

NATURE ALBERTA

MAGAZINE

SPRING 2020
NATUREALBERTA.CA

A COMMUNITY
CONNECTED BY A
LOVE OF NATURE

Can Smartphones Kill Trout?



Recovery of
Ord's Kangaroo
Rats

The People Behind
Nature Alberta:
Dennis Baresco

History of
Alberta's
Forests

Winagami Southwest 2
Conservation Site

It's an Alberta thing.



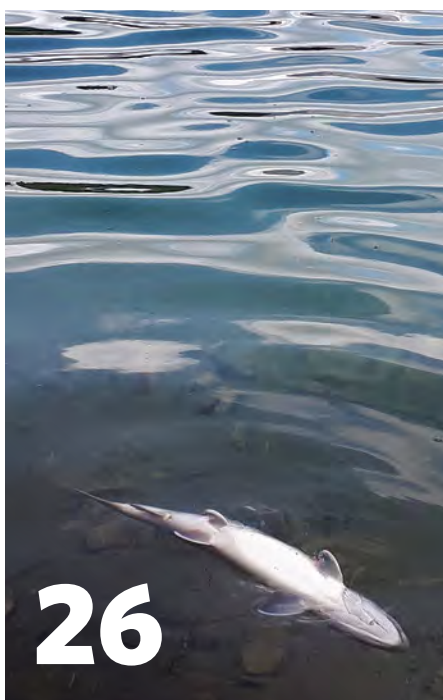
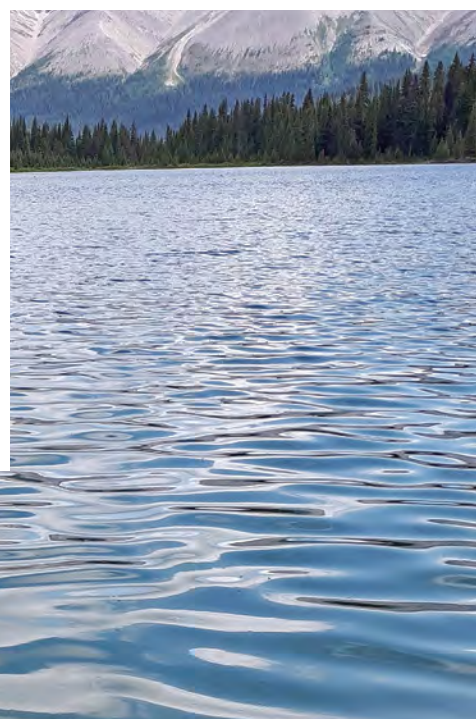
Alberta Conservation
Association

wildlife | fish | habitat

CONTENTS

SPRING 2020

- 02** From a President's Perspective
- 03** Nature Alberta News
- 04** Alberta Provincial Parks and Natural Areas Face Closure
- 07** Recovery of Ord's Kangaroo Rats on the Suffield National Wildlife Area
- 12** River Otters in Medicine Hat
- 14** Celebrating the People Behind Nature Alberta: Meet Dennis Baresco
- 18** The Road to 50
- 20** Nature Kids
- 26** Can Smartphones Kill Trout?
- 30** Alberta's Conservation Data Centre Needs Help
- 32** The History of Alberta's Forests and Our Evolving Relationships With Them
- 36** Meet a Member Club



NATURE ALBERTA MAGAZINE

SPRING 2020

ISSN 1713-8639

Publisher Nature Alberta

Managing Editor Kristina Dembinski

Creative Broken Arrow Solutions Inc.

Editorial Committee

The Magazine Editorial Committee, which consists of dedicated volunteers, who all have a passion for nature, lend their respective experience and expertise to developing editorial outlines, commissioning articles and reviewing/vetting article submissions for the magazine. The committee includes:

Lu Carbyn

Linda Howitt-Taylor

Kim MacKenzie

Valerie Miller

Richard Schneider

Content editor@naturealberta.ca

Advertising ads@naturealberta.ca

Subscriptions circulation@naturealberta.ca

Nature Alberta magazine is published four times per year by:

Nature Alberta

11759 Groat Rd NW

Edmonton, AB T5M 3K6

P. (780) 427-8124

E. info@naturealberta.ca

Nature Alberta Magazine (electronic) is made available free of charge at naturealberta.ca. Print copies of Nature Alberta Magazine are available by annual subscription, which covers the cost of postage and handling of up to four issues per year \$40 Canada | \$60 USA | \$85 International (Canadian funds + GST). Publications Mail Agreement No. 40015475

Advertising in Nature Alberta Magazine is not considered an endorsement by Nature Alberta. Opinions expressed by the authors of articles included in this publication do not necessarily reflect those of Nature Alberta or its affiliates. The Editorial Committee reserves the right to edit, reject or withdraw any articles submitted. This publication is copyrighted and no part may be reproduced in any form, in all or in part, without the written consent of Nature Alberta.

©Nature Alberta 2020

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.



NATURE
ALBERTA

A COMMUNITY
CONNECTED BY A
LOVE OF NATURE

FROM A PRESIDENT'S PERSPECTIVE

I recently returned from England where I stayed with family and friends in a semi-rural area west and southwest of Salisbury. I soon discovered much to see and do, even in the rainy season.

Walking trails are abundant in Britain. There is no charge to access them other than by donation for the maintenance and protection of the given area or trust area. Landowners are obligated to allow pedestrians to cross their land and even provide gates or stiles to assist in mounting fences. Because these trails cross and criss-cross and link up with "by-ways" once traveled by farmers, sheep herders, and traders in ancient days, one can walk and explore quite a distance.

What really caught my attention, however, was how people rally and gather, trek and trot, to protect, explore and enjoy their natural areas. No matter the time of day, there were equestrians and hikers accessing the surrounding hills and wetlands or strolling nearby fields and wooded areas. Their knowledge of their surroundings and awareness of their wild neighbours, whether animal, insect or plant was impressive. It seemed everyone in the community was aware of what they were seeking, and was well acquainted with feeding and mating habits, and where to find potentially rewarding sites and habitat. All were eager to share, and I wondered what led them there.

Brits have long boasted a strong sense of pride in their natural areas. What has emerged is a system of protecting natural areas and species reinforced by the establishment of 46 Wildlife Trusts. These trusts provide financial support to keep protected areas healthy and promote new initiatives supported by local, non-profit clubs. These funds support the work of naturalist clubs and committed volunteers like you and provide impetus for new campaigns to further the health and well-being of people, flora and fauna.

Nature Alberta is seeking to evolve and grow just as others are realizing our dependence on nature. We seek how best to promote a love of our prime resource, nature, and motivate Albertans to protect it, and we look to others, like the Wildlife Trusts, for inspiration and ideas.

For interest and inspiration check out the Wildlife Trusts website wildlifetrusts.org/about-us then share your thoughts with us.

LINDA HOWITT-TAYLOR

"We need nature and it needs us. We're here to make the world wilder and make nature part of life, for everyone. We're helping to make life better – for wildlife, for people and for future generations."

RICHARD ATTENBOROUGH,
THE WILDLIFE TRUSTS

NATURE ALBERTA BOARD OF DIRECTORS

Executive Committee

President Linda Howitt-Taylor

Vice-President Richard Schneider

Treasurer Janice Yu

Past President Lu Carbyn

Appointed Directors

Lu Carbyn

Linda Howitt-Taylor

Brian Joubert

Richard Schneider

Janice Yu

Elected Directors

Alberta Native Plant Council Kim MacKenzie

Buffalo Lake Naturalists Claudia Lipski

Edmonton Nature Club Len Shrimpton

Friends of Elk Island Liz Watts

Grasslands Naturalists Angela Turner

Lac La Biche Birding Society Jennifer Okrainec

Lethbridge Naturalists Society Ted Nanninga

Peace Parkland Naturalists Margot Hervieux

Red Deer River Naturalists Tony Blake

Nature Alberta News

Saying Thank You

Originally part of the new magazine Editorial Committee, Dennis Baresco and Brook Skagen have decided to step away from the committee but they will stay in touch and continue to support the magazine by contributing content to future issues when they can. We can't thank them enough for the significant contributions they have made to the magazine and Nature Alberta over the years and we wish them all the best.

May Plant Count

The May Plant Count is an annual event sponsored by Nature Alberta. This year's Count takes place May 25 – 31, 2020. Data gathered by volunteers during the Count provides valuable information on the distribution and phenology of flowering plants in Alberta. To become a May Plant Count

volunteer or for more information, contact the Count Committee at mayplantcount@outlook.com.

Share Your Nature Photos

Are you interested in sharing your nature photos with us? We are always on the lookout for photos of Alberta's animals, plants, insects and people at work or enjoying nature to use in our publications, online and more (with appropriate recognition, of course). If you'd like to share your artwork, please email info@naturealberta.ca.

We're 50 and We're Celebrating

We are still seeking archival materials and historical content including photos and back issues of Nature Alberta Magazine. We're specifically looking for

- Volume 31, Number 1
- Volume 42, Number 3
- Volume 42, Number 4 of Nature Alberta magazine.

If you have something to contribute, please email us at info@naturealberta.ca or phone 780-427-8124. Mark your calendars: we are planning a 50th anniversary banquet in Edmonton on October 24. More details to follow.

Nature Kids – Family Nature Nights

Join Nature Kids and some very knowledgeable experts at these upcoming, free events in Edmonton. More details will be announced on our website, Facebook and Twitter.

- July 15: Water
- July 22: Birds
- July 29: Trees
- August 5: Decomposers
- August 12: Indigenous Summer
- August 19: Rocks and Fossils

Should we need to change or cancel these events we will notify people on social media and our website.

Letter to the Editor

It is with a sense of serious concern that I read the article "Revelations on Combat Biology" by Lorne Fitch in the Winter 2020 issue of Nature Alberta. The example used by the author as a prelude to his discourse on "combat biology" leaves the impression that Amoco Canada was acting in an unethical manner in applying to drill an exploratory well in the Whaleback. Those of us who were employed by Amoco Canada hold that the company's activities and decisions relative to the application to drill an exploratory well at the Whaleback were absolutely ethical. Application to drill was made in the normal course of exploration procedure on Oil and

Gas leases purchased from the Crown. Subsequent hearings and consultation with nearby residents and others were part of the Energy Resources Conservation Board requirements.

Amoco Canada's application to drill an exploratory well at the Whaleback provided a high-profile opportunity for residents and public interest groups to make their case regarding the importance of the Whaleback and having it set aside as a protected area. The decision of the ERCB to deny the application was influenced by previously established policy of the Alberta Government and a concern for future anticipated environment issues in Alberta. Although Amoco Canada

could have appealed the decision it chose not to.

With regard to Amoco Canada's leases, the mineral rights were donated to the Nature Conservancy of Canada by Amoco Canada, not purchased as erroneously stated in the article. This led subsequently to land use policy decisions being made for the protection of the Whaleback.

The writer is a charter member of the Federation of Alberta Naturalists and has admired the editorial integrity of its publications over its fifty-year history. It is regrettable that this article found its way into publication.

IAN HALLADAY, CALGARY, ALBERTA



Alberta Provincial Parks and Natural Areas Face Closure

Little Fish Lake R SCHNEIDER

The Alberta government has announced its intention to remove 164 of 473 sites from the Alberta parks system. This move is part of a broader initiative to reduce government spending. Nature Alberta is opposed to this proposal for several reasons.

