

CONTENTS

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Features

- 4 Seven years into an Emergency Protection Order, are Sage Grouse any Greater?
- With the Maligne Herd Gone... Jasper's Caribou Crisis Deepens
- 9 How Caribou Became Part of My Life
- 12 Alberta Caribou Work Continues While B.C. Puts Agreements in Place
- 13 Alberta and the Three Bears
- 16 Skoki: The Long and Longer Life of a Marvelous Bear 33 Years this Coming Winter
- 19 Species at Risk: Athabasca Rainbow Trout

Association News

21 Our Need for Nature: Kevin Van Tighem – Wilderness Defender

- 23 Telling Our Own Stories: Kevin Van Tighem's Martha Kostuch Lecture
- 25 Adventures for Wilderness: Albertans Honour AWA's 55th Year by Embarking on a Provincespanning Series of Wilderness Experiences

Wilderness Watch

- 28 Updates
- 30 In Memoriam: Margaret Main

Departments

- 31 Cub Reporter Corner
- 32 In Memoriam: Gus Yaki
- 33 Speaker's Corner
- 34 Reader's Corner

Cover Photo

This issue's cover photo is courtesy of Dan Olson. A late September afternoon along the Red Deer River PHOTO: © D. OLSON



Featured Art

AWA is very excited to feature the work of Tyler Los-Jones in this issue of Wild Lands Advocate. Tyler produces objects and images from his home in the Rocky Mountains of Alberta. The work he has produced over the past decade aims to complicate inherited assumptions of environments by bringing the unnatural aspects of the western conception of nature to the forefront. Los-Jones is fascinated by the role photography plays in the production and the fulfillment of our expectations for environments.



Los-Jones' photographic and sculptural work has been exhibited extensively across Canada and in the US. Recent exhibitions include *Look slowly and all that moves* at the Confederation Centre Art Gallery, (Charlottetown) and *a slow light* which exhibited at the Southern Alberta Art Gallery (Lethbridge) and Division Gallery (Toronto). Tyler has been commissioned to produce multiple large-scale public artworks including, *A panorama protects its views* for the Art Gallery of Alberta (Edmonton) and *To Keep the Promise* at the Calgary Airport Marriott In-Terminal Hotel.

Tyler is represented by Jarvis Hall Gallery in Calgary https://jarvishallgallery.com.

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ALBERTA WILDERNESS ASSOCIATION

"Defending Wild Alberta through Awareness and Action"

Dedicated to the conservation of wilderness and the completion of a protected areas network, Alberta Wilderness Association is a voice for the environment. Since 1965. AWA has inspired communities to care for Alberta's wild spaces through awareness and action. With a provincial office and library in Calgary, AWA has active members, volunteers, and sponsors throughout Alberta and beyond. AWA is a non-profit, federally registered, charitable society. Donations and financial support are greatly appreciated, please call 403 283-2025 or contribute online at AlbertaWilderness.ca

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For Species-at-Risk, the Ticking Clock is Relentless

An early August CBC story provided what I thought would be the perfect message for this editorial about species-at-risk. The story focused on sea otters, one of my favourite animals. It was a good news story.

Hunted ruthlessly for their fur since the 1740s, they were near extinction by the early 20th Century. In Canada, the last sea otter was shot in 1929. In the late 1960s and early 1970s sea otters from Alaska were reintroduced to the Pacific Northwest. Between 1969 and 1972, 89 sea otters were introduced to waters off of northwest Vancouver Island.

Thus began their road to recovery. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated *Ehydra lutris* as Endangered in 1978 and again in 1986. But, by 1993, at least 1,078 sea otters inhabited B.C. waters. In 2000 COSEWIC determined that, due to the steady increase in the otter population, sea otters were no longer in imminent danger of extirpation. Their status was changed to Threatened. The most recent federal otter census in 2017 put their population at approximately 8,000.

What is fundamental to understanding the ecology and the politics of recovering species-at-risk is the range of broader ecological implications that accompanies recovering populations. A blossoming otter population has delivered several important ecological benefits. Thanks to the otters, kelp forests have regenerated to the benefit of rockfish and salmon. For the climate, more kelp also means more carbon storage.

On the other hand, recovering some species may harm others. For example, the otter's appetite for sea urchins and other shellfish has posed a threat to Indigenous and commercial fisheries. The sea otter success story alerts us to this reality: there are tradeoffs to spe-

cies recovery and the challenge is deciding how to address them as we return species to the planet's lands and waters.

September's news on the species-at-risk front was more distressing. Its message was that, if we don't act very soon, we won't have to worry about making tradeoffs because we are losing species and biodiversity at an alarming, likely catastrophic, rate.

The United Nations published its fifth edition of its Global Biodiversity Outlook report in mid-September. Positively, virtually every country is now doing something to protect biodiversity and without such action the world's biodiversity would be even worse. "Even worse"...this means that none of the 20 objectives for 2020 (the Aichi Biodiversity Targets) set a decade ago by the U.N. have been fully met. Only six have been "partially achieved."

While governments take halting, baby steps to sustain biodiversity, they continue to open our wallets to subsidize the types of industrialization and economic activity that have put us at this crossroads. The amounts spent in the name of biodiversity are dwarfed by what is "spent on activities that are harmful to biodiversity, including some \$500 billion for fossil fuels, and other subsidies that cause environmental degradation."

The U.N. report came on the heels of World Wildlife Fund Living Planet reports. Globally, the <u>average</u> decline in wildlife populations since 1970 is a staggering 68 percent. In Canada, the populations of species that COSEWIC has assessed as at-risk nationally have declined by an <u>average</u> of 59 percent from their 1970 levels.

The time to act on this file was yesterday. In order to be in the position to have to decide what tradeoffs we make as we recover species-at-risk, we must take decisive, expeditious action now.

- Ian Urquhart, Editor



Seven years into an Emergency Protection Order, are Sage Grouse any Greater?

By Grace Wark, Conservation Specialist

n 2012, Canadian populations of Greater sage grouse (*Centrocercus urophasianus urophasianus*) had been pushed to the brink of local extinction and could no longer rely on good will and voluntary efforts to support their numbers. This was the year that, despite being a federally-listed *endangered* species since 1998, a mere thirteen males were counted in Alberta. The outlook was bleak, to say the least.

You may ask yourself, why wasn't the federal *endangered* status enough to sustain sage grouse? The not-so-simple answer: habitat and jurisdiction. Under the federal *Species at Risk Act*, responsibility

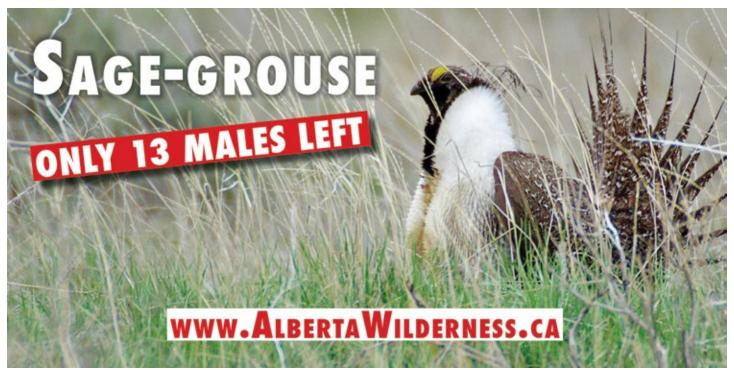
to manage land-based species, like sage grouse, still falls to the provinces on provincial lands. A somewhat reluctant babysitter, the federal government will supervise the provinces' recovery efforts, but leave them to choose their own conservation pathway. Only where the provinces fall short will the federal government intervene.

