthropogenic landscapes pose to species.

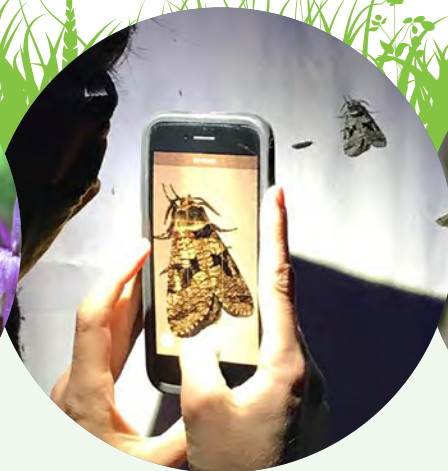
Observing nature and sharing information with one another is one way that we can begin to further understand the natural world and our relationship with it. If you have ever taken a photo of any flora and fauna in Alberta, put it on the map and become a citizen scientist by sharing it with a global community of naturalists and researchers.

Alberta City Nature Challenge 2021

The City Nature Challenge runs from April 30-May 3, 2021 and is your chance to become a citizen scientist. This global event, organized by the Natural History Museum of Los Angeles and the California Academy of Sciences, is unique because the emphasis is placed on documenting urban biodiversity. Now in its sixth year, this event will have more than 325 cities participating. Among these are

23 Canadian cities, including five areas within Alberta: Calgary Metropolitan Region, Edmonton Metropolitan Region, Camrose County, Red Deer/Lacombe County, and Lethbridge. These areas will compete to see which can make the most observations, document the greatest number of species, and engage the most people. Take photos anywhere within the boundaries of one of these five areas and share them to [iNaturalist.ca](https://www.inaturalist.ca) for them to be automatically included. Even if you live outside of the boundaries, you can still be involved by helping to identify others' observations. Visit [iNaturalist.ca/projects](https://www.inaturalist.ca/projects) to view the Canadian Wildlife Federation's CNC 2021 Canada Project and see how Canadian cities stack up to one another in terms of their biodiversity. For more information about the City Nature Challenge, visit citynaturechallenge.org. ■

Matt Wallace is a Citizen Science Community Coordinator and the City Nature Challenge Calgary Organizer.



Above, left to right: Images like this Eastern Fairy-Slipper (*Calypso bulbosa americana*) observed in the Beehive Natural Area provide information about flowering phenology and distribution of rare species in threatened locations. STEPHEN BURCHILL

This Carpenterworm Moth (*Prionoxystus robiniae*) was observed during National Moth Week 2020. MELODY CAMPBELL

This bee was sourcing energy from one of the first Prairie Pasqueflowers (*Pulsatilla nuttalliana*) of the season, suggesting a species relationship. MATT WALLACE

WHERE BEAVERS GO, SURPRISES FOLLOW

BY GLYNNIS HOOD



It's an usually warm day in January and my snowshoes are only partially necessary on the frozen ponds that aid my route through the Ministik Game Bird Sanctuary in east-central Alberta. Having studied beaver populations and their influence on wetland ecosystems for 20 years in the Beaver Hills moraine, this is my first serious exploration of the beaver ponds of Ministik. It is a world that defies explanation at times — towering lodges, beaver dams dropping in step-like formation to yet another perched wetland, and then to



The author (and dog Kona) at a beaver lodge in the Beaver Hills. DEE PATRIQUIN

another, and another. As I rest against a beaver lodge to have my tea, I realize that after all these years, there is still so much more to learn about these rodents, which can engineer entire landscapes unlike any other mammal, other than humans.

Various researchers have found that beavers prefer to live in ponds with gentle slopes. However, in a recent study in Miquelon Lake Provincial Park, immediately south of Ministik, I determined that just the opposite happens in the Beaver Hills; the steeper the slope, the more likely beavers will occupy the pond. There are some beaver ponds in Ministik and Miquelon with slopes well exceeding 70%, complete with multigenerational foraging trails leading straight up the steepest banks. This winter, when my field assistant and I came across the top of a beaver foraging trail, we could see nothing but air below the ends of our snowshoes. The descent to the pond had a slope of about 75%; our enthusiasm tempered by a good dose of common sense, we chose another route down. This preference for steeper slopes in a landscape dominated by isolated ponds

allows beavers closer access to preferred food sources, such as trembling aspen.

Beaver History:

Collapse and Recovery

North American beaver populations, along with their Eurasian cousins, have made a remarkable comeback after collapsing from fur-trade overharvest. A great deal of this success is attributed to strict conservation policies and early reintroduction efforts, but the tenacity and adaptability of these large rodents have been central to their successful recovery. Their versatility makes beavers one of the most widespread mammals in North America, ranging from the Arctic Ocean to northern Mexico. With a warming climate, beavers are now moving from northern river systems and deltas directly onto the Arctic tundra as it becomes increasingly colonized by shrubs.

The history of beavers in the Beaver Hills has included both overexploitation and conservation. This area, known as Amiskwaciy (“beaver hills”) in Cree, was an important hunting and resting area for many Indigenous peoples. The early fur trade brought heavy commercial

trapping, and subsequent European settlement resulted in extensive deforestation through fire and logging. Beavers were completely trapped out in the Beaver Hills by the mid to late 1800s. Fortunately, this period of decline was followed by dedicated efforts to restore and conserve beavers and several other species that suffered a similar fate.

In 1899, the Federal Department of Interior established the Cooking Lake Forest Reserve, part of which is now the Cooking Lake-Blackfoot Provincial Recreation Area. Additional protected areas soon followed: Elk Island National Park in 1906, Ministik Game Bird Sanctuary in 1911, and Miquelon Lake Bird Sanctuary in 1920 (later Miquelon Lake Provincial Park in 1958). After the successful reintroduction of beavers from Banff National Park into Elk Island National Park in 1941, likely augmented with natural recolonization, the Beaver Hills again began to live up to their name. Beavers have now made their home throughout the moraine.

Beavers as Ecosystem Engineers

Because of the early conservation interest in the moraine, we have a well-established aerial photo record that dates back as far as the 1920s. Compre-



A beaver displaying its skills as an ecosystem engineer. RICK PRICE

hensive aerial photo sets started in the 1940s. My analysis of these photos over a 54-year period (1948 to 2002) in Elk Island National Park showed that, even during the record-breaking drought of 2002, ponds with beavers had nine times more open water than those same ponds when beavers were absent. The presence of beavers explained over 80% of the annual variability in the extent of open water in the park. The results were

so shocking that I reanalyzed the data and reviewed the aerial photographs several times before my PhD supervisor, Suzanne Bayley, and I sent the article for peer review.

My next question was why. Unlike what I have seen in Ministik, many of my study ponds in Elk Island lacked dams, and dams that did exist were usually associated with roadside culverts, or were relatively small. Permanent streams are uncommon, and there are no rivers in the 194-km² park.