First, the proposal is not just about privatizing recreation facilities, as it is being portrayed. It also involves the removal of 12 provincial parks — three of which face complete closure — and nine natural areas from the provincial protected area network. Such a delisting of provincial parks and natural areas is unprecedented in Alberta. These sites were established to protect Alberta's natural heritage

in perpetuity. Their proposed removal as a sidebar to the annual budgeting process, and without public consultation, is unconscionable. It displays blatant disregard for the government's commitment to balancing resource development with protection of the environment, a high priority among most Albertans. We should be expanding our system of protected areas, aiming towards the 17% target that Canada has committed to, rather than shrinking it.

Second, in addition to protecting biodiversity, many of the sites slated for closure provide important recreational opportunities for Albertans. In fact, some of the targeted sites in northern Alberta

provide the only recreational areas in the region. They may not receive high visitation rates relative to other sites, but they are vital for local residents.

Finally, we believe the economic rationale underpinning the proposal is weak. The proposed full and partial closures are expected to result in cost savings of \$5 million. This amounts to 0.009% of the entire budget of \$56 billion — an amount that is essentially inconsequential. Furthermore, the calculation of savings does not account for the benefits that parks and recreation areas provide. Tourism and recreation contribute to the economy and they contribute to the health

and well-being of Albertans. But these benefits do not accrue without sites and facilities to visit.

If you feel strongly about this issue, please contact the Minister of Environment and Parks, Jason Nixon, and let him know your position. He can be reached at aep.minister@gov.ab.ca For more information, see the Alberta Parks website at albertaparks.ca/news-events/ ■

Crow Lake



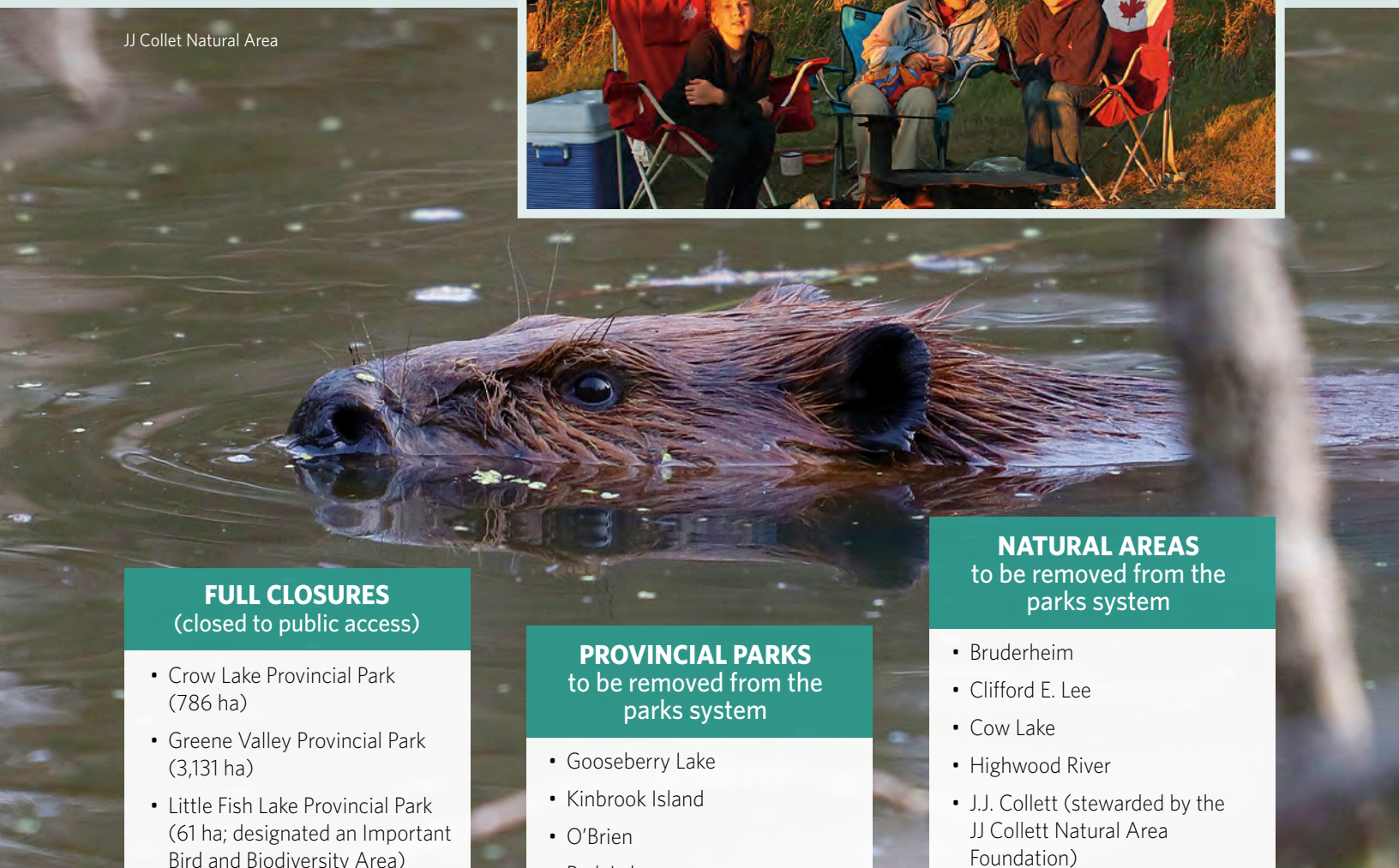
JJ Collet Natural Area



Little Fish Lake R SCHNEIDER



JJ Collet Natural Area



FULL CLOSURES (closed to public access)

- Crow Lake Provincial Park (786 ha)
- Greene Valley Provincial Park (3,131 ha)
- Little Fish Lake Provincial Park (61 ha; designated an Important Bird and Biodiversity Area)
- 7 recreation areas

FACILITY CLOSURES

- 10 parks and recreation areas

PROVINCIAL PARKS to be removed from the parks system

- Gooseberry Lake
- Kinbrook Island
- O'Brien
- Park Lake
- Red Lodge
- Rochon Sands
- Strathcona Science
- Tillebrook
- Williamson

NATURAL AREAS to be removed from the parks system

- Bruderheim
- Clifford E. Lee
- Cow Lake
- Highwood River
- J.J. Collett (stewarded by the JJ Collett Natural Area Foundation)
- Riverlot 56 (stewarded by the Riverlot 56 Natural Area Society)
- Sheep Creek
- Sherwood Park
- Wildcat Island



Join Nature Calgary

Your window to the natural wonders of Calgary

Monthly nature talks, Bird Study Group,
numerous field trips

naturecalgary.com



savingalbertasherps.org

At the Alberta Amphibian and Reptile Conservancy we care about:

- Conserving and managing habitat for the reptiles and amphibians native to Alberta
- Educating the general public about the value of herptofauna
- Promoting respect and enthusiasm for all reptiles and amphibians

Learn more at savingalbertasherps.org and  [Alberta-Amphibian-and-Reptile-Conservancy](https://www.facebook.com/Alberta-Amphibian-and-Reptile-Conservancy)



Recovery of Ord's Kangaroo Rats on the Suffield National Wildlife Area

BY PAT FARGEY

I feel my spirits lift as I clear the city limits of Edmonton and start my drive through Alberta's parkland. It is the middle of October and I can see that fall rains have frustrated the harvest. Watching the flights of ducks and geese that are taking advantage of the crops still in the fields helps pass the time. I am headed to Medicine Hat to meet up with my friend and colleague Sandi Robertson. I am going to help her with a kangaroo rat project on the Suffield National Wildlife Area (SNWA). Though I have paddled by the SNWA on the South Saskatchewan River, this will be my first opportunity to properly tour this fascinating area because access to the SNWA is strictly controlled by the military at Canadian Forces Base Suffield.

Sandi did her Master's thesis on Ord's kangaroo rats, and in 2014 she was able to secure her dream job as a biologist with Alberta Environment and Parks out of the Medicine Hat office. The recovery of kangaroo rats was now part of her job. Good for her and definitely good for the recovery of kangaroo rats.

Ord's kangaroo rat (*Dipodomys ordii*) is one of the 19 species that

occur in the genus *Dipodomys*. It is also the most widespread species, with 32 recognized subspecies. It is found throughout the arid grasslands and deserts of North America, extending up into the sandy soils and dunes of southeastern Alberta and southwestern Saskatchewan. Kangaroo rats get their name from their large back legs and feet that they use to hop in a fashion reminiscent of Australian kangaroos. They are sometimes

confused with the smaller western jumping mouse, which is also a hind foot jumper.

Canadian kangaroo rat populations have been separated for many thousands of years from US populations, the closest of which is 270 km away in north-central Montana. They have been listed as an endangered species in Canada since 2007. In Alberta, their occurrence is limited to an area of approximately 1,700 km², mostly between the Red Deer and South Saskatchewan Rivers. Their core range includes the Middle Sand Hills region, most of which is in the SNWA, as well as two sand dune complexes near Bindloss and Empress.

Kangaroo rats naturally inhabit sand dune complexes but can also occupy man-made habitats like fallow fields, sandy trails and fireguards. These man-made habitats have been studied by University of Calgary professor, Darren Bender, and his grad students.

The Ord's kangaroo rat. The average adult weight is 70g. SANDI ROBERTSON



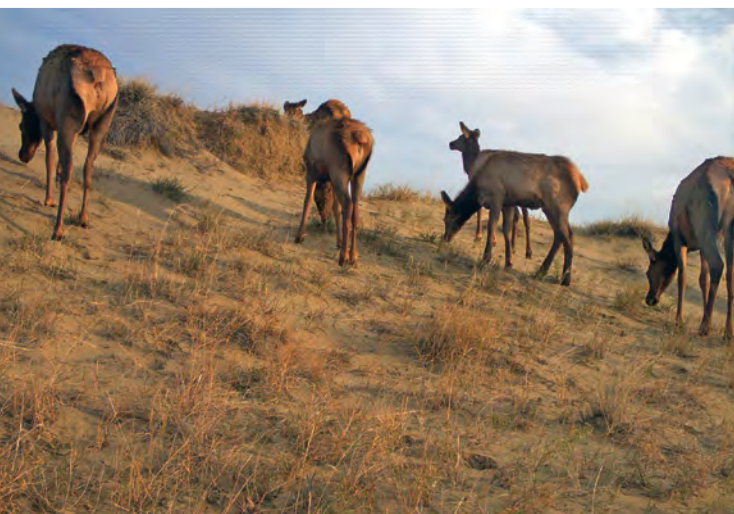
Their results suggest that man-made habitats are of lower quality than natural habitats. The causes of this difference are not fully understood but are thought to involve some combination of human disturbance (traffic, cultivation, etc.), the presence of invasive plants whose seeds are less nutritious or do not store as well as native seeds, elevated predation rates because of the availability of raptor perches on fences and power poles, and a much higher rate of parasitism by bot flies. The kangaroo

rat population in these man-made habitats is likely being maintained by dispersal from populations in nearby natural dune habitat. As we will see, the kangaroo rats on this man-made habitat are important to the story.

As recently as the early 2000s, the SNWA kangaroo rat population numbered in the thousands but it has been in decline since. A survey conducted by Sandi in 2016 suggests that only 60–80 individuals remain in five isolated sand dunes in the northeastern portion of the SNWA.

This decline is thought to have been caused by a combination of dunes becoming overgrown with vegetation, extreme weather events, harsh winters, and damage from elk.

Using remote cameras and burrow surveys, Sandi recently determined that elk may be a bigger problem than previously understood. Two hundred elk were introduced to the SNWA in 1997 and their population has expanded rapidly since then, peaking at over 7,000 animals before hunting was initiated in 2012. For whatever reason, elk spend a lot of time on the dunes, and their hooves can collapse kangaroo rat burrows and kill kangaroo rats. The magnitude of this effect on kangaroo rat populations has yet to be determined, but Sandi thinks it has the potential to be very



Remote camera photo of elk foraging on a sand dune in the Suffield National Wildlife Area. SANDI ROBERTSON

Ord's kangaroo habitat badly trampled by elk. This burrow was vacated soon after the damage from elk trampling occurred. SANDI ROBERTSON





This Ord's kangaroo rat was found crushed by an elk in 2017. SANDI ROBERTSON

significant when it leads to burrow abandonment, loss of food caches (particularly in the winter) and direct mortality.