In the years leading up to 2012, provincial efforts to recover sage grouse proved unfruitful, largely because energy development in sage grouse habitat remained unchecked. Meanwhile the federal government did nothing but drag their heels on a much needed critical habitat

designation, wherein areas essential to sage grouse survival and recovery would be mapped and protected. The general excuse from the federal Minister of the Environment was that insufficient data were available to determine sage grouse habitat. Without a critical habitat designation, industrial activity, road building and other highly disruptive hazards were allowed to persist within important sage grouse habitat on provincial public lands.

Being a specialist species, sage grouse have extremely specific habitat requirements in order to feed, nest and breed. True to their name, Alberta populations of Greater sage grouse rely on stands of





In 2011, AWA commissioned a billboard in the City of Edmonton to draw attention to the critically low numbers of male sage grouse remaining in the wild. Years of concerns, campaigns, and legal challenges eventually culminated in the 2013 Emergency Protection Order.

silver sagebrush (Artemisia cana), which dominates their diet throughout the year and acts as important cover during rearing stages and in winter months. Further to this, sage grouse habitat also needs to be highly undisturbed. Research on 'leks', sage grouse breeding grounds, found that nearly 99 percent of active leks are found in areas where less than three percent of the landscape has been developed. Alberta's grasslands are one of the most developed and least protected Natural Regions in the province. It's unsurprising, albeit disappointing, that sage grouse are now limited to a mere 10 percent of their historical range.

While the government idled on sage grouse habitat protections, Alberta and Saskatchewan conservation groups, including AWA, decided it was time to turn up the heat on sage grouse protections. Over a number of years, AWA and a collective of conservation groups and landowners coordinated actions for Greater sage grouse protection, including a sage grouse emergency summit, an interprovincial sage grouse partnership, a legal petition and multiple lawsuits — all of which proved *critical* to the Minister fi-

nally declaring an Emergency Protection Order (EPO) on December 4, 2013.

I spoke with Ecojustice lawyer Sean Nixon, who represented AWA and our environmental colleagues in the long legal journey to achieving an EPO. Sean explained to me that while the EPO was a historic action on behalf of the federal government, the first of its kind in protections, it was not, however, a perfect legal mechanism for long-term recovery. In this case, the EPO is meant to "fill the gap" between designating a species under SARA and mapping its critical habitat. In this most dire of situations, the EPO aimed to prevent any further destruction of known sage grouse habitat, which in this case was the leks and some surrounding area. Important to note, the EPO does not apply to private lands, but instead only to "a number of legal subdivisions found on federal and provincial Crown lands." In actual terms, the EPO prohibited impacts to sagebrush plants and native grasses and forbs, the installation or construction of new fences, "tall or noisy structures" and machinery, and new or widened roads on a total of 1,672 square kilometres of designated habitat.

This was a huge success for sage grouse and conservation groups, although only a first step in the road to recovery.

I asked Cliff Wallis, AWA Director and Grasslands biologist, about the importance of the EPO. "I think it has been effective on a couple fronts," said Cliff. It stopped immediate threats and drew important attention and funding towards the issue. However, Cliff pointed out that funding and recovery efforts need to be sustained over multiple decades if we are to actually reach a point where sage grouse are no longer endangered.

How do you recover a species?

Since the EPO was announced in 2013, a number of recovery efforts have been applied to both Greater sage grouse populations and their habitat to, in Cliff's words, "see what sticks." The EPO provided important political leverage for sage grouse which allowed for provincial and federal funds to be allocated towards their recovery in 2014.

As population sizes were critically low at the time of the emergency protection order, both captive breeding and translocation programs have been used to try to bring populations up to sustainable numbers. The captive breeding program, another first of its kind, is led at an off-site location by the Calgary Zoo, using eggs from Montana and elsewhere in Canada to breed birds for the wild. The program has been operating since 2014, and in 2018 released 66 birds into an area near Manyberries. The translocation program has been in effect since before the EPO, where birds have been brought up from Montana to attempt to bolster the Alberta populations - although with mixed results due to nest predation from largely crows, magpies and ravens.

Sage grouse numbers have risen and fallen since 2013. They remain at perilously low levels. This recent history is an important reminder of how any and all actions for the species need to be complemented by improvements in habitat. For example, to improve the likelihood of survival, the Government of Alberta has implemented another program to reduce "predator subsidies," old buildings and perches that support sage grouse predators.

A portion of Alberta's sage grouse habitat falls within the Manyberries oilfield, meaning that Greater sage grouse recovery also has significant overlap with another major conservation issue in the province: the abandonment of wells. In 2013, 1,533 wells had been drilled within Alberta sage grouse range. This presence is detrimental to the species as sage grouse actively avoid any anthropogenic footprint. While the reclamation of well pads is a priority item for their recovery, funding is desperately needed to restore habitat within a meaningful timeline.

With all of these recovery actions in place, what is the current status of sage grouse in Alberta? In 2020, 24 males were observed across three leks, with a total estimated population of 72 birds (2:1 female to male). This is still a far cry from the pre-1968 numbers of more than 600 males. A long road to recovery

still lies ahead of us.

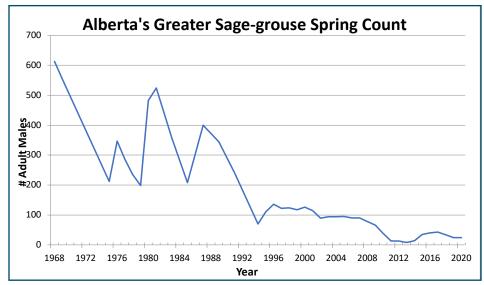
Considering the Greater sage grouse range in the western United States, I was curious about how recovery efforts there compare with Alberta. I had heard anecdotes that the U.S. had much stronger protections in place, due in part to the federal jurisdiction over sage grouse habitat paired with strong voluntary efforts. Hoping for some optimistic news, I reached out to Dr. Dave Naugle, the science advisor for the U.S.-based Sage Grouse Initiative (SGI), to learn about how sage grouse are being managed in the western rangelands and what we might be missing here in Alberta.

Although they've faced a similar trend in declines, the western states appear to have achieved a general air of acceptance around sage grouse conservation efforts. This is evidenced by the large contributions to private protection and wide variety of conservation initiatives. As Dr. Naugle described, although each state has their own plan "everybody is largely working on the same sheet of music."

Programs are currently underway to not only tackle predation and energy development, but also the impacts of wildfires, invasive cheat grass and conifer encroachment, agricultural conversion, residential development, and migration-impeding fences. The SGI has experienced a huge amount of success in establishing voluntary programs, including conservation easements, to protect and enhance remaining sagebrush habitat. To date, more than eight million acres of sagebrush habitat have been conserved through SGI's programs, largely through private partnerships.

In describing Alberta's current efforts, I asked Dr. Naugle for his opinion on what's needed to restore populations to sustainable levels. Once again, it boils down to habitat. "Even if you made what you have left perfect habitat, it still won't be enough to support populations." The needs of sage grouse extend far beyond the boundaries of the EPO; what we need to do is grow the amount of viable habitat.