The answer began to reveal itself as I sat next to an occupied beaver pond during the drought of 2002. A series of open mudflats lay before me. But unlike the dry, flat-bottomed ponds elsewhere in the park, the bottoms of these occupied ponds had deep, water-filled channels, excavated by beavers in a complex branching pattern (seen in the photo to the left). They originated from the main entrance of the lodge and then radiated throughout the pond to key upland foraging areas. It seemed to me then that there was more to these



The channels created by beavers become visible when drought reduces pond water levels. GLYNNIS HOOD



An adult beaver and kit. TONY LEPRIEUR

channels than just access routes to favourite food sources.

A few years later, in Miquelon Lake Provincial Park, I decided to quantify the often-cited description of beavers as ecosystem engineers. Although dams and lodges are the most recognized structures that beavers build, beaver channels along the bottom of the pond and extending perpendicular from the water's edge can be extensive. The longest channel I have measured is just under 500 m, likely excavated over several years. Most channels are much shorter, with many just under a metre deep and a metre wide. More than once, water lapping at the tops of our chest waders indicated that some channels are well over a metre deep. More fascinating than the length and depth of these channels is the impact they have on the configuration of riparian habitats and the increased volume of water in these ponds.

Through my studies, I determined that the creation of beaver channels increases the perimeter of a pond by an

average of 575%. This is critical because riparian edges — those margins along water bodies where land and water meet — support high levels of biodiversity. Average surface area of these ponds also increased because of these channels. Most importantly, the volume of ponds with beavers was approximately 25% greater than ponds that were abandoned by beavers. Much of this increase in pond volume was directly related to increased depths of the ponds as beavers excavated and reconfigured the pond bottoms. Beaver channels appear to focus water from upland areas directly into the ponds.

The amount of effort required to create these channels is staggering. I calculated that in the excavation of channels, beavers moved over 1,700 m³ of soil for every square kilometre of park. A typical dump truck moves approximately 10 m³ of soil in one load. Now imagine beavers excavating the equivalent of over 170 dump trucks worth of soil for every square kilometre of park! These numbers reveal what ecosystem engineers

can do, over and above the construction of dams and the flooding of adjacent areas. These channels are enduring, often lasting more than a decade after beavers are gone. Ponds with channels are the last to dry up in a drought, and the first to refill once it is over.

By modifying the shorelines and basins of ponds so dramatically, habitat complexity increases, which in turn influences habitat use and availability for other species. In a study with Dr. David Larson, we collected samples of aquatic invertebrates at three different habitats within occupied and unoccupied beaver ponds: along the vegetated shoreline, in the open water column, and in beaver channels. We fully expected that beaver channels would function much like the vegetated edges of the ponds, but were surprised to find that beaver channels served as “hunting hotspots” for predaceous aquatic invertebrates. Perhaps the regular movement of water in and out of the channel when beavers used them to access foraging areas, or the release of other food

sources as beavers excavated the sides and bottoms of the channels, provided a regular influx of new prey. Whatever the reason, these tiny aquatic predators were found in higher abundance in these often-overlooked habitats. Other invertebrate species were also found exclusively in active beaver ponds, regardless of the type of habitat they used within the pond.

While sampling for invertebrates, we started to notice that other species appeared to be attracted to beaver channels as well. In a joint study with Nils Anderson and Cindy Paszkowski, we investigated the use of beaver ponds by wood frogs. These frogs mate in water, are born in water, and then disperse to upland areas as young frogs until they return to the ponds to mate as adults. We found that young and adult dispersing wood frogs were nine times more abundant in beaver channels than in regular shoreline habitats. We believe these channels serve as movement corridors for the dispersing frogs, providing additional protection from predation and injury as they move to upland habitats.

With all of these channels “reaching out” to the surrounding landscape, beaver channels can also help reduce the distance from one wetland to another quite dramatically. This is critical in the Beaver Hills, which is a landscape dominated by geographically isolated wetlands. Any connection between these water bodies provides ecological opportunities for species’ movements across the landscape. Currently, my research team and I are using specially placed wildlife cameras, environmental DNA, and wildlife signs (e.g., beaver lodges, wildlife tracks, muskrat huts and push-ups) to assess how land use,



An active beaver lodge. LU CARBYN

aquatic connectivity, and species associations influence the distribution of a suite of semi-aquatic mammals across the Beaver Hills.

From the tiny American water shrew and northern bog lemming, to muskrat, beaver, and mink, to the possible presence of river otter, it takes a suite of clues to understand how ecosystem engineering and species interactions might influence entire ecological communities. Beavers are just part of the picture, but their tremendous influence on freshwater systems could play an important role in the presence of these other species, some of which have declining populations in Alberta.

Managing Beaver Conflicts

Despite their important ecological role, beavers continue to be a controversial species. People phone and email me regularly to ask where they can obtain beavers for their properties, or to ask how to get rid of them and reduce the damage associated with flooding and felled trees. There is a definite financial cost to living with beavers. To quantify this cost, Varghese Manaloor, Brendan Dzioba, and I surveyed 48 municipalities (including rural counties) and four provincial parks in Alberta. We

estimated that beaver management (prevention, dam removals, and repairs) costs Alberta municipalities over \$3 million per year. Given incomplete cost accounting by several municipalities, we considered these costs to be very conservative.

Fortunately, management alternatives, such as pond levellers, exist to help reduce these costs. Pond levellers are made from a series of large plastic pipes and a protective cage that, once placed through a dam, maintain the pond at a constant level (see photo below). Thus, the pond can remain



Installing a pond leveller. GLYNNIS HOOD

(rather than being drained), nearby facilities are protected from flooding, and the ecological benefits of beaver ponds remain. Over the years, we have installed around 30 of these devices with a good deal of success. When we conducted a cost-benefit analysis of the levellers we had installed in the Cooking Lake-Blackfoot Provincial Recreation Area, there was a net benefit of over \$81,000 relative to traditional management approaches. Now organizations including Cows and Fish and the Miistakis Institute have taken the lead. Increasingly, pond levellers are seen as a cost-effective way to help humans and beavers coexist.

In many ways, beavers helped open up North America to European exploration and colonization. It was an era that almost resulted in the species'

demise. Its return brings with it water, biodiversity, connectivity, and a bit of conflict requiring imaginative solutions for coexistence.

As my snowshoed feet pass by yet another beaver lodge, I cannot help but imagine what is yet to be discovered about this animal that transforms ecosystems in such dramatic ways, and enhances our understanding of how the loss of one species could affect the ecological health of so many others. ■



A beaver's incisor teeth are continuously growing. Constant chewing keeps them sharp and prevents them growing too long.
TONY LEPRIEUR

Dr. Glynnis Hood is an ecologist and Professor of Environmental Science at the University of Alberta's Augustana Campus in Camrose. Her research interests include aquatic ecology, wildlife management, and human-wildlife interactions. She is the author of *Semi-Aquatic Mammals: Ecology and Biology* and *The Beaver Manifesto*.