Sandi's plan to increase the population of kangaroo rats in the SNWA is simple in its conception but logistically challenging in execution. Step 1 is to improve the dune habitat in the SNWA. For her first project, she has picked a set of dunes that once had a thriving population of kangaroo rats but has become overgrown with blue grama grass and club moss. This overgrowth reduces the ability of kangaroo rats to forage effectively because the dense vegetation impairs their ability to move around rapidly, and desirable food plants like scurf pea, needle and thread grass, and Indian rice grass are less abundant. A double whammy!

The solution is to execute a prescribed burn of sufficient intensity

to generate a mosaic of desirable cover and forage species embedded in a matrix of exposed sand. Easy to say, tough to do. Fortunately, Environment and Climate Change Canada has a long history of using prescribed fire in conservation

applications. In 2018, Kerry Hecker, a protected areas manager, led a team of six people who successfully burned two dunes, totaling 42 ha. They attempted another burn the fall of 2019, but with less

A survey conducted by Sandi in 2016 suggests that only 60-80 individuals remain in five isolated sand dunes in the northeastern portion of the SNWA.



Prescribed fire on a heavily vegetated sand dune in the Suffield National Wildlife Area. SANDI ROBERTSON

success because of difficult burning conditions.

Sandi's plan also involves fine tuning the habitat by manually clearing dense vegetation the fire missed and by creating narrow corridors to improve connections among neighbors and feeding patches. I had travelled to Medicine Hat to help with this and spent a very pleasant couple of days using a small rototiller to generate these corridors.

The last stage of the plan is to establish new populations of kangaroo rats. The fastest, most reliable way to do this is to translocate individuals from a wild donor population. The population of kangaroo rats living along roads and in cultivated fields presents an interesting opportunity as a source population. The thinking is that, since the population there is being maintained by dispersal from

nearby populations on native habitat, capturing individuals from these populations should not present a significant risk to the existing wild population. Spring is felt to be the best time to do the translocation because all the bot flies, which are pupating in

the soil at this time, are left behind. The plan is to capture and move 100-200 individuals this spring, 60-100 per site. I hope to update you on whether the translocation is successful, so stay tuned! ■

Author rotovating corridors linking patches of Ord's kangaroo rat habitat. SANDI ROBERTSON



Pat Fargey worked for 20 years as a species at risk biologist in Grasslands National Park, and since 2012 he has been the provincial species at risk specialist with Alberta Environment and Parks in Edmonton.



Interested in nature?

The Edmonton Nature Club

offers city walks and out of town field trips, a speaker series, and study group presentations about bugs, plants and birds.

Spring 2020 special offer for new members!

Purchase a \$40 annual family membership through our website and have it extended through 2021.

edmontonnatureclub.org

Join us for birding, botany and bugs!



Your Local Backyard Bird Feeding Expert

BIRD FOOD • FEEDERS
GARDEN ACCENTS • UNIQUE GIFTS

12204 – 107 Avenue NW
Edmonton, Alberta T5M 4A8
587-521-2473 (BIRD)

Save time, shop online and pick-up in-store
www.wbu.com/edmonton



River Otters in Medicine Hat

BY DENNIS BARESCO • PHOTOS BY DAN SCHIEBELBEIN

About 25 years ago, a biologist researcher told me that river otters (*Lontra canadensis*) could feasibly be seen in the deserted regions of the South Saskatchewan River. They had not yet been sighted, but it was still possible. Well, they have been found at last – and Dan Schiebelbein has the proof!

Walking the river's edge at Police Point Park, across from the high mudstone cliffs, Dan came

across a sight in January that would send tingles down the spine of any naturalist – three river otters frolicking in the water, on the ice, on the bank. And it wasn't a deserted region of the river either, it was right within city limits.

Dan wasted no time snapping 600 photos (he saved 450 of them)! This was a visual to rival virtually any ultra-rare bird or ultra-rare animal sighting. Getting images of this phenomenon was a must, both as proof and, more

importantly, to share the find with other naturalists.

Interestingly, the otters appeared to be quite at home, because they were seen entering and exiting a bank burrow. Vacant bank burrows (as well as beaver lodges) are used by otters as resting places and shelters for birth.

While almost all of Alberta's Mustelids are strong swimmers, river otters, as one might expect, are in a class by themselves. As a result, their diet is mostly fish – slower moving



ones like suckers and minnows rather than the speedier variety like trout and pike. They also eat crustaceans (crayfish are abundant in the South Saskatchewan), salamanders, frogs, freshwater clams (even more abundant), snails, as well as the occasional mouse and even birds.

Their pelt is waterproof and thick, insulating them even in the bitter cold waters of a winter-time South Saskatchewan River. To top it off, although most dives last less than 60 seconds, they can hold their breath for up to four minutes.

River otters have finally been found in Medicine Hat. Will they stay? Are there more along the river? This means there is one more species that

keen-eyed naturalists need to watch for as they continue exploring the “wilds” along the South Saskatchewan River.

Check out Dan’s website dansnaturephotography.com. He has captured an amazing collection of birds and other animals on film. ■

NOT TO BE CONFUSED WITH MINK

The only mammal that river otters might be confused with are their fellow Mustelids, mink (pictured). However, there are enough differences, including the larger size of otters, that a cursory look should suffice to differentiate between the two. Although river otters frequent the same habitat as beaver, the heavy, rounded shape of the larger latter is an obvious distinction.



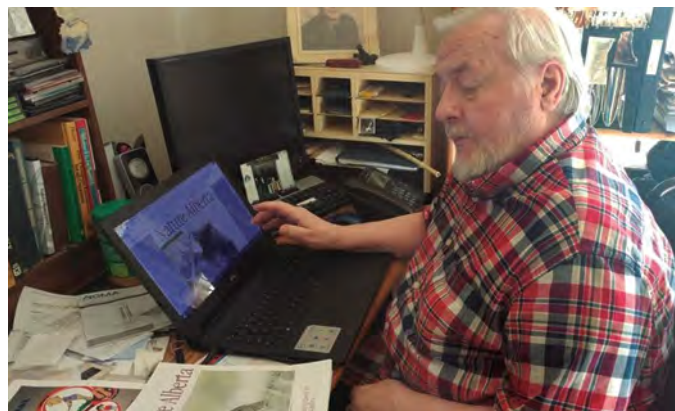
An American mink that Dan saw January 23, 2020 down at the Strathcona Island Park area.
DAN SCHIEBELBEIN



Celebrating the People Behind Nature Alberta

Meet Dennis Baresco

BY ALEXANDRA FREDERICKSON



For 50 years, Nature Alberta has existed to support and foster a community connected by a love of nature. This network is comprised of hundreds of people across the province and beyond who are linked by a single commonality – a deep respect for and appreciation of nature.

When you peer closer into that community, you discover some truly inspirational people who embody this deep-rooted passion. These individuals have dedicated their most precious commodity, their time, to encouraging and inspiring others to love and protect our natural world as well.

Dennis Baresco is one of these special people. Dennis has been a volunteer in several different capacities with Nature Alberta for more than 25 years. We are pleased to share his journey with you and showcase his contributions to not just our organization, but to others in the naturalist community as well. We know Dennis' long-standing commitment and many achievements will inspire you as much as it has inspired and supported us.

Dennis spent his entire life in Medicine Hat. It was there he fell in love with nature at a very young age.

With his home located in Riverside, a Medicine Hat neighbourhood rich with impressive landmarks and integrated with the surrounding natural environment, his association with and passion for nature only grew.

“In south-eastern Alberta, nature is immersive and all around you,” shares Dennis. “I feel I’ve been connected to nature all my life.”

Fusing his passion with his work, he spent the majority of his professional career as an interpreter and manager at Police Point Park, a lovely semi-wild area in Medicine Hat which is home to an interpretive centre and nature centre.

His active volunteer involvement with nature began in the early 1990s. Dennis became a member and champion of the local naturalist club, Grasslands Naturalists in 1992. The Grasslands Naturalists have an obvious attraction for nature enthusiasts like Dennis as they provide educational opportunities including field trips and publications to encourage study and protection of the natural world, among other activities.

Dennis went on to be a long-time director and valued volunteer with the Grasslands Naturalists in many ways. He served as Chief Interpreter

for the Medicine Hat Interpretive Program for approximately 15 years, editor of the Grasslands Naturalist's newsletter *Sagebrush Chronicle*, coordinator of the Baillie Birdathon for several years, and the list goes on. Dennis is a true champion for nature and his local club, and he continues to be occasionally involved with the Grasslands Naturalists today.

The Grasslands Naturalists happen to be a member club of Nature Alberta, and it is through that connection that Dennis stepped through the door into volunteering with, and forever impacting, our organization.

Nature Alberta, known to many by its original name, the Federation of Alberta Naturalists (FAN), formed in 1970 when six natural history groups (Alberta Natural History Society, Bow Valley Naturalists (Banff), Calgary Field Naturalists' Society, Edmonton Bird Club, Edmonton Natural History Club and Lethbridge Natural History Society) came together to establish a provincial federation of naturalists.

Currently, Nature Alberta works to support and promote its 40 member clubs which are located across the province. Representatives from the member clubs are welcomed and encouraged to become involved

with Nature Alberta, such as having representation at the Board level. This is how Dennis initially became involved with Nature Alberta.

“I wanted my local nature club to have a voice within Nature Alberta,” explains Dennis. “I became a Director on the Board to ensure that our group was being heard and also contributing to the organization.”

Dennis had a thirst for change, and an aptitude for board governance, and after serving as a director for two years, he was elected Vice-President of the Nature Alberta Board of Directors. He subsequently served as President from 2004-2007. In total, he served on the Nature Alberta board for nine years.

“I enjoyed having the opportunity to have direct input into the organization and, surprisingly, I liked the board meetings most,” says Dennis with a laugh. “Getting everyone together to get things done, but also connect with and learn from other nature clubs, was something I found great value in.”

Dennis goes on to share that this conduit to local nature clubs is one of his favorite things about how Nature Alberta is structured.

“The organization serves as an avenue for naturalists to come together,” expresses Dennis. This simple yet powerful activity, and the desire to feel connected to the larger naturalist community, is something that member clubs and individuals alike continue to seek to this day.

In 2007, as Dennis transitioned to the role of Past President of Nature Alberta, he decided he was not even close to finished with his contributions to the organization and, from 2007-2019, he served as editor of the quarterly Nature

Alberta Magazine, a role that requires significant time and effort.

“When I first began as editor 13 years ago, the magazine was fairly short in length and we didn’t have regular contributors.” Dennis recounts. However, he didn’t waste any time in talking to others in the naturalist community, mining ideas, seeking content and fostering relationships.

“I’m really proud to say that after several editions as editor, I was able to grow the magazine’s content and distribution to make it an even more impactful resource for nature lovers,” says Dennis.

To this day, the magazine continues to be a connector and informer for the naturalist community and beyond, featuring relevant nature news, promoting the great work of our member clubs and fellow conservation organizations, and sharing the stories of the efforts of local biologists and naturalists.