What really resonated with me was something Sean Nixon said: "once there is no longer an active threat to the species, the Minister is actually supposed to recommend to cabinet that [the Emergency Protection Order] be removed." Looking at current populations, an emergency still exists today. There's still work to be done, critical habitat beyond leks that needs to be designated, and land that needs to be restored. Hopefully, we can figure out how to do this while there are still sage grouse left to save.



SOURCE: AWA

With the Maligne Herd Gone...Jasper's Caribou Crisis Deepens

By Carolyn Campbell, AWA Conservation Specialist

ey're gone. Jasper's Maligne carbou herd are officially extirpated gone from Jasper National Park's landscape. The Tonquin and Brazeau herds, the two remaining caribou populations managed by Parks Canada, are in a perilous condition. Their total numbers and numbers of breeding females are so low now that they cannot recover on their own.

Therefore, AWA is calling on Parks Canada to prevent the extirpation of Jasper's Tonquin and Brazeau caribou by urgently and transparently considering an emergency population augmentation program

for these caribou. Furthermore, AWA is calling on Parks Canada to manage Maligne range access for eventual caribou re-introduction there.

A captive breeding program is a desperate measure that is under consideration because existing regulations and management regimes failed the Maligne herd and are failing the Tonquin and Brazeau herds. In 1984, the Tonquin and Brazeau herds were estimated to each have 115 members. In 2019, the Tonquin population was estimated to have shrank to only 24 members; the Brazeau herd had collapsed to just 8 animals.

The die off of Jasper's entire Maligne caribou population and the steep, rapid decline of the Brazeau and Tonquin herds are tragic, predictable results of decades-long habitat and wildlife errors. Those errors were reinforced in the last decisive decade by Parks Canada's decision to still cater to the recreation desires of a few above the habitat needs of endangered wildlife. Parks Canada must not let the remaining magnificent caribou under its care in Jasper be lost to future generations of Canadians.

There is tremendous urgency for Parks Canada to take action, by launching captive



The few remaining caribou in Jasper National Park face dire circumstances. PHOTO: © C. CAMPBELL

breeding if viable, and crucially, by managing habitat appropriately for caribou re-occupation. The hard-won winter ski trail limits in the Maligne range must remain, and winter plowing of the Maligne Lake road into prime winter habitat areas must end. It is possible that caribou could re-connect to Maligne from the adjacent Brazeau or Tonquin ranges with strong winter access rules. Further measures should be considered for Tonguin and Brazeau winter access to support caribou recovery. A captive breeding program only makes sense if caribou have secure critical habitat to return to once they are released. If Parks Canada allows more winter access or infrastructure that is harmful to caribou viability, we believe it will be far too difficult for decision makers to reverse course later.

Canadians may see Jasper Park as a pristine area for caribou, but human land-use decisions have been disastrous for them. These are 'mountain' caribou, which need to migrate in the winter to secure foothills areas, which were destroyed decades ago. Caribou that once were distributed through southern Canadian mountains and foothills

right down into Idaho had their winter ranges outside the Park fragmented in the 20th century by roads, dams, mines, and other industrial incursions. Many caribou died off or stopped migrating; the latter remained inside national parks. Even though winter conditions were poorer than what they were adapted to, they probably survived far longer than they would have without the Parks.

Meanwhile, people made disastrous decisions for caribou inside Jasper Park too. Artificially high elk populations were encouraged in the 20th century, eventually leading to a boom in wolf numbers. Many decisions creating and maintaining human access on winter roads, trails and ski hills in key caribou areas robbed caribou of their natural ability to avoid overlap with wolves, and wolf predation became too high for them to tolerate.

In 2002, a temporary winter closure of Maligne Lake Road, approved by Jasper's superintendent based on extensive evidence, was immediately overturned. Keeping the entire stretch of the Maligne Lake winter road open every subsequent winter to recreation traffic, up to today, was a death

sentence for Maligne caribou, giving wolves easy predation access as caribou numbers spiraled down. The 'four month per year' ski trail closures since 2014 were overdue measures that unfortunately proved too late to recover the tiny remaining population.

Parks Canada has declared that, since about 2013, Jasper's elk and wolf populations are low enough, and far enough away from caribou, that they no longer pose a risk to the remaining caribou herds. Provided there's ongoing habitat/access management, captive breeding may be the necessary means for Jasper caribou to survive and recover.

Crisis describes well the state of caribou in Jasper National Park. Populations have declined so far, so quickly, that only an extraordinary measure such as captive breeding may hold any promise of keeping this iconic species in an iconic National Park. Let's see Parks Canada's caribou re-population and access management plans, and if they're sound, let's get on with it. There isn't a second to lose.

Featured Artist Tyler Los-Jones

As Lichens no. 7 Archival inkjet print on rag paper 30.5 cm x 35.6cm, 2017 PHOTO: © T. LOS-JONES







How Caribou Became Part of My Life

By Franco Alo

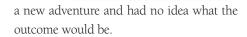
here are very few things I am sure of in life and that's fine by me. But, I am sure of one thing — I want to be involved with caribou recovery in Canada. For most Canadians the only time they will ever see a caribou is on the tails side of our quarter — that's right, it's a caribou, not a moose. So how did this professional biologist decide he wanted to be involved in one of the largest conservation issues in Canada? That's the question I tackle in this article.

Getting to Today

I will be 34 years old by the time this article is out and I think I've worked an astounding number and variety of jobs so far in my life. The fields I've touched include: salesman, carpenter, landscaper, musician, photographer, field technician, and kitchen

sous-chef. And now, my relationship with Rangifer tarandus joins the list. It all started when I decided to go back to school in my mid-20s after I pulled myself loose from being a touring musician. I didn't know much about caribou then (maybe I even believed a moose adorned our quarter). It was really by accident that Rangifer tarandus became part of my Master of Science degree.

When I chose my professor to pursue my M.Sc. in Biology with, I was dead set on studying elephants in Cameroon as my research project. Somehow though, and despite the fact I don't enjoy cold weather, Finland replaced Africa. I think I chose Finland because it was the opposite of what I thought would make me comfortable and I had already learned early on that, when you push yourself outside of your comfort zone, real learning occurs. I was excited for





All research should start with diving into the background literature. I learned about reindeer biology and reproductive ecology, sexual competition as well as the status of some caribou herds in Canada. When I did this in 2014 I remember being shocked to find out that, in Canada, the caribou I read about in my research was a species at risk. As interesting as I found that, I had to stay focused on reindeer. My interest in caribou conservation had to take a back seat to sexual competition in Finland's reindeer.

My caribou love story, my passion for caribou conservation, started with a profound experience in Finland. I arrived at a Finnish Research Centre in northern Finland as the newbie on the research team. Immediately, I was told I had to help herd over 100 reindeer, quite intimidating! With that intimidation came excitement as I was going to work alongside the Samì Indigenous Peoples. This combination of intimidation and excitement produced one of the most visceral and intimate experiences of my life. It was like a fairy tale. I was encircled by dozens of reindeer in a corral who walked past me, brushed up against me, poked me. In this real-life fairy tale, I instantly cared about every single one of them. I found them all beautiful. I connected with them on a spiritual level.