A beaver stripping bark from a felled tree. TONY LEPRIEUR

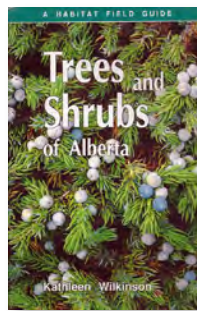
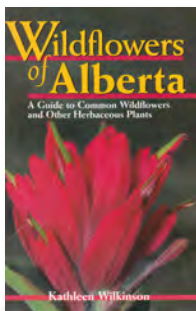
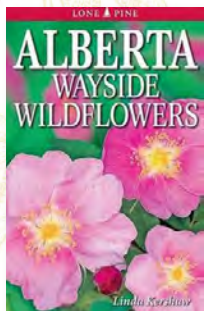
Getting to Know Alberta Plants Which Book is Right for You?

BY LORNA ALLEN AND LINDA KERSHAW

Are you interested in plants? There are what we can think of as stages of plant awareness; let's call it the "Curious-to-Committed Scale." Where you are in the scale will help you find the right plant book for your level of interest. In each category, there are other books out there; these are just the ones that we are familiar with and can personally recommend, depending on your level of interest.

CURIOUS

You've noticed some flowers blooming, and you kind of wonder what they are. The books that fill this niche tend to have "wildflower" in the name, and focus on the showy, often-seen species. Try *Alberta Wayside Wildflowers* (Kershaw, 2003), featuring 112 of the most common wildflowers in towns and along roads and trails. For a similar guide, but with more (over 500) species, try *Wildflowers of Alberta: A Guide to Common Wildflowers and Other Herbaceous Plants* (Wilkinson, 1999). If you are also interested in getting to know some of the woody plants, you might consider *Trees and Shrubs of Alberta* (Wilkinson, 1990).



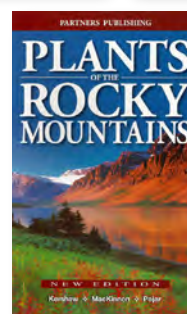
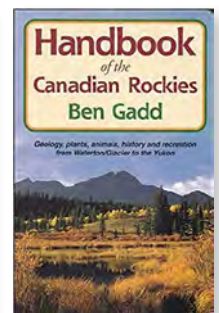
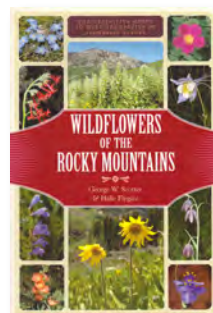
INTERESTED

You enjoy looking at the plants growing in your area and would like to have a better idea of what they are. In this category, there are many different options, generally geared to your location. For many people, this is the level that meets their needs. These books are not comprehensive — there are a lot more plants out there than are covered in any of the books in this group, but the pictures make identification reasonably easy, and it's likely that they cover most of the common and noticeable species.

Mountains

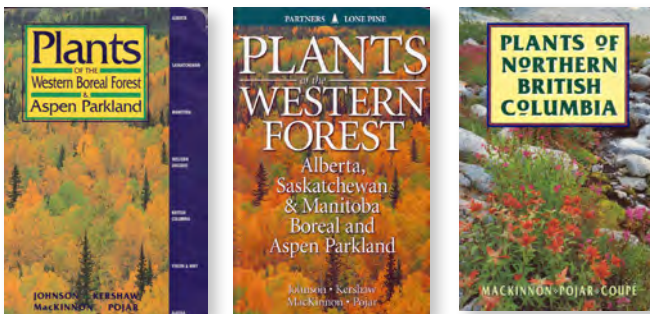
The area most well-covered in this range of plant books is the Rockies. A favorite for this area is *Wildflowers of the Rocky Mountains* (Scotter and Flygare, 2007). This is an updated version of the no longer available *Wildflowers of the Canadian Rockies* (Scotter and Flygare, 1986), covering an expanded range and including more species.

If you're mainly interested in identifying some of the common, showy plants, *Rocky Mountain Nature Guide* (Bezener and Kershaw, 2020) illustrates 133 common trees, shrubs and wildflowers, along with some of the most common mammals, birds, amphibians, reptiles, fish, and insects. *Handbook of the Canadian Rockies* (Gadd, 1995) has a section on plants along with sections on geology, birds, mammals, and butterflies. For a more detailed, plant-focused approach, *Plants of the Rocky Mountains* (Kershaw, MacKinnon and Pojar, 1998) covers over 1,350 species, including some of the common mosses and lichens that are abundant in this region. *Alpine Plants of British Columbia, Alberta & Northwest North America* (Pojar and MacKinnon, 2013), also called *Alpine Plants of the Northwest: Wyoming to Alaska*, is a beautiful guide to almost 1,200 high-elevation mountain plants.



Boreal Forest

Although it covers fully half of Alberta, books dealing with the species found in the Boreal Forest region are difficult to find. For this area, the best option is *Plants of the Western Boreal Forest & Aspen Parkland* (Johnson, Kershaw, MacKinnon and Pojar, 1995), also called *Plants of the Western Forest* (Johnson, Kershaw, MacKinnon and Pojar, 2009 and 2020). Combine this one with *Plants of Northern British Columbia* (MacKinnon, Pojar and Coupe, 1999) and you get good coverage of plants east of the northern Rockies. The original 1992 edition of *Plants of Northern British Columbia* was revised in 1999, and a second revision is scheduled for 2022.



Grassland

This is another region with limited publications geared to this level of interest. Consider *Wildflowers Across the Prairies* (Vance, Jowsey, McLean and Switzer, 1999). There is also a three-volume set of *Common Plants of the Western Rangelands* by Kathy Tannas, including *Volume 1: Grasses and Grass-like Species* (2001), *Volume 2: Trees and Shrubs* (2003), and *Volume 3: Forbs* (2004). Although the set is quite a bit larger than a field guide, it includes keys, detailed descriptions, illustrations and sections of colour photos focused on common plants from this relatively small region. These publications are more technical and bridge the “Interested” stage and the next stage on our scale, “Serious.”



SERIOUS

At this stage, you are seriously interested in trying to identify the species that you are seeing. Perhaps it's for work, or you might just be really dedicated. You might draw the line at the real toughies, like willows or bluegrasses, but in general, you'd like to know what's what. Now, things get complicated — there are now over 2,000 vascular plant species documented in Alberta, and many look very similar to one another. Trying to identify them can be challenging. This is where **plant keys** are needed. A plant key is made up of a series of (usually) paired statements of features. The reader determines which statement best fits the plant they are trying to identify (e.g., “Tree?” or “Not a tree?”). The choice leads to either a plant name or another set of choices. In this way, the reader progresses through the key, eventually arriving at the name of the plant in question.

Vascular Flora of Alberta: An Illustrated Guide (Kershaw and Allen, 2020) is the most comprehensive and up-to-date source available for this (though we may be somewhat biased). The keys are written with ease of use in mind — avoiding technical terms, relying on easily observed features as much as possible, and providing illustrations to assist with identification. With this book alone, many (even most) species can be identified confidently. Key-ing, however, takes practice, and there are many species that need a detailed check of features in order to feel confident in the identification. A review of annotated herbarium specimens might even be needed. To find detailed species descriptions and distribution information, you will need additional resources. This is where traditional floras come in.