Dennis is quick to mention several of the regular contributors to the magazine during his time as editor such as Lorne Fitch, Charlie Bird, Lu Carbyn, Dick Dekker, Myrna Pearman, Geoff Holroyd and many others. The enthusiastic way he embraces all the contributors, and acknowledges them as integral to the magazine’s success, is proof of Dennis’ collaborative nature and leadership character

Given his many and varied contributions to Nature Alberta, we asked Dennis if he had a favorite role over the years, and his response made us smile.

“Being a director or editor is like comparing apples to oranges,” Dennis explains. “All my roles were very different, but I thoroughly

“There’s something about being involved with a larger effort that you’re helping drive forward that is very fulfilling.”



enjoyed each of them because, at the end of the day, I was involved with an organization whose mission and passion aligned with my own. There's something about being involved with a larger effort that you're helping drive forward that is very fulfilling."

For the past 25 years, in addition to his roles as director, vice-president, president, past president of Nature Alberta and editor of Nature Alberta Magazine, Dennis found numerous ways to contribute to other organizations and projects as well. He served as president of the Heritage Tree Foundation of Canada, and was a co-editor and co-author of their publication, *Heritage Trees of Alberta*. He co-authored the publication, *Prairie River*, published in 2003, and he was a technical advisor to *The Atlas of Breeding Birds of Alberta: A Second Look* (2007). In addition to writing, researching and editing, Dennis is also an avid nature photographer who enjoys bird watching at his home in southeastern Alberta. His photographs have appeared in various outlets including Dawn Dickinson's book *Caught in the Spin* (2014) and several Alberta Wilderness Association publications.

As a long-standing, valued contributor to the naturalist community, Dennis's time and efforts have enabled Nature Alberta and others to thrive in many ways. Throughout the years, organizations have sought various ways to express their gratitude to Dennis for his extensive efforts, contributions and dedication to nature. Dennis was first recognized by the City of Medicine Hat,

receiving the City's Civic Recognition Award in the Environment category in 1995. In 1999, he received Nature Canada's Affiliate of the Year Award. Grasslands Naturalists presented him with a Lifetime Membership in 2013 and the organization is on record as saying:

"Few others in the history of Grasslands Naturalists so epitomize what our organization stands for or are responsible for what it has accomplished," Sagebrush Chronicle, Vol. 26, No. 08, 2014. Nature Alberta followed suit, presenting Dennis with an Honorary Life Membership at the 45th anniversary gala in 2015. He was also a recipient of Nature Alberta's premiere award, the Loran Goulden Memorial Award, and Nature Canada's Douglas H. Pimlott Award.

"The recognition I received has been a definite highlight for me," shares Dennis. "Receiving awards from Nature Alberta and the others makes me feel really proud of everything I've worked to accomplish over the years and it's something I look back on fondly."

With Dennis' impressive record of contributing to organizations, and his vast experience and knowledge, we can't help but ask if he has any insight to share with the youth of today in Alberta. With youth engagement a pressing need facing many non-profits, Dennis agrees more youth could be volunteering.

"I don't have any bright, shiny words that can inspire youth to volunteer with non-profits or causes, but I will say that I personally wish I had gotten involved sooner than I did," offers Dennis. "The like-minded people I've met along the way, and the experiences I've gained through my involvement with Nature Alberta and various other organizations over the years, is something I'll cherish and will always be proud of." ■

Nature Alberta is deeply grateful for Dennis and people like him who contribute their time and themselves to the causes they are most passionate about. Dennis has shown us that passion is infectious and like sunlight, when it radiates, can light up the people around you too.



ALAN GODKIN



"I enjoy all aspects of nature but what drew me to establishing the Heritage Tree Foundation was that trees, and their connection to history, culture and stories, is often unknown and overlooked by people..."

Trees with Stories to Tell

The Heritage Tree Foundation of Canada (heritagetreefoundation.com), formerly a member club of Nature Alberta, was in operation from 1999-2015. The Foundation was spearheaded by several dedicated people, including Libby Fairweather, who was Executive Director, and Dennis who served as the President. Their mission was to identify, preserve and celebrate Alberta's heritage trees.

What is a heritage tree? "Heritage" refers to trees of particular interest by virtue of qualities such as age, size, shape, special interest, location and/or history. They may include individual trees, avenues, groves, shelterbelts, tree gardens, arboretums and sites of botanical or ecological interest.

"I enjoy all aspects of nature but what drew me to establishing the Heritage Tree Foundation was that trees, and their connection to history, culture and stories, is often unknown and overlooked by people," Dennis offers.

While active, the Foundation undertook an extensive effort to identify and document approximately 390 heritage trees across Alberta. The book, *Heritage Trees of Alberta*, produced and published by the Foundation in 2007, features 150 of these special trees and the interesting history, people and stories associated with them.

"People can take trees for granted and don't realize that these living things have deep histories and fascinating stories associated with them that are part of our Alberta heritage," explains Dennis.

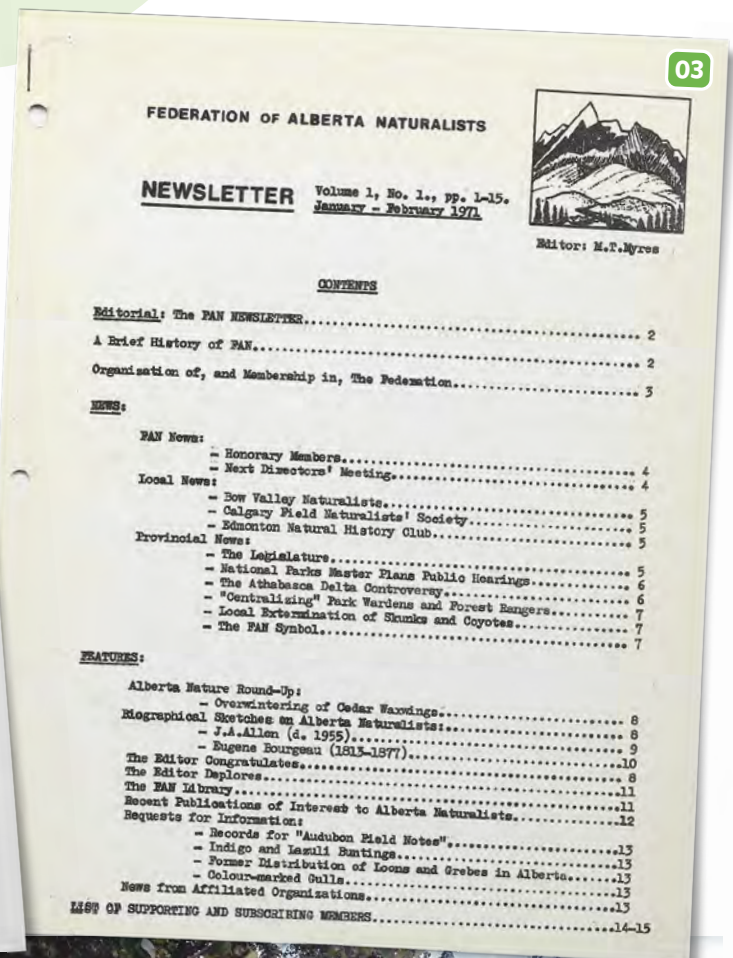
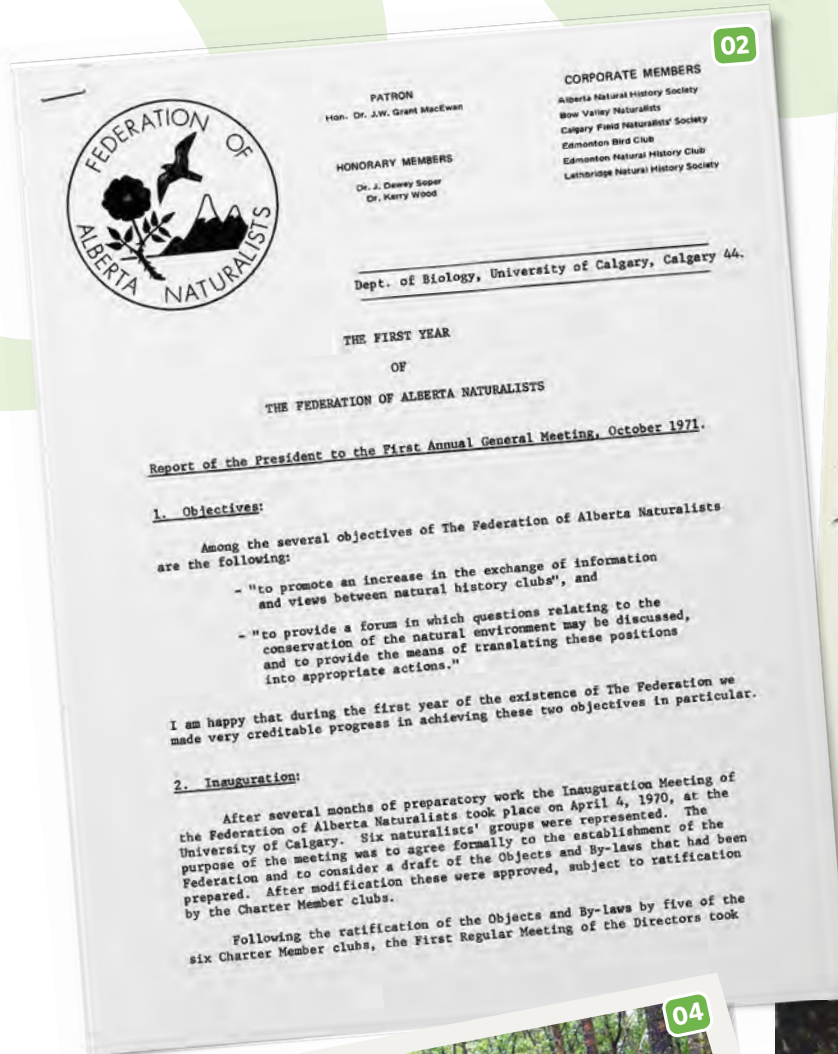
With more than 5,300 copies of the book sold in its first year of publication, it's safe to say that the Foundation's efforts to encourage appreciation of heritage trees was a success.