Perhaps my fondest memory of connecting with reindeer happened during my first year of research in northern Finland. Like most field days, I was looking for reindeer using telemetry, on foot, over a large surface of



The majestic woodland caribou aka the gray ghost. With fewer and fewer on the natural landscape, will woodland caribou become the next zoo conservation story? PHOTO: © F. ALO



Portrait of Reindeer R26. If we take the time to connect with nature, we understand why we are trying to save it. PHOTO: © F. ALO

land. The morning was foggy and I needed my toque and fleece to stay warm. I tracked an individual through a Scots pine forest and into a meadow. I could hear a group of about 20 or more, clicking tendons in the distance. I caught a glimpse of the group and it appeared they were about to kneel down for a rest, one by one. My recording of observations was put on hold since reindeer can typically rest for 45 minutes or more. I decided to sit on a rock, in the fog, in the meadow and eat my lunch (a classic cold sausage with tasty Finnish honey mustard). A few moments passed and I heard the clicking of tendons again, this time moving towards me. I was sure they would avoid me...but, no, they walked right past

me. They encircled me, in the fog, like gray ghosts. I was hooked!

Canada: Caribou Conservation

After my formative experiences in Finland and, with my MSc. in hand, I started to apply for caribou research positions across the country. I moved to Edmonton shortly after graduating and my first taste of the Canadian caribou world was an opportunity made possible thanks to Melanie Dickie and Dr. Robert Serrouya with the Alberta Biodiversity Monitoring Institute's (ABMI) Caribou Monitoring Unit. This position became my gateway into the land of caribou conservation. This is a land where researchers in this community are passionate about caribou and are tackling what seems like an insurmountable task. I quickly learned that caribou conservation was not only about caribou, but it was about people (more on this later).

My ABMI position had me trekking the boreal forest of Alberta/Saskatchewan setting up wildlife camera traps in both intact caribou habitat and disturbed caribou habitat (most of the disturbance came from wildfires). Woodland caribou in the boreal are naturally evasive and are listed as threatened under the federal Species at Risk Act. This makes them difficult to encounter in nature, especially in herds where their footprint is more remote i.e., further away from human settlements, think high up in the mountains or Nunavut for example. This is why wildlife cameras strategically placed within a caribou range and within habitat that is predicted to be used by this ungulate, offer valuable insights through the images we can obtain without being physically present on the landscape. By the end of my contract in October 2017, I had yet to see a caribou. My only view of woodland caribou in Alberta had been through the wildlife cameras. Those views keep me going. They revive my ability to bond again with the animal who touched me spiritually back in Finland.

From there, and through constant networking, I landed a position in November 2017 I was really proud of: Maternity Pen Project Operations Coordinator for the

South Selkirk herd in southern British Columbia. However, it was a job that highlighted the seemingly insurmountable task caribou recovery specialists face. A maternity pen in a herd that numbered only 11 individuals in June 2017, was a desperate, last gasp, effort to keep the South Selkirk herd on the land.

Working with the Government of British Columbia, Nature Conservancy of Canada and Ktunaxa First Nations in Cranbrook, one of the biggest challenges faced in saving one of the last southern mountain B.C. caribou herds was the fact that the South Selkirk herd was international. Its historical range included habitat in the states of Idaho and Washington.

Given the South Selkirk herd's international status, a collaborative group was formed called the Selkirk Caribou International Technical Work Group (SCITWG). It involved U.S. partnerships such as U.S. Fish and Wildlife, U.S. Forestry Service, Kootenai Tribe of Idaho, Kalispel Tribe and many others. The advantage of such a group was the diversity of experiences everyone brought to the table, especially relevant and useful in a dire situation with, at that time, only 11 individuals left in the herd.

One of the highlights from my time in that position was being invited with a few others from Canada to Idaho to speak to the SCIT-WG, among other things, about my plan for opening the maternity pen and what I needed financially to do that. I also spoke about the steps I was taking to advance our understanding of what we needed in place to be ready to receive some individuals from the South Selkirks in March 2018. I felt like I imagine a politician feels - speaking to a broad audience that included members of the federal government, First Nations, snowmobile community groups and even the local town councillor. It was empowering to feel like my opinion and statements were taken seriously among a high-profile attendance. Though I was told many times that my enthusiasm was due to being young and naïve!

The complications and challenges we faced turned out to be overwhelming. The

maternity pen, with 15-foot walls designed to mimic the Revelstoke maternity pen, was nearly completely buried by snow in February. In the aftermath of the buried pen debacle, the herd was essentially found to be functionally extirpated (https://www.revelstokereview.com/news/u-s-caribou-near-revelstoke-survive-first-year/). The last remaining member of this herd was captured in the Winter of 2019 and transported to the caribou maternity pen in Revelstoke.

From Disheartening to Encouraging

The next caribou contract position I landed was as a caribou recovery technician with the Government of Alberta in Peace River. If you remember, I had still never seen a caribou in the flesh when working for the ABMI. And, my experience with the South Selkirk herd left me quite disheartened as I essentially witnessed the demise of a herd we tried to save. But, stationed in Peace River, I saw caribou, and then more caribou, and then more caribou. By the end of my contract I was very encouraged by the fact I had seen probably more than one thousand caribou. This all happened thanks to the advantages of aerial surveys which took the form of mountain caribou scat sampling, caribou mortality investigations, and cow-calf recruitment surveys. It was the dreamiest five months of my career in caribou conservation. Finally, I had connected with the very species I wanted to help since that formative moment studying reindeer in Finland during my M.Sc. degree.

Today, I find myself involved with caribou conservation from a different angle. One can perhaps call it more political, it's certainly more concerned with communications. Now, I'm not on the ground collecting data; I'm not analyzing data; I'm not taking pictures of caribou. Instead, I'm involved in knowledge transfer and tool development as part of the National Boreal Caribou Knowledge Consortium (NBCKC). The strength of the NBCKC is that it supports a wide gamut of caribou conservation information and participants. I am pleased to see representation on the NBCKC from federal/

provincial government authorities, Indigenous communities, industry practitioners, research scientists, NGOs and more. This large community, with a diversity of voices, offers great perspective when reviewing methods or tools for caribou conservation across Canada.

The needs of caribou herds across Canada vary by location, political boundary, status, funding, remoteness, parties involved, etc. and information about the types of caribou monitoring techniques available across the country can really help caribou conservationists learn from and apply the lessons from previous undertakings. A lot of the NBCKC information can be found at https://www.cclmportal.ca/portal/boreal-caribou.

I am most attracted to caribou conservation because it is a complicated subject and one where learning to speak the language of conservation suited to a particular party is of utmost importance. We have the data and we acknowledge the problem. Now, how do we create the change required to address woodland caribou decline?

Politicians are uneasy talking about caribou conservation because typically what is good for caribou (intact landscapes, less anthropogenic activity near caribou ranges) is bad for business. Caribou conservation is fundamentally difficult because caribou are large mammals whose range contractions

are significant. They make us realize we have difficulty sharing the same habitat. We have transformed much of that habitat into concrete jungles. We don't see ourselves as a part of nature; we too often see ourselves as apart from nature. This mindset sees them as competitors, detracting from our ability to satisfy our needs or wants.

A brighter future for caribou depends on rethinking our place in nature. Make caribou conservation about human conservation. Do we want to plow down entire forests and build concrete jungles everywhere, or do we want to be able to balance our societal needs with the acknowledgement that we are not separate from nature but a part of it? To be a constructive part of nature, we need to make choices which value thriving landscapes, functioning ecosystems, and the priceless ecosystem services they provide for us. I am proud to be involved in this fight to allow caribou to continue to live in their wonderful homes and I hope to continue to find others who understand that when we destroy, when we take, there's a threshold where mother nature will simply not recover!