Since *Flora of Alberta* (Moss, 1983) was published, there have been major changes to taxonomy and hundreds of new species have been found in the province. Consequently, the taxonomy in the flora is outdated and hundreds of species are missing, but the detailed descriptions and distribution maps are still very useful. *Vascular Plants of Alberta, Part 1* (Packer and Gould, 2017) began



a detailed update of the *Flora of Alberta*. However, it covers less than half of Alberta's species, so it complements but does not replace Moss's book. *Budd's Flora of the Canadian Prairie Provinces* (Looman, Best and Budd, 1987; reprinted 2016) is a two-volume publication. It also has keys and detailed descriptions for most of Alberta's vascular plants, but as with any of the older references, taxonomy is outdated and species are missing.

COMMITTED

There is a stage beyond "Serious." Does your bookshelf contain (or do you wish it contained) volumes from other locales, nearby or far-flung? You may be moving into the "Committed" category.

Looking beyond Alberta to other floras can help with identification, and sometimes the keys or detailed descriptions, drawings, and photos can be helpful to confirm your identification. Here are a few options from our nearest neighbors:

- Heading west, British Columbia has the *Illustrated Flora of British Columbia* (Douglas et al., 1998-2002), eight volumes by several authors, with keys, drawings, and detailed species descriptions.
- Looking north, you might be able to locate some older books, such as *Flora of the Yukon Territory* (Cody, 2000), but the keys in the online *Flora of the Canadian Arctic Archipelago* (Aiken et al. at nature.ca/aaflora/data/index.htm) are the most up-to-date.
- From the east, the Flora of Saskatchewan Association has begun the ambitious project of a full *Flora of Saskatchewan*, with photos, descriptions, distribution maps and illustrations. To date, six volumes (fascicles) have been printed, all available through the Nature Saskatchewan website: naturesask.ca.
- And going south, there is the *Manual of Montana Vascular Plants* (Lesica, 2012) and the *Flora of the Pacific Northwest* (Hitchcock and Cronquist, 2018). Both are excellent, illustrated floras.


For complete coverage of the vascular plants of North America (north of Mexico) with keys and detailed descriptions for over 20,000 species, there is, of course, the 30-volume set of *Flora of North America*. This is a work in progress, but over 20 volumes are now available to own or to view online at floranorthamerica.org.



Wherever you are along the Curious-to-Committed scale of plant awareness, there are books to meet your interest level. Some can be difficult to find, but a quick bit of Internet hunting may help you to locate a copy. If you find yourself in the "Committed" category, you might want to take a look at the Natural History Book Service (NHBS) website: nhbs.com/books — but be careful! You'll find a veritable treasure trove of books to lose yourself in! This company is based in the UK but ships worldwide. The books that we've talked about above should not require a special order from the UK. Bigger chains like Indigo.ca or Amazon.ca may be the only sources for some of these titles, but be sure to include your local bookstore (new or used) in your search. Just like in the field, you never know what hidden treasures you might find! ■

Lorna Allen is a retired biologist. She spent more than 35 years working in Alberta's protected areas, including working as the Coordinator for Alberta's Conservation Data Centre, the Alberta Conservation Information Management System (ACIMS).

Linda Kershaw is a retired botanist and author who also enjoys photography and illustration. Over her 40-year career in the western NWT and Alberta, she spent summers in the field searching for rare plants and describing vegetation, and winters writing books and reports at her home in the Beaver Hills (now a UNESCO Biosphere Reserve).



The Myth of Alberta Environmental Exceptionalism

BY LORNE FITCH

Alberta is portrayed in tourism marketing materials with sweeping, pristine landscapes and the pronouncement, “Remember to breathe.” At the same time, the province is advertised as “open for business.” To ensure that environmentally conscious investors are not put off, a picture is painted of high regulatory standards and social licence. It would seem we in Alberta are at the pinnacle of environmental excellence.

UCP Energy Minister Sonya Savage has proudly proclaimed, “Our energy sector is the most responsible energy sector across the planet, [and] has the highest environmental, social and government standards.”¹ She wasn’t the first to mouth these words and likely won’t be the last. Others have used the time-worn phrase “world class” to describe Alberta’s environmental standards.

I am unaware of any independent, arms-length confirmation of these

assertions. The UCP government is a purveyor of grand myths, and few are as insidious as those of Alberta environmental exceptionalism. To be clear, the UCP did not invent the myth, but they have taken out a patent on it and its wholesale use.

UCP leaders have become strident cheerleaders for unparalleled development. They are intent on navigating (and maybe circumventing or erasing) the regulatory hurdles put in place by previous, more careful administrations. They create illusionary boxes of oversight to be checked off in order to assure a positive spin for resource extraction and exploitation.

This is done under a rallying cry of “getting Alberta back to work,” drowning out the true motive for unwinding environmental protection tools, which is simply to increase economic returns. The unmistakable signal from the UCP is that environmental protection policies and legislation are frivolous

and impede economic recovery. This is the essence of their campaign of “red tape” reduction.

Words, as any lawyer will attest, are slippery. They can convey, initially, a feeling of understanding, of shared meaning, and a minimizing of concerns. I would agree Alberta has higher standards than, say, Venezuela, Russia, or Nigeria, but what does that really mean? If you fudge the standards or fail to properly define them, the ideal of standards falls away and becomes meaningless.

Sloganeering

Politicians and corporate leaders chant about excellence in environmental standards, hoping to drown out the sounds of unpleasant revelations. Catchy slogans are a preferred tool.

Consider this slogan: “Clean coal.” What a righteous ring it has. It summons the aura of a wholesome, immaculate substance. But stripping away the layers, as happens in the mining of coal,

shows it is neither clean, immaculate, nor wholesome.

"Clean" is not a word one should associate with mountaintop removal, selenium contamination, global warming, acute and chronic human health issues, loss of threatened trout species, wildlife disruption, siltation of streams, sediment pond failures, coal dust migrating miles downwind, noise, and an economic bust that inevitably follows the mining boom. Tacking on the adjective "clean" fails miserably to enhance the virtue or dismiss the effects of coal mining.

We need to be very sceptical of what the Alberta government, the Coal Association, and coal companies tell us about the merits of "clean" coal mining, especially in our headwaters.

The rescinding of Alberta's Coal Policy by the UCP government resulted in a rush of leases in the southwestern Eastern Slopes. One of those leases now includes one of the province's recreation areas and other such areas are surrounded by coal exploration plans. Environment and Parks Minister Jason Nixon boldly stated that these areas were safe and would not be made into coal mines. In a statement made November 30, 2020, he touted, "There's strong laws to prevent that and rightly so."² Really? Those strictures are found in the Coal Policy, which his government attempted to axe without public consultation.

In the Eastern Slopes, coal is closest to the surface on mountaintops and hence, more economical to extract. This creates an issue for wildlife like bighorn sheep, who use these areas as critical winter range and secure lambing areas. This seems to have escaped the

notice of the Alberta Energy Regulator (AER), the agency responsible for regulating, in the public interest, any industrial activity. On several occasions now, foreign-owned coal companies have been given major variances, allowing incursion into these areas within critical time periods, voiding any sense of wildlife protection. Permission

**Obfuscating
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to do so has occurred seemingly within minutes of receiving the company's requests, suggesting an unusual level of clairvoyance on the part of the regulator.