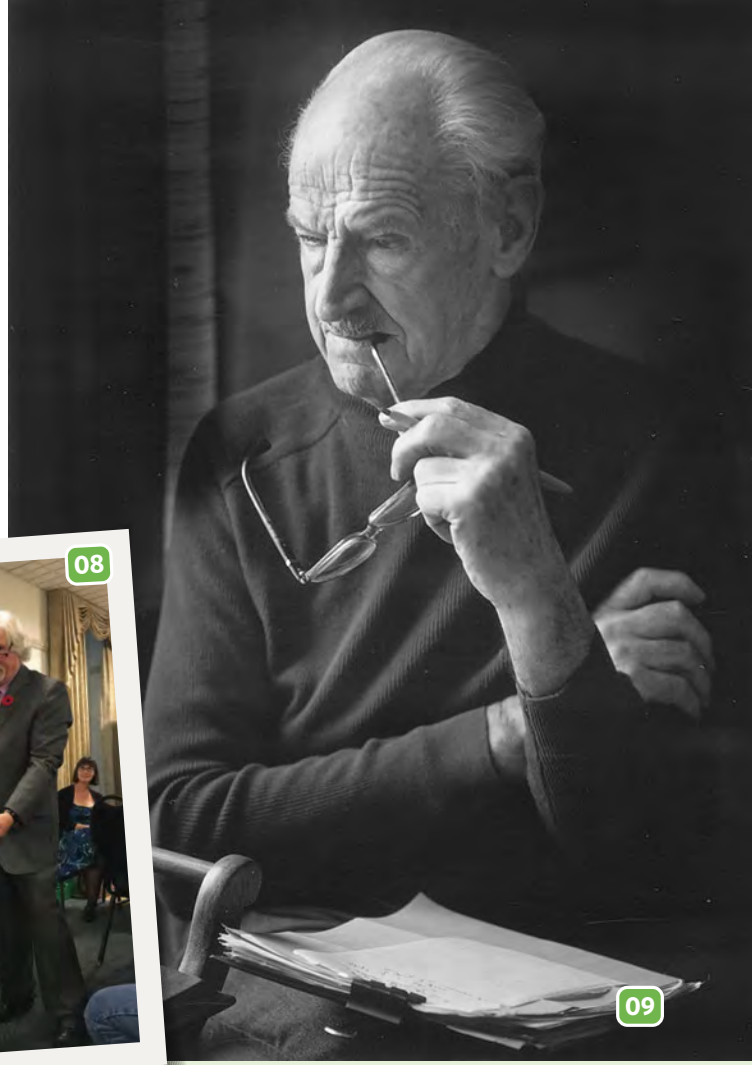
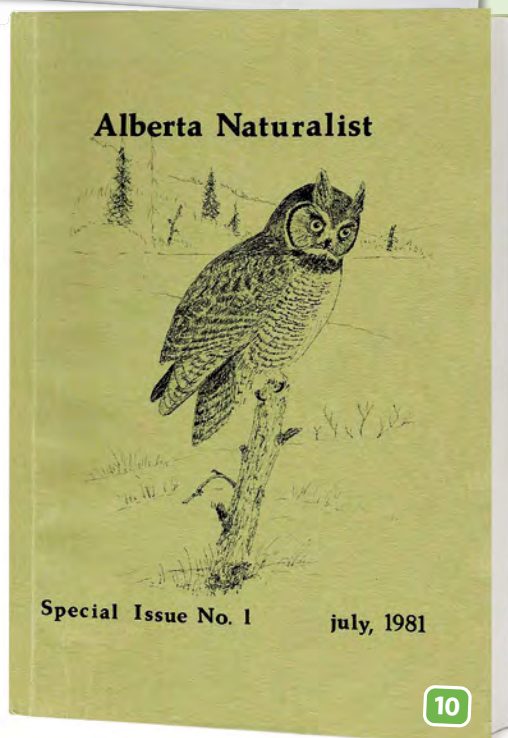
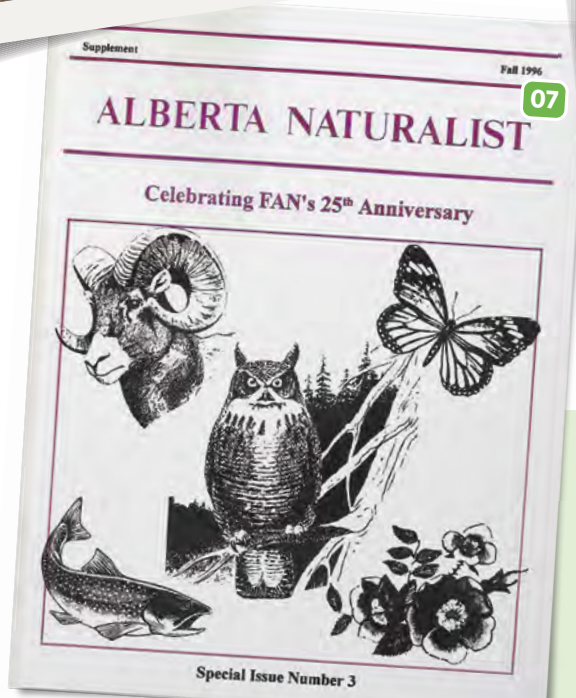
"Putting the book together was a lot of work but also a lot of fun," says Dennis. "To know that people enjoy it and continue to experience these trees themselves was really worthwhile for me."

Although no longer in publication, copies of *Heritage Trees of Alberta* can still be found at local libraries and through select online retailers (e.g., Amazon, Chapters, etc.). The Heritage Tree Foundation legacy lives on in Nature Alberta's *Things to do in Nature* online story-map (naturealberta.ca/explore), where people can discover and explore heritage trees, nature clubs, wetlands and much more.

The Road to 50

The road to celebrating 50 years is paved with memories of the extraordinary people, activities and accomplishments that made the Federation of Alberta Naturalists, now known as Nature Alberta, what it is today. As we celebrate our 50th anniversary, here's a look at just a few items from the archives. If you have photos and stories of the people and activities that are part of our history, we encourage you to share them with us at info@naturealberta.ca. ■





- 01** Federation of Alberta Naturalists embroidered badge.
- 02** October 2, 1971; Cover page of the Report of the President to the First Annual General Meeting of the Federation of Alberta Naturalists, submitted by M. T. Myres. The report included information on the inaugural and subsequent meetings of FAN, an update on the FAN Newsletter, briefs, resolutions and letters, a report on representation of FAN in the ECA and CNF, funding and staff updates and more.
- 03** March 5, 1971; Cover of an original copy of the first FAN Newsletter; this copy was originally mailed to Mr. & Mrs. Park in Edmonton. This issue included a brief history of the Federation, information and updates from clubs, and provincial nature-related news, biographical sketches of Alberta naturalists, a list of recent publications of interest and more.
- 04** c. June 2013; Beaverhill Bird Observatory Executive Director Amélie Roberto-Charron (left) and Nature Alberta's Bird Conservation Program Coordinator, Erin Campbell.
- 05** July 14, 1990; Sir Winston Churchill Island. Looking at White Pelican. Lawrence, Philip (Ann behind), Richard, Lloyd, Dick, Alma & Susan.
- 06** September 23, 1989; Federation of Alberta Naturalists nature hike north east of Athabasca, Alberta along the Athabasca River. Photo: Robert B. Hughes.
- 07** September 1996; Cover of Special Issue Number 3 of Alberta Naturalist: Celebrating FAN's 25th Anniversary, edited by R. Edrea Daniel. This 66-page special issue contained detailed histories of the corporate and associate member clubs, biographies of key individuals (including FAN presidents, vice presidents, recording and membership secretaries, Patron Grant MacEwan and editors of Alberta Naturalist) involved with the organization between 1981-1995, as well as overviews of FAN special projects.
- 08** November 7, 2015; Ted Hindmarch (Nature Alberta President from 2012 to 2015) presenting David Grinevitch with the Nature Alberta Youth Award at the Nature Alberta 45th Anniversary banquet in Edmonton.
- 09** John Walter Grant MacEwan was the first Patron of Nature Alberta. Dr. MacEwan was a well-known Albertan, with a long career in academia and politics, including serving as the province's Lieutenant Governor from 1966-1974. He was also a prolific writer and a passionate environmentalist.
- 10** Cover of Alberta Naturalist Special Issue Number 1, July 1981; Edited by Martin K. McNicholl. Special issues of Alberta Naturalist were published occasionally, of which this was the first. This 151-page booklet contained detailed histories of the corporate and associate member clubs, biographies of key individuals (including FAN presidents, vice presidents, recording and membership secretaries, Patron Grant MacEwan and editors of Alberta Naturalist) involved with the organization over its first 10 years, as well as a critical reflection on the organization of natural history in Alberta 10 years in written by M. T. Myres.



ZOE MACDOUGALL, NATURE KIDS PROGRAM COORDINATOR

Make Larch Sanctuary in Edmonton your next nature destination.

BY EDMONTON AND AREA LAND TRUST

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 our big Alberta backyard. In this issue, you will learn about Larch Sanctuary in Edmonton which is part of the conservation lands protected by the Edmonton and Area Land Trust (EALT).

If you live in the Edmonton region, there is a good chance that you've visited at least one of the many parks or natural areas along the North Saskatchewan River. Edmonton is known for its famous river valley and interconnected green spaces. What you may not know is that there are some hidden gems along the creeks that feed the North Saskatchewan River. One of Edmonton's hidden treasures is Larch Sanctuary, nestled along the Whitemud Creek, south of the North Saskatchewan River.

EALT worked with the City of Edmonton to place a Conservation Easement on this land, which provides Larch Sanctuary with an additional level of protection, and other benefits.

Here are a few reasons why you'll be amazed by Larch Sanctuary and will want to make it your next nature destination.

It has an oxbow lake

What is an oxbow lake? It is a body of free-standing water that used to be part of a creek. Over hundreds of years of meandering, Whitemud Creek found the path of least resistance and left behind the curved bend that is now known as an oxbow lake. An oxbow lake provides still water for animals like beavers, ducks and fish to live.

The biodiversity is amazing

Whitemud Creek is a major wildlife corridor for animals to make their way around and through Edmonton. During your adventure in the Larch Sanctuary, there is a chance you'll see our largest woodpecker, the pileated woodpecker, as well as many other birds, deer, coyote, moose, fox and many types of trees, shrubs and other plants.

There's a bee hotel

EALT wanted to make sure pollinators have a place to sleep so they built them a five-star hotel. You might be wondering, "Don't bees live in hives?" You are correct, but there are some types of bees that are solitary, which means they live alone. Some solitary bees nest underground and some nest in tunnels. A tunnel could be a natural



Listen for the woodpeckers trying to bore into trees at Larch Sanctuary.
ALAN GODKIN



Whitemud Creek is on the left and the oxbow lake is on the right. EALT

one in a tree, left by a burrowing beetle, or it could be in a bee hotel. Bees lay their eggs in the holes in the hotel and, in the spring, the eggs will hatch and the bees will begin their important work of pollinating plants.

There's a bat box

The Little Brown Bat is commonly found in the Edmonton region, but it is an Endangered species in Canada due to the threat of White-nose syndrome. EALT installed a rocket bat box, which can hold a couple hundred

bats, at Larch Sanctuary to help provide additional habitat.

It is recommended that you visit Larch Sanctuary in the summer or fall when the trails are dry. Learn more about Larch Sanctuary ealt.ca/larch-sanctuary. ■



A rocket bat box right next to the bee hotel. EALT



A bee hotel is located to the right after you cross the bridge. EALT



Out and About



Plant Scavenger Hunt

Alberta is a big province. It has six natural regions including the Canadian Shield, Boreal Forest, Foothills, Parkland, Rocky Mountains and Grassland.



This scavenger hunt activity focuses on plants that can be found in the boreal, parkland and grassland regions.

Figure out which region you live in and see if you can discover some of these common plants in your region.*

[*This activity may require a visit to a local natural area to find some of them.]

Boreal REGION



White Spruce

☐ YES

☐ NO

DEREK JOHNSON



Trembling Aspen

☐ YES

☐ NO

PATSY COTTERILL



Common Bearberry

☐ YES

☐ NO

KELSIE NORTON



Labrador Tea

☐ YES

☐ NO

PATSY COTTERILL



Saskatoon

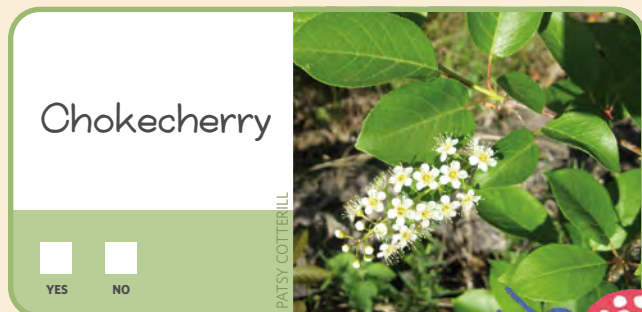
☐ YES

☐ NO

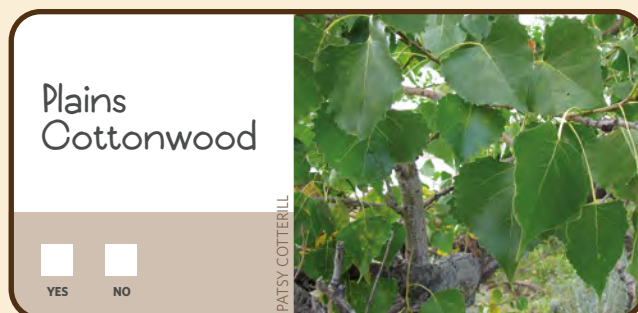
KELSIE NORTON



Parkland REGION

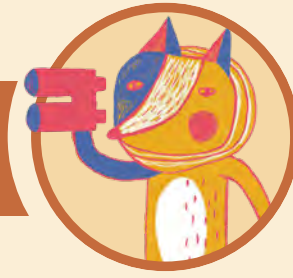


Grassland REGION



Ask Stuart

ZOE MACDOUGALL, NATURE KIDS PROGRAM COORDINATOR



Welcome to “Ask Stuart”, a regular Nature Kids feature in which Stuart, our Nature Kids mascot (who just happens to be a swift fox), responds to questions asked by Nature Kids from across Alberta. From time to time Stuart will also be asking local experts to help him answer these questions.