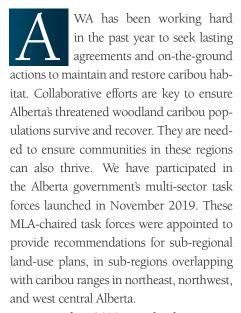
Franco Alo: Skilled in caribou-centric landscape management, making things look pretty, and a fieldwork veteran. Always interested in connecting with like-minded individuals at alo.francom@gmail.com.



I wonder sometimes what side of the fence we are on. PHOTO: © F. ALO

Alberta Caribou Work Continues While B.C. Puts Agreements in Place

By Carolyn Campbell, AWA Conservation Specialist



In December 2019, our legal case concerning protection for boreal caribou habitat in northeastern Alberta was adjourned, pending further discussions between the environmental groups and First Nations that brought the lawsuit and the federal government. Ecojustice, representing AWA, Athabasca Chipewyan First Nation, Mikisew Cree First Nation, and David Suzuki Foundation, stated at the time:

The environmental organizations and First Nations that Ecojustice represented on this issue are deeply concerned about the future of boreal caribou in Northeastern Alberta, where habitat destruction and fragmentation threatens their survival. As we work together to protect iconic boreal caribou and their critical habitat, Ecojustice's clients are encouraged by the opportunity for continued discussion with Minister Wilkinson. Out of respect for these ongoing discussions, Ecojustice and its clients have nothing further to say at this time.

The fate of the draft Canada-Alberta caribou conservation agreement remains unknown. It was released for public comment in August 2019 and outlined a number of important timelines and commitments. In December 2019, the federal government and Cold Lake First Nations finalized a caribou conservation agreement. This is a positive step to enhance Cold Lake First Nations' capacity and leadership to recover woodland caribou within its traditional territory in northeast Alberta and northwest Saskatchewan. (The September 2019 Wild Lands Advocate reviewed each of these drafts).

In February 2020, two caribou agreements involving British Columbia and the federal government were finalized (those drafts were reviewed in the June 2019 WLA). One was a bilateral conservation agreement between the Canadian and B.C. government, covering all southern mountain caribou. We remain concerned that this agreement is still a 'plan to plan' with few specific commitments, and that habitat – and caribou survival prospects – will be allowed to steadily worsen from industrial activities.

Much more encouraging, although it is limited to only a few caribou ranges in northeast B.C., is the Intergovernmental Partnership Agreement. This is a four-party agreement between Saulteau First Nations, West Moberly First Nations, Canada and B.C. It covers the 'Central Group' of southern mountain caribou, including the Narraway range, which extends into Alberta southwest of Grande Prairie.

Highlights of the Partnership Agreement include the clarity of its Shared Recovery Objective: "immediately stabilizing and expeditiously growing the population of the Central



Group to levels that are self-sustaining and support traditional aboriginal harvesting activities, consistent with existing Aboriginal and Treaty rights." There is a shared commitment to establish management zones, including areas for 'sustainable resource activity' and areas emphasizing 'habitat protection, restoration and conservation'. There are specific dates for the milestones involved in implementing the Agreement. Compared to the draft agreement, there is more specific language confirming local governments' involvement in caribou recovery.

Although it is very regrettable that it is needed, it is appropriate that the finalized Partnership Agreement addresses a critical issue, in a new section called "Commitment to Action on Racism". This states, in part: "All Parties to this Agreement are concerned with the disrespectful and racist rhetoric that followed the introduction of the Partnership Agreement. The Parties agree to collaborate when planning and implementing future engagement processes related to the implementation of this Agreement to ensure such processes will be inclusive, respectful and anti-racist."

Visionary, effective, and enforceable caribou range plans are urgently needed in Alberta, for caribou survival and for the many forest species that will also benefit if our caribou have a future. To help make this happen, it's never been more important for Albertans to make their views known to elected officials about the importance of transitioning to deliberate land-use management that conserves and restores the habitat caribou require, while ensuring sustainable regional livelihoods.

Alberta and the Three Bears

By Ian Urquhart

ews media have featured Alberta's threatened population of grizzly bears several times this year. That news hasn't been particularly positive. In September, a female grizzly was killed by a train between Castle Junction and Lake Louise. She was the mother of two cubs, both of which were presumed to have perished before she died. In late April, three grizzly cubs were orphaned when hunters shot their mother in the Porcupine Hills. She had charged them, presumably because she regarded the black bear hunters as threats to her cubs.

Those three, orphaned grizzly cubs inspire the questions at the heart of this article. Should wildlife managers consider rehabilitating and then releasing such cubs back into the wild? Or, as in the case of the three Porcupine Hills orphans, should cubs be sent to zoos? If zoos cannot be found, should the cubs be killed? After the Porcupine Hills cubs were rescued by Alberta Fish and Wildlife, they were sent to the Calgary Zoo. The Zoo cared for them until early summer. Then they were sent to the Greater Vancouver Zoo where they will spend the rest of their lives.

Before the cubs were sent to the B.C. zoo, I was one of 104 signatories to a letter from Bears Matter to Alberta Environment and Parks Minister Nixon. The letter urged him to put those cubs on a different path. We urged the Minister to rehabilitate the cubs with the view to releasing them back onto the Alberta landscape once they were old enough, skilled enough, to survive on their own in the wild. I still firmly believe that rehabilitation and release of grizzly bears should be a management alternative available to Alberta Fish and Wildlife. I hope

that, in the very near future, the Alberta government will abandon its prohibition against rehabilitating grizzly cubs. Instead, it should allow suitably designed wildlife rehabilitation facilities to try to put orphaned cubs on that different path.

Provincial policy has prohibited this option since 2010. That was the year the provincial government declared that wildlife rehabilitation permits could not be used to rehabilitate grizzly bears and a handful of other wildlife species. In a 2019 article, Shaun Fluker and Drew Yewchuk critiqued this prohibition against grizzly rehabilitation as "remarkable" since, ironically, 2010 also was the year when Alberta formally designated the grizzly as a species-at-risk in the province. Today, the grizzly bear retains that Threatened designation.

Until April 2018, orphaned black bear cubs also were on the province's prohibited species list. Events in 2017 shone a bright, unflattering light on Alberta's restrictive policy. That spring, three black bear cubs were discovered in a Banff National Park washroom. Since Alberta prohibited cub rehabilitation the bears were shipped to Ontario's Aspen Valley Wildlife Sanctuary. Later that year, an injured black bear in the Spring-

bank area, nicknamed Russell, captured considerable public and media attention. The province came under fire again when it refused the Cochrane Ecological Institute's (CEI) requests for the government's permission to let the bear hibernate at its facilities. Lisa Dahlseide, the Institute's Education Director, saw the attention those bears received as an important catalyst for the government's decision to allow the rehabilitation of black bear cubs.

With respect to the three grizzly cubs orphaned this spring I invited a handful of people to add their signatures to the letter to Minister Nixon. One renowned conservation biologist's response surprised me. The biologist wrote: "This is NOT conservation. This is misplaced empathy. Look to the data. Sorry, Ian, but this is a really poor initiative." I thanked the academic for the email and for sharing the opinion there was no merit at all in trying to rehabilitate grizzly cubs.

Then, I took a look in the metaphorical mirror. Was this professor right? Was "misplaced empathy" looking back at me? Did the data support the conclusion that it was a "poor initiative" to consider the rehabilitation/release option rather than zoo captivity or killing the cubs?