Statements of concern from environmental organizations have been dismissed with a classic "catch-22" response that the concerns could not be registered because approvals had

already been provided. As the environmental community points out, "It seems that to participate in the AER's process one must be able to anticipate when companies will submit applications, and submit a statement of concern before the application is posted online publicly."³ Perhaps the clairvoyants in AER can explain how this can be done.

Another slogan is "ethical oil." Despite this slogan's feel-good message, "ethical oil" has not been shown to produce lower greenhouse gas (GHG) emissions. Reducing the amount of GHG emissions per barrel of oil has little relevance to environmental excellence if the number of barrels produced continues to increase.


It is now clear from federal government research that gas leaks (fugitive emissions), especially that of methane gas, are a very potent GHG. These emissions are alarmingly high from Alberta gas wells and facilities. Monitoring and regulatory oversight have been shown to be insufficient to even assess the magnitude of the issue, let alone deal with the suppression of these leaks.

Appending the word "ethical" to the product of the petroleum industry hasn't prevented the abandonment of thousands of wells with insufficient reclamation bonds and the reality that taxpayers will have to foot the bills for cleanup. It also hasn't solved the need to clean up and restore oilsands mines with substantial, unfunded financial liabilities and no clear strategies for effective remediation.

There is no slogan to sanctify lumber produced in Alberta, similar to "clean coal" and "ethical oil," but if there were it might be "immaculate logs" or "laundered lumber."



Instead of meaningfully balancing development with environmental protection, we get face-saving, empty slogans without substance or effective governance.



The boreal mixed wood and the Eastern Slopes forests are subject to the pressure of cumulative effects, and the largest human footprint is logging. Clear-cuts change the hydrologic regime, increasing the speed and magnitude of runoff. Skid trails and roads capture runoff and deliver water and sediment faster to receiving streams. Poorly installed culverts block upstream fish passage. Herbicide treatment to suppress deciduous trees, in favour of conifers, changes the mosaic of natural forests, including essential riparian vegetation.

Several independent cumulative effects assessments have shown that many other forest values — i.e., biodiversity, water quality, and recreation — cannot be maintained under current levels of timber harvest. A 2020 report commissioned by the Alberta Chapter of The Wildlife Society, a group of professional biologists, academics, and consultants, was dismissed by Agriculture and Forestry Minister Devin Dreeshen, who said the department was already using “adaptive and sustainable forest management.”⁴ The same minister called on his officials to increase logging by 13% to boost economic

activity.⁵ This isn’t forest management; this is timber mining.

Of the five salmonid species native to the streams and rivers of watersheds subject to logging, one species, Athabasca rainbow trout, is considered “endangered”; two species, bull trout and Westslope cutthroat trout, have been designated “threatened”; arctic grayling is a “species of special concern”; and mountain whitefish are deemed “secure” even though their populations have crashed in many watersheds. This is not an expression of successful “adaptive and sustainable forest management.”

Logging is also implicated in the drastic decline of caribou populations. Only two of Alberta’s identified herds of caribou are deemed “stable,” whatever the term means. Some no longer exist. Most herds are plummeting, with population graphs that resemble playground slides. Herds are now largely isolated from one another on diminishing islands of habitat. All we are left with is a very strong sense that caribou are in a slow race to oblivion in Alberta. Maintaining the land-use status quo, especially timber harvest, means the elimination of caribou, in a relatively short time frame.

How did we get here?

We’re at this point because our political leaders have focused on economic development at the expense of all other social values. Instead of meaningfully balancing development with environmental protection, we get face-saving, empty slogans without substance or effective governance.

Alberta might well be “exceptional” — but not for the reasons we had hoped. The UCP seem determined to turn our Eastern Slopes, the source of water for the majority of Albertans, into a series of black holes flanked by a toxic chemical stew and convert our forests into stumps and muddy OHV trails. In the boreal mixed woods, there will be little slackening of logging despite the spectre of caribou winking out of existence. GHG emissions will increase and our world will become warmer, with more extreme weather events that will challenge food production, our safety, and our ability to pay the costs of increased liability. And the aftermath of oilsands mining will be an enduring and expensive toxic legacy. Yes, this is exceptional. Shameful, but exceptional.

Obfuscating profit-driven intentions with a false narrative about Alberta

environmental exceptionalism is disgraceful. We can do so much better than this, with transparency, humility, honesty, and ethical behaviour. We should aspire to environmental exceptionalism in Alberta, but we won't achieve it with empty slogans. ■

Lorne Fitch is a Professional Biologist, a retired provincial Fish and Wildlife Biologist and a former Adjunct professor with the University of Calgary.

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You Can Make a Difference

If you are upset about the government dismantling policies that protect Alberta's landscapes, you are not alone. Over the past few months, more than 100,000 Albertans from all across the province have written to the government to voice their objections to these policy changes. These emails and letters are making a difference. Under increasing public pressure, the government has recently reinstated the Coal Policy and reversed its intention to remove parks from the provincial parks system. Unfortunately, this is only a temporary reprieve. Final decisions on coal mining in the Eastern Slopes and the management of Alberta parks will be made after public consultations later this year. Nature Alberta will keep you informed about when these opportunities for consultation become available.

In the meantime, it is important to keep these issues high on the government's agenda. Please consider writing to Minister Savage to say that protection of the Eastern Slopes should take precedence over coal mining. And let Minister Nixon know that our parks system needs to be enhanced and expanded, not dismantled. Adding a cc to your local MLA is also helpful, as many are becoming nervous about the policy directions that Cabinet has taken. **Every voice counts.**

Sonya Savage, Minister of Energy:
minister.energy@gov.ab.ca

Jason Nixon, Minister of Environment and Parks:
aep.minister@gov.ab.ca

Emails for local MLAs can be found at:
www.alberta.ca/staff-directory.cfm

Tiger Salamanders

BY CHERYL TEBBY

I was seven years old when I first saw Alberta's elusive tiger salamander. Nearly six inches long and smooth, I can still remember its richly colored body: black stripes and splotches contrasted against olive green. It was easy even for a child to see how this salamander's coloration was reminiscent of its big-cat namesake. But stripes were not the only tiger-like feature it possessed: tiger salamanders have a voracious appetite and a wide mouth that allow them to feed on a wide range of prey, including subterranean worms, beetles, and the occasional small vertebrate.



Stripes aren't the only similarity these amphibians have with their namesake. They are also voracious eaters. ALYSSA METRO

This particular salamander I encountered, however, fed on pet-store crickets and was affectionately named “Speedy” by my Grade 2 classmates. Despite the occasional nipped finger (due to their superficial similarity to worms) he was a beloved classroom pet, and more impor-

tantly, he was our glimpse into the lives of Alberta's lesser-known amphibians.