In celebration of the upcoming May Species Count taking place from May 25-31, we are asking some plant related questions in this edition of “Ask Stuart.”

Q What is the difference between coniferous and deciduous trees?

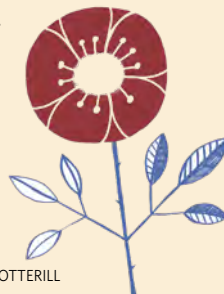
In Alberta, we have many different species of trees. Trees are perennial (live for two or more growing seasons), single-stemmed, woody plants that can grow to a considerable height. Trees can either be coniferous or deciduous. What do these words mean? Stuart has the answers you are looking for.

Sometimes called ‘evergreens’, **coniferous** trees have needle-like leaves and cones, and most of them keep their ‘leaves’ year-round.

Deciduous trees generally have broad, flat leaves that change colour and fall off in the fall. The reason they shed their leaves in fall is to help them conserve energy in the colder months.

There are a few exceptions to these coniferous/deciduous rules. Here in Alberta, the Larch (also known as Tamarack) needles change colour in fall and shed just like the deciduous trees. ■

Tamarack. PATSY COTTERILL



Aspen leaves. PATSY COTTERILL



Q Why do roses have ‘thorns’?

Thorns are pointy branches or stems that are a physical defense that helps protect plants from predators such as deer or other herbivores (plant eaters). Roses actually have ‘prickles’, not thorns. Unlike thorns, prickles are small, pointed projections that emerge from a plant’s epidermis (the plant’s outer protective layer). ■



Rose with prickles. PATSY COTTERILL



**A COMMUNITY
CONNECTED BY A
LOVE OF NATURE.**

Join us.

We represent a network of natural history organizations. Together we serve as a strong voice for the greater appreciation and conservation of Alberta's natural environment.

Become a lifetime member today.

For the remainder of 2020, our 50th anniversary year, we're offering our NEW individual, lifetime memberships for only \$10. Get yours today.

780.427.8124 | info@naturealberta.ca | naturealberta.ca



ALBERTA
Native Plant
COUNCIL

Sharing Knowledge,
Supporting Conservation

Become a member today!

www.anpc.ab.ca





Can Smartphones Kill Trout?

BY MICHAEL SULLIVAN

I love fish and, as an Alberta naturalist, I also love owls and caribou and cactus. But fish hold a special spot. And just like avid birders, I keep lists and plan trips to see, for instance, gila trout in New Mexico (life-list) or catch my annual redband trout (summer-list) in the North Thompson River. My best summer was 42 fish species, all in western Canada, with half caught using a fly rod. I actually made a road trip to Prince George that year, just for a redband shiner (and I caught one!).

Unlike birders, however, we fish lovers can seldom go to a lake or river and simply “see” a fish. To see one, we usually need to catch it, hence *The Dilemma*. Fish live in the water and I don’t, so I use a fly-rod instead of binoculars. I practice catch-and-release fishing with near religious fervor, but even with my professional and personal experience of handling thousands of fish they are sometimes hurt and, sometimes, they die. The question is: can such occasional losses from catch-and-release fishing be safely ignored or are they a cause for concern?

It turns out that this question is harder to answer than one might expect. Scientists in the fish world have published hundreds of studies on catch-and-release mortality but their findings are highly variable. Some species are very sensitive, some types of fishing gear are harmful, and some fishing conditions are so favorable that no fish die. Take trout in cool-water streams as an example. With anglers who fish without bait, and who don’t take the fish out of the water for more than a few seconds, mortality might be near zero with only one or two out of a hundred fish dying. But catch a big bull trout on a hot August day, fight it for two minutes, then hold it up for a few photographs and one out of three of those fish will drift away dead.

Even with catch-and-release fishing, some fish die.

The observations of bull trout mortality come from a study I helped with in the Willmore Wilderness two summers ago. We recently published our findings in the prestigious scientific journal *Fisheries Research*. In our study, 10 out of 30 trophy-sized bull trout didn't survive being caught and then handled out of water for a typical smartphone picture. (Fear not, my dear fellow species-at-risk biologists, these were a stocked, non-native strain of bull trout and their loss was actually a benefit to Willmore's native bull trout.) That level of handling mortality, if it happens to too many fish, will prevent population-level recovery.

The Path to Trout Recovery

The recovery of trout has two dimensions: personal responsibility and societal trade-offs. For species at risk (which include all three Alberta native stream trout: westslope cutthroat trout, Athabasca rainbow trout and bull trout), catch-and-release is the law. So personal responsibility means that I learn about and practice careful catch-and-release fishing. I pledge to avoid taking a fish out of the water, I pledge to "keep-em-wet," I pledge to cut the line if they swallow the hook and so on. Nevertheless, I must accept that, whatever I do, some small proportion of my catch will die.

At the societal level, the issue is numbers: Alberta has over 350,000 anglers. At some of Alberta's streams and rivers there are enough anglers to catch most trout once a summer. One might think this is not a problem because the majority of anglers release 99% of their fish unharmed. But the reality is that small cumulative impacts add up to big problems.

Suppose a fishery has 100 anglers who catch 100 fish in total. Perhaps the vast majority of those anglers — say 80% — are really proficient at catch-and-release and only 1% of their fish die (i.e., roughly one fish in this example). In addition, a small proportion of anglers — say 15% — might catch a large fish and handle them too long, accidentally killing 30% of those fish (as per the Willmore study). This would result in five more deaths. And a very few anglers — say only 5% — cheat and keep their fish (another five deaths). Adding up these losses reveals the true cumulative effect of catch-and-release fishing. In this example, mortality is not the intuitive answer of 1%, but an order of magnitude higher (11%). That rate of mortality, when applied to a fishery with many anglers, is enough to prevent recovery.



"I love fishing. I've learned to respect fish, and to understand the dilemmas we face, and I have chosen to show that respect by fishing lightly." Michael Sullivan

Our hypothetical example is, if anything, an underestimate of real-world conditions. For example, a 2019 survey of anglers at a site on the North Saskatchewan River near Edmonton found that six of 389 anglers caught a walleye. Walleye were under mandatory catch-and-release at this site, yet two of the six successful anglers had cheated and stuffed the fish into their duffle bags. Of the four walleye that were released, three were handled so long that they drifted downstream, dead. Therefore, of six walleye caught at this catch-and-release fishery, five died.

More enforcement will not solve this problem. At very low fish numbers (as with any species at risk) enforcement cannot function as intended. Cheating is simply too rare (2 of 389 anglers in the above survey) and has a disproportionate effect on the animals. With low animal numbers we must solve a biological and social problem, not a law-enforcement problem.

The fundamental issue is simple: when fish populations are low even catch-and-release fishing can result in too many deaths. The solution is equally simple yet so socially

"Fly rods are to fish lovers as binoculars are to birders."

Wayne Roberts

difficult as to be almost impossible to implement: catch fewer fish.

Making it Happen

As an individual, I can support fish recovery by ensuring that my fishing trips are as harmless as possible. If I want to catch a bull trout to add to my summer fish list, I will plan a trip to catch *one*. Just *one*. I'll pick a cold day. I'll have my smartphone ready in case it's a memorable catch, but I'll make sure I keep the fish wet (preferably in the water) and release it within seconds. Then I'll go fish for something else for the rest of the day. Maybe invasive and tasty brook trout!

This is my personal ethic: I acknowledge and strive to balance my ecological footprint with my desire

for recreation. I am heartened to see these ideas beginning to catch on. Many articles online and in other media promote ever-improving catch-and-release practices. Trout anglers in particular have embraced gentle footprints and cautious fish handling. At some fishing destinations, guides require that their anglers not touch the fish, leaving the release to the far-more experienced professionals. In stark contrast, I have heard some anglers at Alberta's recovering walleye lakes brag about catching 100 walleye in a day. That is appalling behaviour, by any measure of conservation and value of wildlife. Is public shaming appropriate in those cases?

Matters are much more challenging for fisheries managers. We want people to go fishing — it's a healthy outdoor activity and it gets people to appreciate and care about nature. Yet more fishing is the opposite of what species at risk need for recovery. Suppose bird watchers accidentally killed 10% of the peregrines they spotted. How the heck would we deal with that problem?

Banning all fishing is certainly not the solution. What about

"Even a single footprint can have a serious impact if you are the flower being stepped on."

Hans Gmoser

fish sanctuaries? Back in the 1950s and 60s, it was standard practice for streams in Alberta's East Slopes to be closed on alternate years, providing rotating temporary fish sanctuaries. Fisheries still collapsed, likely because closures were too short, followed by heavy harvests in open years. Can we try fish sanctuaries again, but longer term? Ponder a system with the best habitats set aside for fish production and the nicest fishing locations set aside for fish catching.

"I taught my children to respect nature and to understand the dilemma caused by our footprints. Teach them to tread in the wilds yet strive to tread lightly. Ethics are learned, not legislated." Michael Sullivan



What about access restrictions? Everybody can fish, but only if you are willing to walk — not quad or drive — for a kilometer or so to reach an open reach of stream? Maybe easily-accessible reaches (next to highways or campgrounds) are regulated to off-season fishing only, with no fishing during the height of summer.

What about limiting the number of anglers? No fishery, anywhere, can withstand unlimited fishing. Maybe we need to limit fishing to sustainable levels, using tags or lottery licenses, the way we do for most other game species. The underlying question is: how many anglers can our rivers and streams support? Is our current level of 350,000 too many? What is the right number?

The typical human reaction when faced with such restrictions is to blame someone else. It isn't overfishing, "It's those damn dams! Or cattle in the streams! Or forestry roads! Or climate change! Or brook trout! Or whirling disease!" In some cases, fish loss certainly is a habitat issue. But not everywhere and seldom without a combination of all those problems. We've seen trout do fine in remote streams and lakes despite naturally bad habitat, and we've seen them decline in protected areas that have great habitat but many anglers.

These are immensely difficult trade-offs and none of the management options would be acceptable to all anglers. We have to accept that the perfect solution does not exist. We must also acknowledge that postponing the tough choices until easier solutions come along amounts

to decision by indecision and ensures failure. This is the path we have been on in Alberta and it is the reason why all three of our native stream trout are now species at risk.

Rather than continue our endless arguments over the reasons why trout have declined, it is time to become proactive, to try difficult things and to learn by doing. Big, adaptive management experiments across large watersheds, structured to demonstrate success or failure. Dissect difficult trade-offs. Learn. Move forward.