Grizzly and three cubs in Canada's Rocky Mountain parks. CREDIT: Parks Canada https://www.pc.gc.ca/en/pn-np/mtn/ours-bears/generaux-basics/grizzli-grizzly

Two "Good" Arguments Against Grizzly Bear Rehabilitation?

There are some unacceptable arguments for not considering changes to public policy. One of those is bureaucratic inertia, the idea that the status quo is good irrespective of its merits. Fluker and Yewchuk concluded, after examining the records received through a freedom of information request, that this helped to explain Alberta Environment and Parks' reluctance to allow bear rehabilitation. They wrote: "The policy for wildlife rehabilitation in Alberta appears to be based more on inertia than a scientific consideration of the effectiveness of rehabilitation."

There may be, however, good arguments against bear rehabilitation generally and grizzly cub rehabilitation in particular. Two possibly better arguments against trying to rehabilitate focus on safety and the development of grizzlies from birth to adulthood. Caution with respect to rehabilitating wildlife generally is needed because of the risks rehabilitation may pose to both humans and wildlife. On the eve of allowing Alberta wildlife rehabilitation facilities to care for orphaned black bear cubs, Alberta's Deputy Minister of Environment and Parks said that his department's approach was aimed "to ensure the safety of the public and wildlife." He wrote: "Safety risks to humans and to wildlife species, including disease risks to both humans, (sic) are the most common reasons for the restriction of possession of certain wildlife species."

Human-bear conflict, especially bear attacks on people or their property such as livestock, likely was more central than disease to the Deputy Minister's assessment. Here, a major concern is that bears will become habituated to people during their time in a rehabilitation facility. This habituation or familiarity will embolden bears after their release. By removing or reducing a bear's "fear factor" habituation will make it more likely that the released bear will become a problem bear. In the extreme, the problem bear - especially one that has not developed natural bear survival skills in a rehabilitation facility - may see humans as prey and attack them. Wildlife managers in Alberta have had zero tolerance for this risk.

The second argument is a developmental one. Like all the subspecies of brown bear (*Ursus arctos*), grizzly cubs in nature spend more time with their mothers than black bear cubs do. A grizzly cub is likely to stay with its



Aerial photo showing the outline of the grizzly rehabilitation facility enclosure and its distance from existing structures. PHOTO: © COCHRANE ECO-LOGICAL INSTITUTE

mother for approximately 2 ½ years, roughly six months to one year longer than its typical black bear counterpart. Grizzly cubs in the wild, in other words, normally rely on a mother's nurturing and teaching longer than black bear cubs do.

"Grizzly bears are different," Alberta government carnivore specialist Paul Frame told reporter Colette Derworiz in 2018. "They have a different life history and they require more care." More care likely means a longer stay at a rehabilitation facility and may increase, in the minds of some, the risks presumed to accompany habituation. John Muir, Communications Director for Alberta Environment and Parks, argued this when he was interviewed about rehabilitating the Porcupine Hills cubs. He claimed that the survival chances of orphaned grizzly cubs meant they needed to be kept in a rehabilitation facility longer than black bears. "This causes safety concerns because the longer the bear is in rehabilitation," he told reporter Cathy Ellis, "the higher the risk of habituation and aggression when the bear is released."

And the Data?

The data don't support these "good" arguments against grizzly bear rehabilitation and release. The most comprehensive study of the consequences of returning orphaned, captive-reared bears to their natural environment I found was published in the peer-reviewed Journal of Wildlife Management in 2015. A team of 13 authors gathered data from 12 bear

captive-rearing programs in the United States, Canada, Romania, Greece, India, and South Korea. The lead author was John J. Beecham. Beecham advised the Alberta government on the issue of rehabilitating black bear cubs; he also signed the letter urging Minister Nixon to approve rehabilitation/release as a management option.

The questions raised in this study are central to the concerns and interests of wildlife managers and the public alike. Are bears likely to survive after they're released? What are the causes of their mortality? How prevalent are conflicts between humans and post-release bears? Where do bears go after their release? Do post-release bears reproduce? Post-release data for 550 bears over the period 1991 to 2012 was analyzed. Three species of captive-reared bears - American black bears (Ursus americanus), brown bears (Ursus arctos), and Asiatic black bears (Ursus thibetanus) - were studied. The bear population studied was made up of 424 American black bears, 64 brown bears (54 from Romania, 8 from B.C., and 2 from Greece), and 62 Asiatic black bears.

All of the bears included in this study were less than one year old when they entered a wildlife rehabilitation facility. They were kept for between two and 14 months and their care was guided by the International Fund for Animal Welfare protocols. Those protocols "primarily involved minimizing post-weaning human contact during their captivity." All of these captive-reared bears were released into habitats occupied by their species. Those areas included "adequate natural food availability, cover, and low probability of encountering humans." The brown bears were released during the first winter or sometime between the spring and September of their second year. Independence for those bears came considerably earlier than would have been the case if they were not orphans.

The human-bear conflicts data suggests that, if appropriately-rehabilitated bears are released into suitable habitats, the risk of a rehabilitated bear becoming a problem bear is very low. The vast majority of all the released black bears (94.2%) did not come into any conflict with people. None of the 64 brown bears re-

leased back into nature came into any sort of conflict with people. As for the type of conflicts between humans and black bears, none of those conflicts involved a bear attack. The most numerous examples of human-black bear conflicts came when captive-reared bears tried to get human foods that were not stored securely. Harm to livestock provided the second most numerous examples. Habituated black bears that approached humans looking for food was the third most important conflict category. Again, this small number of conflicts only involved black bears.

With respect to the survival rates of bears released from rehabilitation facilities, the overall survival of the captive-reared brown bears in this study was similar to the survival rates of wild grizzlies in Montana reported in a 2012 study by Mace et al (0.682 for wild yearlings/0.852 for wild subadults in Montana versus 0.749 for the yearling brown bears released in Romania, B.C., and Greece). A 2016 report by Costello, Mace, and Roberts followed up on the 2012 study. It estimated that the wild cub survival rate in Montana from 2004 to 2014 was 0.553 and 0.639 for yearlings. The survival rate of captive-reared brown bears again compares favourably with those data.

The 2015 article by Beecham et al erodes, if not destroys, the foundation supporting the "good" arguments for the absolute prohibition against grizzly bear rehabilitation and release. Taken together, the similar survival rate between wild grizzlies and captive-reared brown bears, the successful release of brown bear yearlings, the total absence of any human-brown bear conflicts, and the absence



Perimeter fence, ground wire, and cub house. The ground wire is attached to the fence every 12 inches. It is now covered with soil so grass and other vegetation will grow there. PHOTO: © CO-CHRANE ECOLOGICAL INSTITUTE

of any indication that black or brown bears returned to their rehabilitation facility area provide the data that should prompt Alberta government officials to add rehabilitation/release to their suite of management options. As Beecham et al wrote: "(o)ur analyses reduce many of the uncertainties surrounding the fate of bears released as yearlings and provide evidence that releasing captive-reared bears is a defensible management alternative."

A Path Ahead for Orphaned Grizzly Cubs in Alberta

The Cochrane Ecological Institute is one of the Alberta wildlife rehabilitation facilities licensed to rehabilitate and release black bear cubs. Under the leadership of the Smeeton family, the CEI was instrumental in putting the swift fox back on Canada's prairie landscape. By the late 1970s, swift foxes were extirpated from Canada. Several years before the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) issued it extirpation decision, Miles and Beryl Smeeton had initiated a swift fox captive-breeding program in order to reintroduce swift foxes to their historic range. Thanks largely to CEI's captive breeding program and the swift fox reintroductions the program enabled, the 2006 population of this endangered species in Alberta and Saskatchewan was estimated to be 647 animals.