The tiger salamander is one of only two species of salamander in Alberta, the other being the long-toed salamander found in alpine habitats. Tiger salamanders are widely distributed across the central interior of North America, as far south as Texas. Within Alberta, they are found in short-grass prairie, aspen parkland, and southern regions of boreal forest.

The tiger salamander's exotic coloration and impressive size are not typical of northern amphibians. From the tip

of their snout to the tip of their tail, an adult salamander can grow to nearly nine inches long. Young salamanders have brighter coloration than older individuals, whose spots and stripes may fade into a uniform olive, brown, or black color.



Elusive adult salamanders spend much of their time underground, often using other animals' abandoned tunnels. ALEXANDER MOROZOV

Adult tiger salamanders spend much of their time in underground burrows and therefore are seldom seen. In early spring, they return to permanent and fishless water bodies to mate. Like frogs, salamander eggs hatch into aquatic larvae (i.e., tadpoles) that later metamorphose into terrestrial adults. But unlike frogs, they possess a set of fringed gills as tadpoles and they retain their tail into adulthood. Development from egg to adult typically occurs in just three to four months, and they must leave their shallow wetland to seek shelter underground before the winter freeze.

Although capable of digging, tiger salamanders will often exploit abandoned tunnels of burrowing mammals. In urban areas, tiger salamanders use man-made water bodies for breeding, and shaded damp areas along river valleys provide them with plenty of suitable prey and fallen debris for cover. Urban residents are often surprised to learn that they share their city with tiger salamanders. Encounters are uncommon

but do happen on occasion. Tradesmen and laborers have reported seeing tiger salamanders unearthed during excavations. And residents living near aquatic habitats sometimes find themselves assisting in a morning rescue mission to free a hapless salamander that toppled into a window well the night before.

Despite their wide distribution and seemingly stable population, tiger salamanders are listed as a “special concern” species by the Canadian *Species at Risk Act*. Threats to amphibian populations are steadily increasing worldwide, and compounded perils could see the decline of even the hardiest of amphibians. In Alberta, tiger salamanders are affected by the loss and degradation of their habitats due to industrial development. Expanding residential areas and their subsequent road developments are causing more salamander road mortality as adults attempt to cross to fragmented wetlands to breed. Outdoor cats and recreational fish stocking are increasing predation, and the spread of disease such as rana viruses and chytrid fungus can devastate local populations. Clearly, there is a need for studies that not only monitor population trends but delineate favorable habitat for future land conservation.

Speedy the salamander may have been my first encounter with Alberta’s tiger salamander, but he was not my last. Over the years I have been lucky to witness wild salamanders in their natural environment, where they occupy a unique ecological niche. In shallow water bodies that cannot support fish, tiger salamanders are the largest aquatic predator and influence the composition of aquatic food webs. Their presence, like that of frogs, is indicative of a healthy aquatic ecosystem.

Looking back, I recognize that Speedy’s original captor had good intentions of teaching our class about this unusual animal. But tiger salamanders are not meant to be pets. Speedy eventually came home with me after class let out for the summer. He was treated to evening romps in the backyard by my mother, whose deep appreciation for

Alberta’s wildlife preceded my own. By “accident” one night, Speedy evaded her notice and disappeared into the brush of the garden. I have no doubt he eventually returned back to the river valley across our quiet street. I couldn’t stay sad about his departure for long. After all, it was summer. His job of teaching was done. ■



Top: A tiger salamander in the aquatic larva stage. SEANIN OG

Bottom: A juvenile tiger salamander in a late stage of metamorphosis. JOHN P. CLARE

Cheryl Tebby is a longtime amphibian admirer and the Treasurer of the Alberta Amphibian and Reptile Conservancy. Questions and comments can be directed to aarceducationandoutreach@gmail.com

Nature Kids



My BIG Alberta Backyard

BY STEPH WEIZENBACH, NATURE NETWORK COORDINATOR

Alberta 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 **Waterton Biosphere Reserve**.

What is a Biosphere Reserve?

A Biosphere Reserve is an area where biodiversity — wild variety of plants and animals — meets sustainable development. The Waterton Biosphere Reserve is a

mosaic of protected parks, First Nations Reserves, and a variety of public and private land. It is an area where people come together to work, live, and play among ecologically important places while conserving the environment — keeping the plants, animals, air, water, and land healthy.

Waterton Biosphere Reserve

The Waterton Biosphere Reserve is located in southwestern Alberta, where the prairies meet the Rocky Mountains. Do you live in the biosphere reserve? You do if you live

in the Piikani Reserve, Kainai Reserve, Pincher Creek, Cardston County, or Crowsnest Pass.

The parks and recreation areas of the biosphere reserve provide visitors with a wide variety of outdoor activities. From scuba diving to horseback riding to rock climbing, your opportunities to explore are endless. My personal favourite is to just go for a walk on the trails and enjoy the scenery and surroundings. Whatever activity you choose, the wildlife viewing opportunities are sure to be memorable, so keep your head up and eyes open!