As a naturalist and fish lover, I do my personal part. I now limit my catch. I learn and carefully follow new state-of-the-art fish release techniques. I carry a deep-water release rig as recommended by Alaska Fish and Game researchers. I keep my smartphone close at hand, but severely limit my pictures. I don't fish on hot days. I teach my children these things. Ethics are learned, not legislated.

What can we do as a society? We all love fish and caribou and owls. And we all love resource-based paychecks and open fishing seasons and easy routes to pretty rivers. But we can't have it all. Can a group of dedicated people learn, listen and wisely influence difficult decisions? I sincerely hope they can. We owe it to Alberta anglers, Alberta's fish and to our children. ■

Michael Sullivan was born, raised, and educated in Alberta (all 3 degrees) and has worked as a biologist on this special landscape for nearly 5 decades. If radio-collared, his dispersion coefficient would be small, and would show a predilection for high, lonely, and snowy places.



How many fishermen are too many? If many fish are caught, even low rates of catch-and-release mortality can be a problem.

Alberta's Conservation Data Centre Needs Help

BY LINDA KERSHAW

Most Canadians aren't aware of the national network of Conservation Data Centres (CDCs) that operate across the country under the umbrella of NatureServe Canada. Each province or territory has its own CDC, with the exception of Atlantic Canada which has a regional system. Alberta's CDC is referred to as the Alberta Conservation Information Management Centre (ACIMS).

CDCs provide many important services for people and agencies with an interest in the environment, from naturalists to researchers, developers, land-use managers and environmental consultants. CDCs conduct biological inventories, keep track of rare species and rare ecosystems, and analyze/review environmental data and reports. However, their most important role is providing reliable, up-to-date scientific information on the great number of species found in each region, including vascular and nonvascular plants, fungi, lichens, invertebrates, vertebrates and entire ecological communities. CDCs determine how rare or common each element is (this can change with each information update) and whether each is native or introduced. They also sort through the confusing

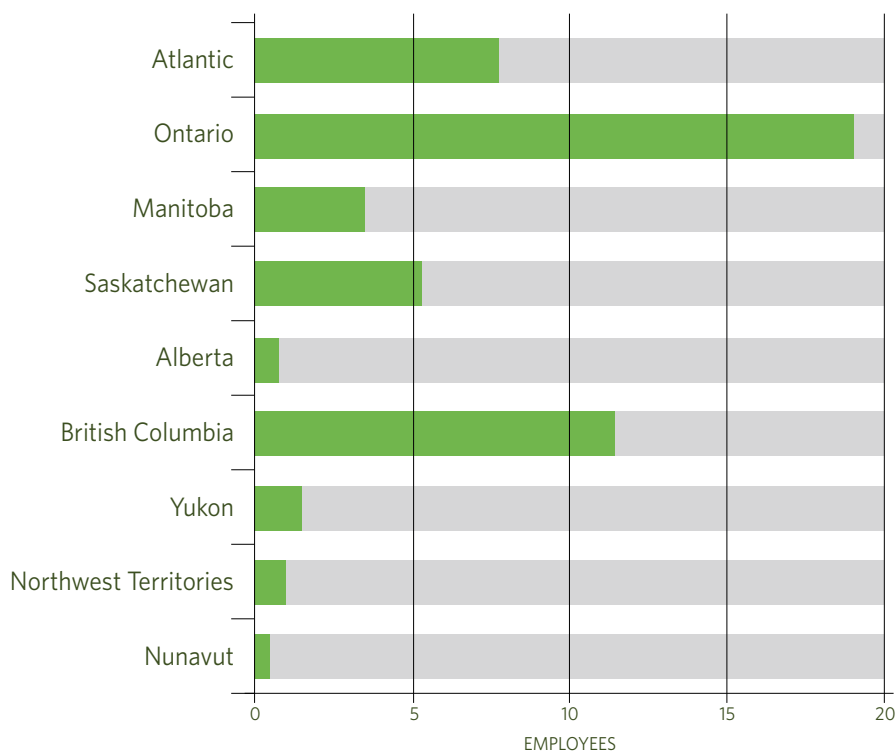
collection of scientific and common names for thousands of species to ensure that we all apply the same name to the same thing.

The data provided by CDCs is essential for identifying, mapping, and understanding the biodiversity of our vast and varied landscapes. Without it, we can't conduct environmental impact assessments or identify sensitive areas, rare species and unique ecosystems. The data in our CDCs provides a common foundation on which all these assessments

can be based. Alberta's database can be accessed at: albertaparks.ca/albertaparksca/management-land-use/alberta-conservation-information-management-system-acims/download-data/.

With thousands of species to keep records for and hundreds of environmental reports to review each year, you may wonder how many biologists, ecologists, taxonomists and other specialists are employed to deal with the mountain of data that needs to be assessed and processed each year. For Alberta, the answer is

Fig. 1. Number of CDC employees (full-time equivalents) in each region.



embarrassing and alarming. Although several people are involved in ACIMS work, it is only a small part of their jobs. The total time allocated to ACIMS in Alberta adds up to less than a single full-time position. Of all of Canada's CDC's, the only region with less support is that of Nunavut (Fig. 1).

This in itself is dismayed, but it gets worse when support for ACIMS is viewed relative to GDP. Alberta's population is about 100 times larger than that of Nunavut and we are a relatively rich province. On a per capita basis, our GDP is quite a bit higher than other regions. So, let's look at support in terms of the dollars available. In 2018, GDP ranged from \$860 billion for Ontario to less than \$3.5 billion for Nunavut. Fig. 2 illustrates the number of employees

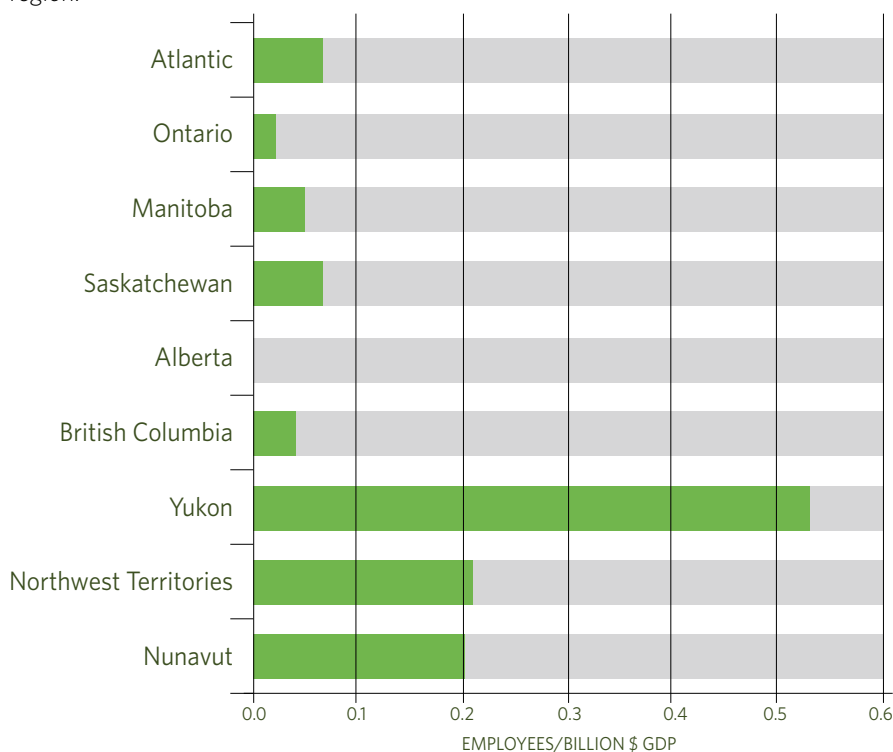
(full-time equivalents) each region has for every \$ billion in GDP.

Alberta's bar is hard to see in this graph because it amounts to only 0.002 FTEs. The next lowest is Ontario with 0.024 FTEs — ten times the Alberta rate. The stark reality is that, over the past 10-15 years, Alberta's CDC has gradually faded away and almost disappeared. How can the equivalent of one part-time person be expected to accomplish the work of 5-10 full-time employees? The fact that we have any current information available at all is amazing and speaks volumes about the hard work and dedication of the few remaining staff. Let's give them all the support we can and let the government know that we have to reverse this trend! A good start

would be an email expressing your concern to Minister Jason Nixon, who heads Alberta Environment and Parks (the department that houses ACIMS). His address is aep.minister@gov.ab.ca.

Conservation and environmental protection depend on reliable, up-to-date ecological data that is available to everyone. This requires an adequate number of qualified people working on our behalf in the public service. We no longer have this. Hopefully, the current government can get things back on track. ■

Fig. 2. Number of CDC employees (full-time equivalents) per \$ billion of GDP in each region.



Dragon's-mouth orchid (*Arethusa bulbosa*), a beautiful rare wildflower tracked by ACIMS.

The History of Alberta's Forests and Our Evolving Relationships With Them

BY TODD KRISTENSEN AND DIANA TIRLEA

Forests are integral to the identity of communities across Alberta. Ever since the retreat of the churning glaciers that swept this landscape clean, humans, animals and trees have been adapting together and shaping each other's existence. Scientists are now beginning to fully understand why our forests look the way they do and how we should manage them into the future.

What Trees Grow Here and Why?

To help understand how our modern forests have evolved, researchers are delving into the past through historical ecology. Topography, climate and weather patterns have all changed since the end of the Ice Age, roughly 12,000 years, shaping the current species and patterns of plant succession in our forests.

Scientists study the patterns of change using pollen, which is well preserved in lake mud. In a tragic tale of reproductive failure, most

pollen grains released by plants never meet their destiny, to pollinate another plant. Instead, every year, millions of pollen grains settle at the bottom of lakes and wetlands in a chronological sequence. Pollen scientists (palynologists) study the sequence of change by extracting mud cores. Then they identify the specific plant groups present in each layer and measure their abundance. Layers of fallen pollen are like plant community time capsules that span thousands of years. By extracting cores from different locations, scientists can track the movement of plant communities as they shifted across the landscape in response to climatic changes and the influence of animals and humans.

Based on the pollen record, initial ecosystems after the retreat of the ice sheets in North America were dominated by tundra-like grasses and shrubs (Dyke 2005). From about 11,000 years on, conditions overall were warmer and drier, which led to the expansion of open, spruce-

dominated forests. By 9,000 years ago, most of northern Alberta was forested. Southern Alberta was ice-free earlier than other parts of the province and quickly transitioned to grasslands.

During warm periods between 8,000 to 4,000 years ago, drought and forest fires expanded the grasslands and helped shift many forests from spruce dominated to jack pine dominated. For much of this time, the boundary of the boreal forest and aspen parkland was farther north than it is today (Strong and Hills, 2003). In the mountains, the treeline was significantly higher than today. By approximately 4,000 years ago, modern climatic patterns became established, and the boundaries between the boreal, parkland, and grassland regions attained their modern distributions, albeit with occasional periods of fluctuation.

Topography is another key driver of forest patterns. In particular, the Rocky Mountains block valuable moisture from reaching Alberta while generating large thunderclouds and lightning. As a result, conditions are too dry to support forests in southern parts of the province, and northern landscapes are fire-prone. Most natural forests in the province rarely exist for more than 100 years before wildfires re-start the growth of new plant communities. Our 'pyrogenic' forests are younger and smaller than neighbours to the west where heavier rains produce climax forests over 600 years old.