Now under the leadership of Clio Smeeton, the CEI has set out on another pioneering venture - to be the first Alberta wildlife rehabilitation facility to rehabilitate and release orphaned grizzly cubs. With the help of a handful of major donors and volunteers, the CEI has constructed its "Grizzly Bear Cub Rehabilitation Facility" on the Institute's property northwest of Cochrane (the donors and volunteers are listed here (https://ceinst.org/grizzly-bear-cub-rehabilitation-project-donors/). The facility is made up of a four and one-half acre enclosure and a bear house. The enclosure is built on a landscape with features typical of the Rocky Mountain foothills: mixed aspen/ spruce forest, white spruce forest, and open meadow. The facility is located in a secluded location at the Institute, over 100 metres from the nearest building, so it cannot be seen from any of the Institute's other buildings or structures. An eight-foot heavy gauge wildlife

fence with a two-foot inward facing overhang runs around the perimeter of the enclosure. To discourage resident cubs from trying to dig under the fence, a four foot section of chain link fencing is attached to the fence and buried on the inside of the perimeter. The perimeter fencing and its overhang also will be electrified. Additionally, a 14 by 12 foot bear house adjoins the enclosure and will serve as a temporary shelter for cubs. Building on the information gathered from facilities around the world, including Canada's only grizzly bear rehabilitation facility in B.C., the CEI has built an impressive facility.

Conclusion

With the completion of this grizzly cub rehabilitation facility, the onus is now on the Minister of Environment and Parks to take the steps necessary to ensure that, if and when grizzly cubs in Alberta are orphaned again, the doors of CEI's facility will open to its first temporary residents. The scientific data support the conclusion that rehabilitation and release is a viable management option and should be approved by the provincial government. That data helps me understand why so many natural scientists and bear experts lent their names to the Bears Matter letter endorsing this policy change. I suspect it's the knowledge and expertise, not emotion, of scientists such as Drs. John Beecham, Stephen Herrero, Paul Paquet, Geoff Holroyd, Anthony Clevenger, and Lance Craighead - to name just a few that led them and many others to conclude that grizzly bear rehabilitation is a path worth taking (for the complete list of the academics, bear experts, and conservationists who signed the letter see https://bearmatters.com/open-letter-to-honourable-jason-nixon/).



Volunteers attaching the ground wire to the perimeter fence. PHOTO: © COCHRANE ECOLOGICAL INSTITUTE

Skoki:

The Long and Longer Life of a Marvelous Bear – 33 Years this Coming Winter

By Colleen Campbell

hree grizzly bear cubs, orphaned after a hunter killed their mother during Alberta's spring black bear hunt, reignited the debate about zoos and bears. Did the Alberta government do the "right thing" when it sent the cubs to the Calgary Zoo? Should the Zoo have sent them to the Greater Vancouver Zoo where they will spend the rest of their lives? These hard questions, ones without easy answers, led to this reflection on the life of Skoki, one of two grizzly bears held in captivity at the Calgary Zoo.

Skoki, a grizzly bear from the Bow Valley in Banff National Park, has lived at the Calgary Zoo for the past 24 years. Visitors lucky enough to traipse through the "Wilds of the Canadian Rockies" section of the zoo

will likely see him but may not appreciate how remarkable he is. At 32 years, Skoki is now one of the Zoo's older residents and the life story of this remarkable bear should be shared — over and over. His story can teach us valuable lessons about bears — and ourselves. For me, it underlines how difficult it is to know what the best course of action is when it comes to orphaned and/or "problem" wildlife.

By early July 1996, wildlife personnel in Banff National Park had become exhausted by all the human interest in male grizzly #16 whose presence repeatedly caused "bear jams" along the roads. At eight years, he was on the cusp of adulthood. Despite his size, competition from the mature males in the area pushed him into the Bow Val-

ley, a habitat simultaneously rich with resources for a bear and compromised by the persistent, growing, human presence. After three years of uneventful encounters with humans, close encroachments by people on his personal space were challenging this easy-going bear. A few less-than-intelligent visitors used food to get his attention. GB#16 occasionally bluff charged and wild-life personnel relocated him several times to the limits of his home range. Each time, it took him only a few days to return to the

GB#16 is a very good example of a bear whose natural disinterest in people was exemplary until people altered his responses. Their bad behaviour transformed GB#16 into a "problem" bear. Too often poor human behaviour tempts wildlife to behave in ways that are unacceptable or threatening to humans. And too often that bad behaviour is a death sentence for the "misbehaving" animal.

ripening berries at the lower elevations of

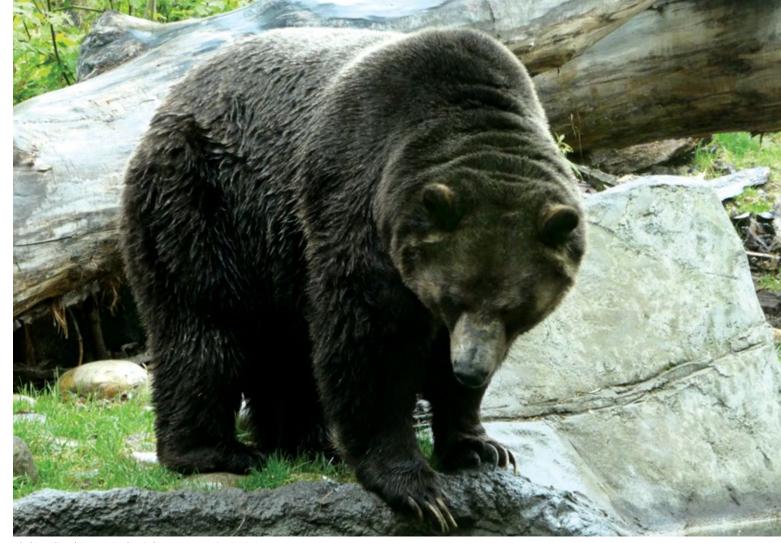
the Bow Valley.

The Eastern Slopes Grizzly Bear Project started in 1994. The project's research brought a lot of attention to grizzly bears in the region and by 1996, when GB#16 was becoming a management challenge, attitudes about bears were changing. Rather than shooting GB#16 — a common option in the past — he was moved one more time. He would be held in the security of a zoo enclosure while Parks Canada, researchers, and zoo personnel considered his future. That move was the last one for GB#16.

Else Poulsen, an extraordinary carnivore specialist, was the principal keeper responsible for GB#16 when he arrived at the Cal-



A young Skoki as photographed through a car window. PHOTO: © C. CAMPBELL



Skoki earlier this year in the Calgary Zoo. PHOTO: © E. MAK

gary Zoo — delivering food and speaking to him calmly during his first days as a locked-up animal. Else was part of a community of zoo keepers from many facilities who were convinced that enhancing zoo enclosures could mitigate the repetitive anxiety behaviour displayed by many animals living in enclosures. GB#16 responded well to Else's care and soon calmed down. He has stayed at the Calgary Zoo for the past 24 years and benefitted from the efforts to make the captive lives of zoo animals more interesting and emotionally healthy.