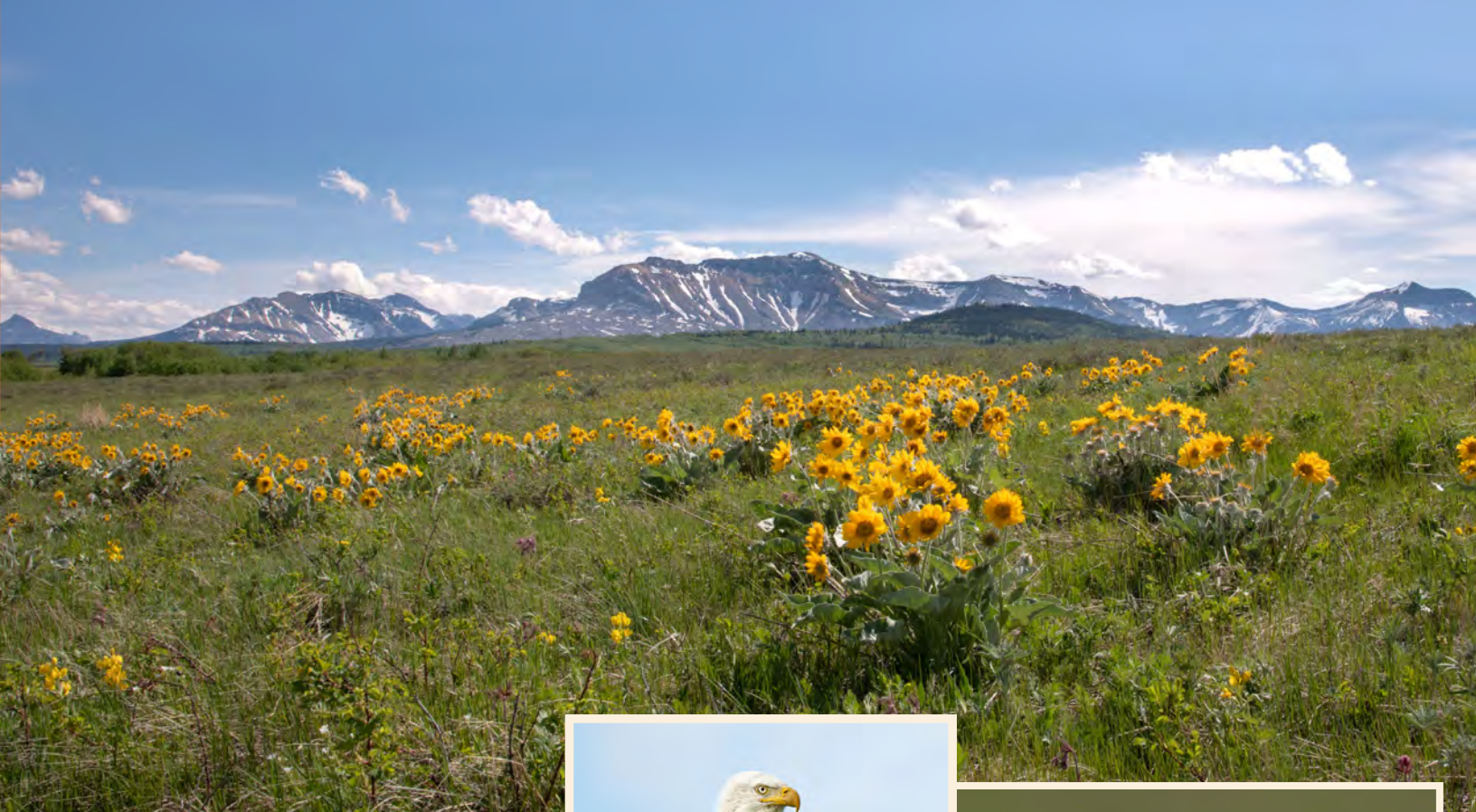
Waterton Wildlife

As you travel along the roads in the Waterton Biosphere Reserve, keep an eye out for bighorn sheep licking salt off the road, elk meandering through the meadows, mountain goats perched on rocky outcroppings, and if you're lucky, grizzly bears munching on dandelions in the ditch.

Taking a hike along a trail with mountainous rubble, listen for the high-pitched squeak of a small mammal in the rabbit family called a pika. Search the rocks for the pudgy little brown critter with no visible tail and big, round ears. Found it? Stop and observe. You will see the pika collecting flower heads and grasses to stash them in their den, to prepare for the inevitable winter.



A pika in the craggy rocks near its den. Listen for their adorable squeaky calls!
STEPH WEIZENBACH



The hills are alive... with wildflowers! LETA PEZDERIC

Bring your binoculars and identification guide to learn about the birds along your journey. You may see a bald eagle perched in a tree, witness an osprey catching a fish from the lake, or hear the eerie yodeling call of a common loon. When in a grassy field, check the barbs on a barbed wire fence for impaled grasshoppers. This is a sign that loggerhead shrikes are nearby. Look for a robin-sized, white and grey bird with black markings, including a mask that extends from its eyes to its raptor-like beak. They hunt for insects and impale their prey on thorns or barbs, to eat later. Loggerhead shrikes are designated “threatened,” meaning they are likely to disappear if something isn’t done to help protect them now. The Waterton Biosphere Reserve helps protect many species at risk, such as this shrike, by tying the conservation efforts of the entire region together, and bringing balance to the landscape. ■



A bald eagle surveys the landscape from a high-up perch. LETA PEZDERIC



A loggerhead shrike snacks on an insect. Yum! GERALD ROMANCHUK

BIOSPHERES BONUS! Nature Alberta has published booklets on both the Waterton Biosphere Reserve and the Beaver Hills Biosphere Reserve, packed with great information on visiting these unique places and fun activities you can do there. Download yours today at bit.ly/MyBigAlbertaBackyard.

Out and About

BY STEPH WEIZENBACH, NATURE NETWORK COORDINATOR

Bee Bombs

Pollinators, including bees, are in trouble because of habitat loss, pesticide use, and climate change. Bees are important to us because they pollinate plants in nature, farmers fields, and even in our vegetable gardens. You can help the bees with this fun Earth Day activity!



A busy, buzzy bee at work. DORIS MAY
Brown-eyed Susan in bloom.
STEPH WEIZENBACH



What you need:

- ✓ ¾ cup of soil or compost
- ✓ ¾ cup wet potter's clay
- ✓ Variety of native flower seeds*
- ✓ Large mixing bowl



NATURE
CONSERVANCY
OF CANADA



What to do:

- 1 Using your hands, mix the wet clay and soil together, thoroughly, in a large mixing bowl.
- 2 Pinch off one teaspoon worth of soil mixture — about the size of a marble — and press 3 to 5 seeds in the middle.
- 3 Roll, roll, roll the soil mixture and seeds into a ball in the palms of your hand. Set the bee bomb aside to dry.
- 4 Repeat Steps 1, 2, and 3, until all of the mixture is used up. This makes about 100-150 bee bombs!
- 5 Get outside and drop your bombs in your garden and anywhere else you have permission to plant. The rain will water your wildflowers.

Beautiful native flowers will grow from your bee bombs to feed the bees for years to come. Thank you for helping our buzzing bee friends! ■

Information gathered from: Land Lines:
The Nature Conservancy of Canada Blog
<https://www.natureconservancy.ca/en/>

*Seeds for the Bees

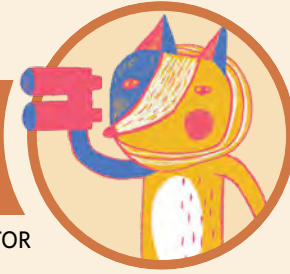
We recommend these flowers for your bee bombs because they grow naturally in Alberta, provide food for bees, and are perennials, meaning they will grow back every year:

- brown-eyed Susan, *Gaillardia aristata*
- giant hyssop, *Agastache foeniculum*
- low milkweed, *Asclepias ovalifolia*
- meadow blazingstar, *Liatris ligulistylis*
- smooth fleabane, *Erigeron glabellus*
- wild bergamot, *Monarda fistulosa*

To find a seed supplier in Alberta, visit the Alberta Native Plant Council at anpc.ab.ca. In Edmonton, visit the Edmonton Native Plant Society at edmontonnativeplantgroup.org.

Steer clear of generic wildflower mixes, since many include flowers that are invasive weeds in Alberta. Invasive weeds outcompete our native flowers and prevent them from flourishing. This reduces biodiversity, meaning there are fewer species of flowers for the bees to feed on. Variety is important to keep our environment healthy and resilient. ■

Ask Stuart



BY STEPH WEIZENBACH, NATURE NETWORK COORDINATOR

Welcome 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 and it may be featured in a future issue.

Q Stuart, why are you called a SWIFT fox?

The word "swift" means to move with great speed. As the name suggests, swift foxes are fast! Individual swift foxes have been clocked at more than 60 km per hour. That is faster than the speed of cars driving past your house! Being super-fast helps swift foxes catch their food. They often hunt by sneaking up on mice, grasshoppers, frogs, and small birds, but they can also use their speed to catch a jackrabbit on the run.