Wildlife has also shaped Alberta forests. After the Ice Age, large animals, like mammoths, maintained grasslands through grazing and trampling. Though most large Ice Age mammals eventually became extinct, bison species survived

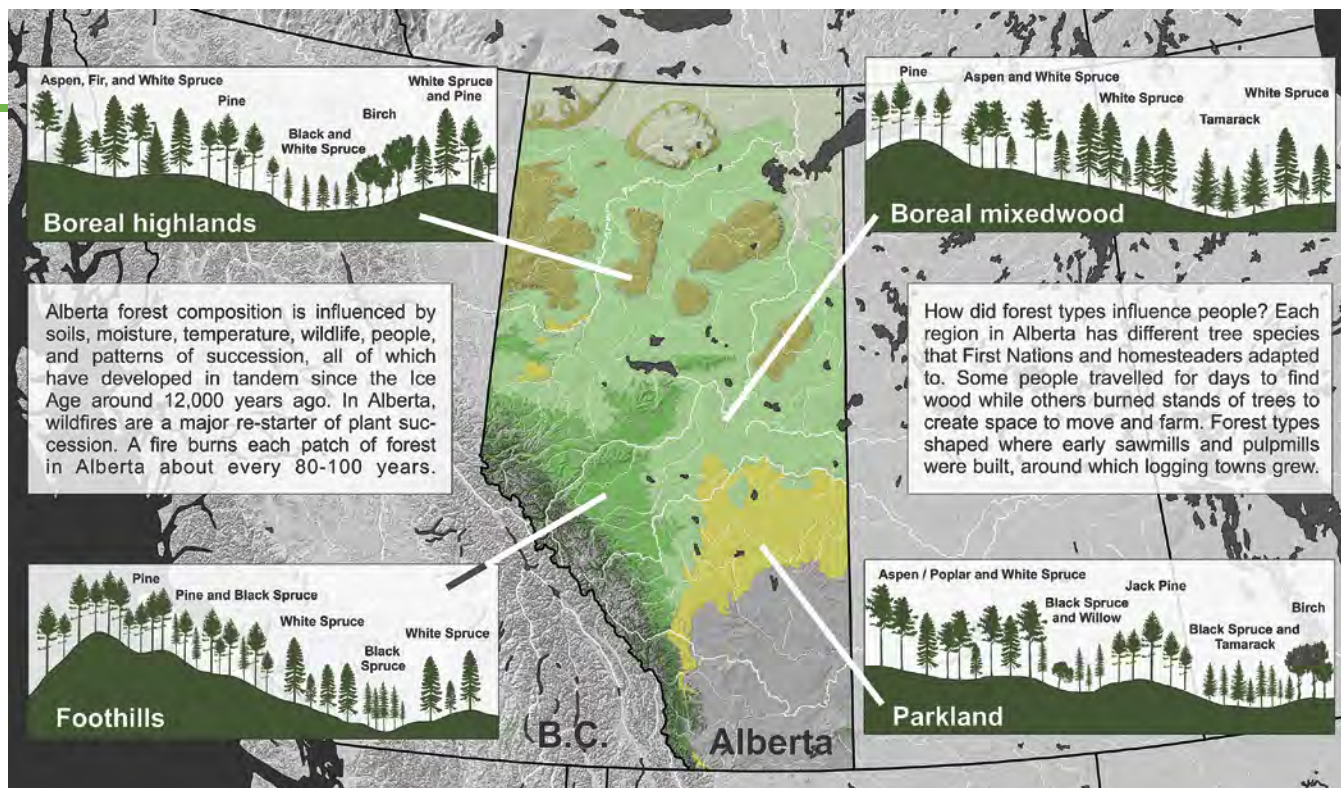


Figure 1.

and created their own landscapes that persisted for over 9,000 years to modern times. Preserved pollen and other plant remains, when combined with palaeontological records of big herbivores, help researchers of historical ecology build models of past forest landscapes, which explain why Alberta looks the way it does now (Figure 1).

First Nations and Forests

Based on archaeological and historical records, about 5% of First Nations toolkits were made of stone when Europeans arrived in North America and the rest was largely wood with some tools of bone, leather, and hair. People also relied on wood to make snowshoes and sleds for winter transportation. Summer travel in the open prairies involved wooden travois (a set of leaning poles pulled by dogs), while birch bark canoes were used in northern Alberta. Wood was also used for building shelters. Tipis in southern

Topography, climate and weather patterns have all changed since the end of the Ice Age, roughly 12,000 years, shaping the current species and patterns of plant succession in our forests.

Alberta had frames of lodgepole pine (named after the lodges they helped create) while northern dwellings often had birch or willow poles covered by sheets of bark.

The distribution of forests influenced where people lived and hunted. The open plains supported herding animals like bison and were home to mobile people who got together in large groups to hunt and conduct ceremonies. In contrast, the northern forests tended to be the home of smaller, dispersed families.

On the prairies, winter camps were located mainly in river valleys that provided abundant firewood. Both the Blackfoot and Cree set up summer and fall camps next to groves of trees so they could build large wooden enclosures called pounds. Bison were corralled into the pounds where they could be shot with arrows in close quarters. Particularly good groves of pine on the prairies, like those in the Cypress Hills, were used for

millennia to harvest trees for lodges and medicinal uses.

First Nations were keenly aware of what types of wood were ideal for different purposes and they actively managed forests to serve their needs. Gerald Oetelaar at the University of Calgary argues that the Blackfoot helped spread species of trees across the prairies through their ritual uses and disposal patterns of wood products. First Nations like the Blackfoot regularly burned the undergrowth of their favourite cottonwood groves in the spring to protect them from larger summer fires. Intentionally set fires were also used to encourage new grass growth and to open up landscapes for bison and other game. Northern nations like the Dene burned in the spring to

open up trails and corridors, create 'yards' for moose and maintain berry grounds for bears. People have shaped forests for thousands of years.

Early Wood Uses in the 1800s and the Development of Alberta's Forestry Industry

When Europeans came to Alberta, they used wood mainly for constructing buildings and for heat and cooking. A homestead from the 1800s up to the 1930s (when rural electrification began in Alberta) needed about five cords of wood a year for winter heating (a cord is 4 feet by 4 feet by 8 feet and represents about 20 trees). So, every year, families needed to chop 100 trees worth of wood just for heat.



Cree woman repairing birchbark canoe.
HBC COLLECTION

The first commercial sawmills appeared in southern Alberta in the 1880s to supply settlers and the railway (Figure 2). Railway construction was a major timber consumer: 3,000 ties were needed for every mile of track and additional wood was required for trestles, bridges and stations. Railways forever changed

Figure 2.



forests because they spurred the expansion of the logging industry and brought widespread fires from sparks and cinders from engines, brake shoes and hot-boxes.

The fast pace of forest losses led to the formulation in the 1890s of the first forest reserves in Alberta. Protection of these sites was intended to ensure a perpetual supply of timber to major settlements (e.g., the Cooking Lake Forest Reserve near Edmonton) and to prairie farmers (e.g., the Rocky Mountain Forest Reserve along the edge of Alberta's western grasslands). These reserves often went on to become the basis for modern parks although their initial purpose was to protect wood from fires and commercial consumption. Recognition of the need to protect wood resources helped spur the conservation ethic across the United States and Canada in the 1800s.

By 1900, most settlements had small, portable commercial sawmills. Winter was generally the best time to log because the timber could be transported using horse-drawn sleds. This was perfect for struggling farmers because they could work their fields in the summer and cut timber in the winter to generate additional income. Some forestry operators harvested in summer and moved timber along waterways.

Sawmills became more permanent when Alberta assumed control over its forest resources from the Federal Government in 1930 and changed the way that timber berths were leased. The spread of internal combustion engines to forestry operations in the

1930s (especially trucking) had a big impact on forests because it freed operators from a reliance on rail to transport wood. This opened remote forests to logging. The development of the pulp industry in Alberta in the 1950s led to further large-scale growth of forestry operations as did a provincial program in the 1980s and 90s to fund the construction of large mills to create jobs and diversify Alberta's economy.

Historical ecology informs us about how dynamic landscapes can be. Something simple like preserved pollen teaches us about the past but we can also use it to look forward. Environmental variables, each with a deep history, are creating new challenges for people who harvest, visit and identify themselves with the woods. People in this province have a long relationship of shaping, and being shaped by, the forests that surround us and that will continue for millennia. ■

**Layers
of fallen
pollen are
like plant
community
time
capsules
that span
thousands
of years.**



Todd Kristensen completed a Ph.D. in anthropology at the University of Alberta and works as an archaeologist in Edmonton with the Archaeological Survey of Alberta.

Diana Tirlea completed an M.Sc. in ecology at the University of Alberta and works as the Assistant Curator of Quaternary Environments at the Royal Alberta Museum.



MEET A MEMBER CLUB

Alberta Amphibian and Reptile Conservancy

Nature Alberta is proud to support a diverse range of naturalist organizations representing people passionate about all-things nature – from mushrooms, birds, butterflies, reptiles and more. We are excited to introduce you to the Alberta Amphibian and Reptile Conservancy. Keep reading to learn what this relatively new, interesting organization offers and how you can get involved.

The unique and diverse world of reptiles and amphibians (or the study of herpetology) has sparked the interest of many a naturalist. But as most reptiles are covered in scales, and the majority are carnivorous, there are many people who feel an almost natural aversion to these creepy crawlers. Enter the Alberta Amphibian and Reptile Conservancy (AARC). Formed in spring 2013, the AARC's vision is to ensure that all of Alberta's reptiles and amphibians

have abundant habitat and sustainable populations for today and tomorrow. They focus their efforts on educating the general public about the species native to Alberta, the value of all herpetofauna as well as participating in research to better understand the populations in Alberta.

Reptiles and amphibians, which includes frogs, snakes, alligators, turtles and salamanders, are fascinating creatures. These interesting, cold-blooded animals come in all sorts of colours and sizes, some are related to dinosaurs and some can even live up to 100 years.

"Being with other nature lovers and educating the public is why I'm involved with the AARC," shares Alyssa Metro, who serves on the AARC Board of Directors. "It's rewarding knowing you can change someone's negative opinion about snakes or other animals."

This budding naturalist community is passionate about educating people about reptiles and amphibians native to Alberta.

"We participate in citizen science projects and also provide educational opportunities for the public," explains Alyssa.

Some examples of the club's activities include their annual toad walk, the Parkland Herptile BioBlitz

and southern Alberta field trips. In addition to education, their efforts also include projects such as the Herpetofauna of Alberta Biobank, a collaborative undertaking developed by the Alberta Amphibian and Reptile Specialist Group and the Royal Alberta Museum.

As the AARC looks ahead, they hope to increase their monitoring and citizen science efforts. More activities mean there is ample opportunity for naturalists in Alberta to get involved and the AARC knows the value of staying connected with other naturalists throughout the province. Alyssa is excited to have AARC's name out there and, by joining Nature Alberta, sees a lot of opportunity to reach more people who may share similar interests in amphibian and reptile conservation.

"Nature works as a whole and is highly interconnected, and I think efforts to conserve nature should mirror this," adds Alyssa. "When we work together and stay connected, like becoming a member club of Nature Alberta, it only elevates our collective efforts."

Looking forward, there is much to do to ensure healthy and sustainable native reptile and amphibian populations in Alberta. The AARC will continue to work to raise awareness of the importance of these fascinating creatures. Reach out to the AARC to learn more and get involved savingalbertasherps.org. ■





Craig and Mark Stumpf-Allen

Edmonton *in bloom.*

We believe in a community that is beautiful, sustainable and vibrant - dynamic qualities that unfold over time. An endowment was the right tool to realize our vision.

It will continue to support passionate, engaged citizens, year after year.

Give. Grow. Transform.

Call 780-426-0015 or visit our website
www.ecfoundation.org





Proud to support
**Nature
Alberta**

Working towards a more
sustainable tomorrow.

Learn more at td.com/tdreadycommitment

**TD READY
COMMITMENT**

© The TD logo and other TD trade-marks are property of The Toronto-Dominion Bank