Swift foxes are smaller than their more common cousin, the red fox — with whom they do not get along. A swift fox is about the size of a house cat. Their small size contributes to the illusion that they are going even faster. This trickery can help swift foxes escape from a bully coyote. They also need to quickly take cover in a den when an eagle or hawk soars overhead, to keep from becoming their breakfast. ■



The fleet-footed swift fox pauses for a photo. GORDON COURT

Information gathered from: <https://www.hww.ca/en/wildlife/mammals/swift-fox.html>

Q Are spiders born knowing how to build a web?

This is the perfect question to ask our expert friend John Acorn, a Naturalist at the University of Alberta. John Acorn said:

Baby web-building spiders are born almost knowing how to build a web, but not quite. For babies of many species, the first days of life are spent with brothers and sisters, in a messy, shared web, which may be part of their mother's larger web. At this stage, the "spiderlings" are too small to build webs of their own, or to catch prey. Instead, they feed on pollen, which they find stuck to the threads of their communal web. But soon, after they have shed their skin one or two times and grown a bit, the baby spiders are ready to build a web just like their parents', only smaller. They don't have to learn how — they just know. Babies of some spider species build round "orb" webs, others build tangled or funnel-shaped webs, and others don't build webs at all. Spiders such as wolf spiders and jumping spiders never build webs, and pursue their prey on foot instead. ■



An intricate spiderweb glistening with dewdrops. DORIS MAY



Newly hatched "spiderlings" on their communal web. That's a lot of brothers and sisters to share a room with! STEPH WEIZENBACH

Plant Propagation

BY MARGOT HERVIEUX

Many of us are starting to think about seeding our gardens or crops but seeds are not the only way that plants spread themselves around. They can also use parts of themselves to start new plants.

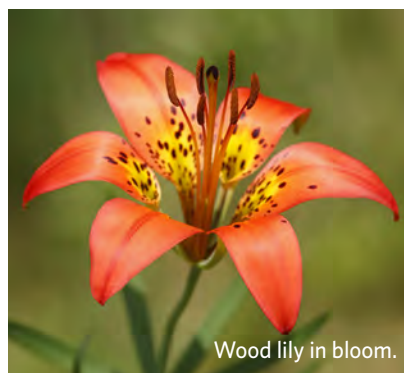
Seeds, as a form of sexual reproduction, are critical for maintaining diverse, healthy populations but conditions have to be just right for germination. In order to get the jump on growth, plants use all sorts of different strategies to produce more plants.

A common way that plants spread without seeds is by sending up sprouts from their own roots. If you have ever tried to deal with a suckering shrub you know all about those. Trees like aspen and poplar spread mostly through suckers, resulting in clones of related trees. If you see a patch of aspen that all leaf out and turn colour at the same time, the trees are likely clones.

Bulbs are swollen underground stems that store nutrients and protect the new leaf and flower buds during the winter. Little bulbils sprout from the base of the bulb and increase the size of the clump. All of the members of the lily and onion families grow from bulbs, including

orange wood lilies. Bulbs are particularly sensitive to picking because without leaves they can't produce and store the energy they need to grow the next year.

Strawberries start new plants by sending out runners. These modified stems,



Wood lily in bloom.

or stolons, grow across the surface and then a baby plant sprouts from a joint. Shrubs like dogwood will also root where a stem touches the ground.

Rhizomes are also stems but they spread underground. Grasses and many wildflowers, including violets, are well

known for their ability to spread by rhizomes. Some plants will also produce tubers at the end of a rhizome. These swellings are primarily used for storing sugars but they can also sprout new plants.

Sometimes when a tree falls, buds on the trunk will sprout, allowing a new tree to regrow. Dandelions are also famous for their ability to regrow from the root even after being dug. People take advantage a plant's ability to grow roots or stems from a break by starting new plants from cuttings.

Mosses and lichens can spread by breaking apart. If pieces of the plant are carried or blown to a good location, the fragments simply start to grow.

If a plant wants to travel any distance, seeds are by far the most efficient means. But adaptations like suckers, rhizomes, and runners are great for helping a plant cover new ground. ■

Margot Hervieux is a founding member of the Peace Parkland Naturalists, an honorary member of Nature Alberta, and a longtime Nature Alberta board member. 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.



MEET A MEMBER CLUB

BY DAVE EALEY

Wagner Natural Area Society

Officially established under a provincial public land program in 1975, the Wagner Natural Area protects a remarkable diversity of plants and animals representative of our provincial Boreal Forest. As a groundwater-fed wetland complex, it features nutrient-rich fens bearing the right chemistry to support rare and sensitive plants. More than half of the orchids that naturally occur in Alberta can be found here, particularly the yellow lady's-slipper.

Taking a historical perspective, Wagner Natural Area exists only because the post-glacial conditions, favourable for colonization by native parkland and boreal forest species, proved to be unfavourable for agricultural and other human uses. The site also persisted because William Wagner, the namesake property owner, successfully fended off a company seeking to mine the marl from his wetlands for a cement plant. Since the Wagner Natural Area Society came into being in 1983, other development pressures have been rejected based on sound research of Wagner's ecological values and public support for a four-season environmental gem within Parkland County. These challenges

have included transportation proposals that would have sliced through our sensitive fen and private development that threatened the sustainability of our groundwater aquifer. Committed conservation demands perseverance.

Today, visitors enjoy safe access to a trail maintained by Society volunteers. The Marl Pond Trail meanders through distinctive forest communities and alongside examples of open wet areas. Habitats along the trail serve as summer breeding grounds for insects, amphibians, and warblers, like the yellow-rumped warbler and the ruby-crowned kinglet. A booklet for self-guided hikes along the trail helps visitors interpret the area's ecological and species stories. Not to be missed: "Toad Alley," a section of our Marl Pond Trail that on late summer nights features an abundance of some of the largest boreal toads imaginable.

Explore our website at wagnerfen.ca to learn more about the area's numerous species and enjoy stories from our extensive newsletter archive. Or better

yet, come visit and enjoy a hike through an open meadow and a variety of forest types: spruce and tamarack, mixed wood, willow, balsam poplar, and aspen.

We're located between Edmonton and Spruce Grove on the south side of the Yellowhead Highway. Look for events on our website; we hope to resume our annual Orchid Walk once the turmoil over COVID ends. During the past pandemic year, we've seen many of our neighbours in Parkland County come to the natural area and walk our trail. People clearly thrive on their connection with this special place. For many of us who commit so much time to maintain and defend the site, Wagner Natural Area is our place of spiritual nourishment. We always welcome volunteers to bring their talents and interests to supporting this treasured area. Please contact us at info@wagnerfen.ca to talk about how you can get involved. ■

Dave Ealey is the President of the Wagner Natural Area Society. As a signatory in 1983 to a supporting letter for WNAS addressed to the then-Public Lands Minister, Dave is amazed he is still involved with the natural area almost four decades later.



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Your contribution to the **Nature Alberta Endowment Fund** helps ensure we can continue to promote, conserve, and protect Alberta's natural heritage for years to come.

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www.ecfoundation.org/funds/nature-alberta-fund



The Nature Alberta Endowment Fund has been established and maintained with the assistance of Edmonton Community Foundation.