If GB#16 had remained in the wild and not had worrying encounters with people, he would likely have become a dominant male and bred for many years in the Eastern Slopes population. Skoki, as he was renamed, had little opportunity to breed before he was last captured. The easy-going nature he exhibited as a wild bear has served him well as a zoo animal. Now 32 years old, Skoki has apparently been a favourite at the

Colleen wrote to the Calgary Zoo on several occasions about this article. She asked the Zoo for the opportunity to interview staff about Skoki. The questions she wanted to ask included ones about Skoki's general health, whether he had any favourite treats, and how the Zoo used its grizzly and black bears to educate the public.

The Zoo declined her requests. Citing "resource challenged times," the Zoo's Director, Brand & Engagement wrote that the Zoo's "Animal Care colleagues aren't able to support an update interview on Skoki at this time."

I think the Zoo's refusal to answer a few basic questions about Skoki doesn't enhance either the Zoo's brand or its engagement.

- Ian Urguhart

Calgary Zoo since he arrived.

Had Skoki remained in the wild, would he be alive today? Probably not. Wild bears do not live to such ages except in places where they are little disturbed and where they have sufficient resources to live and breed. Wild coastal brown bears, with salmon-rich diets. have been known to live into their 30s. One coastal female died of natural causes during her 39th summer. The oldest known wild North American black bear, female #56, was part of a study in Minnesota; she also died of natural causes, age 39 years. The oldest known grizzly bear in the central Rockies was also a female who died at 34 years, apparently from fighting with another bear over an elk carcass in the spring of 1996. Her lip tattoo, "Beta," from a late 1970s study in the Cascade Valley, was discovered when she was captured by Eastern Slopes researchers in 1994. In 2008 a female polar bear at the Winnipeg Zoo died at 41 years, nearly twice as old as a female polar bear might live in the wild.

Male grizzlies in the central Rockies seldom live past 18-20 years.

Living in a zoo has advantages and disadvantages. Health is monitored. Ailments are treated. Food "arrives." Shelter is available, though in summer, 2019, I watched Skoki and Khutzeymateen "muck about," apparently indifferent to an unrelenting downpour that soaked me, even through my robust umbrella. Life in the Calgary Zoo is less risky than life in the wild; apparently now deaf, Skoki could live another 10 years as a zoo animal.

Had he remained wild, Skoki would have maintained a fairly solitary existence. As a captive animal he has learned to live in company with other bears. He and Louise (arrived at Calgary Zoo, 1980) were friends until her death well into her thirties. A former carnivore keeper told me that, when Louise became very old, Skoki sometimes followed her closely up the stairs in the grizzly enclosure, possibly to help her. He and Khutzeymateen (born at Calgary Zoo to a barren lands grizzly) are now the only adult grizzly bears at the zoo. They appear to be "friends" and are often near each other in the enclosure.

So — is Skoki wild or tame? He is neither. He has been trained to respond to the keeper's cues for certain behaviours that make it easy to monitor his condition. And he would likely be dangerous to people if not confined. The behaviours he would have used to survive as a wild bear — foraging for the right foods in the right places at the right times, marking or reading the signs at rub trees, knowing where to dig a den and when to retreat for winter, where to cross roads or rivers — may live, long neglected, in his memory.

Was it the right decision to put Skoki in a zoo? I think Skoki is an important bear. He and Kutzeymateen and the black bears at the Calgary Zoo can be used to teach all zoo visitors and to raise awareness of the lives of zoo animals and of animals in the wild. Skoki and the other bears at the zoo help us to explore questions such as: How do lives of zoo bears and wild bears compare? How do black bears and grizzly bears differ? Why are coastal brown bears so large compared with the grizzly bears in the central Rockies? Is it natural for bears to live in such close contact with another bear

to which it is not related, especially into adult life? How long do bear families stay together and what stimulates their dispersal? Do bears become "friends" with other bears in the wild as they apparently do in zoos? What is the annual cycle for a bear? What prompts hibernation and do the zoo bears hibernate? Why or why not? What do the zoo bears teach us about hibernation physiology and hypothermia? About osteoporosis and muscle tone? About Type 2 Diabetes? How do we tell the age of bears? Why is "bear" considered an umbrella species? What other species benefit from their presence and how? What are other umbrella species? What is the story of our long relationship with bears?

Using Skoki as a foundation for teaching people about bears and how to behave when visiting in wild places may help protect other bears from being removed from their wild homes. Skoki is a magnificent animal and his legacy should benefit his wild kin.

Born in Victoria Colleen has lived in Canmore since 1982. Her love of wildlife animates her art and writing.

Featured Artist Tyler Los-Jones



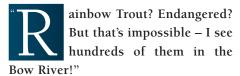
Aggregates no.4 Archival ink on rag paper 40.6cm x 61cm, 2018 PHOTO: © T. LOS-JONES

WLA

Species at Risk:

Athabasca Rainbow Trout

By Joanna Skrajny



Did you know that the large majority of Alberta's rainbow trout (including the ones found in the Bow River) have actually been introduced from a stock originating from California? You would be forgiven for not knowing that we have rainbow trout that are native to Alberta, found in the headwaters of the Athabasca River system in elevations ranging from 900-1500m above sea level. Geographically speaking, this only covers an area from Jasper National Park to just east of Whitecourt.

The current theory as to how these rainbow trout came to be is that ten thousand years ago, at the end of the last ice age, some fish managed to "transfer" over to the Athabasca from the upper Fraser River. While they aren't technically a separate subspecies, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has identified Athabasca rainbow trout as a "designatable subunit" due to their unique traits.

Specially adapted to the cold head-

Ouick Facts:

Athabasca rainbow trout (Oncorhynchus mykiss)

Federal Status: Endangered (2019)
Provincial Status: Threatened (2009)
Habitat: headwaters and tributaries

Habitat: headwaters and tributaries of the Athabasca River

waters of the Athabasca, these rainbow trout are small, grow more slowly, and spawn later (in late May-early June) than introduced species. Athabasca rainbow trout can take on one of two appearances, both of which look different from other types of rainbow trout. Stream-resident Athabasca rainbows have dark dorsal fins with yellow-silver sides and small black spots on the body and often keep their "parr" marks - large ovalish blue spots found across the centre of juvenile rainbow trout - throughout their adult life. It's thought that they keep their juvenile colouring in order to better hide from predators in the small, clear, cobble-filled streams where they live. River migrant Athabasca rainbow trout, on the other hand, have a more silver appearance and weak or nonexistent colours and spots.

In 2014, COSEWIC assessed Athabasca rainbows as Endangered: "Quantitative sampling over the last two decades demonstrates that the majority of sites are declining in abundance with an estimate of >90% decline over three generations (15 years)." An endangered listing means that the species is "facing imminent extirpation or extinction."

Unfortunately, that sense of urgency did not translate over to our elected officials. Despite the fact that the *Species at Risk Act* states that species should be listed within nine months of being assessed by COSEWIC, Athabasca rainbow trout had to wait five years for an Endangered listing. But, listed they finally were, in *August 2019*.



"It is our responsibility to manage Alberta wildlands to ensure the long-term persistence of native trout. Placing these fish on a species-at-risk list is not enough. The future for Athabasca Rainbow Trout and Bull Trout is uncertain unless we enact strong measures to protect the habitats on which they depend."

- Dr. John Post, chair of the COSEWIC Freshwater Fishes Committee

This summer, the federal government released a draft version of a Recovery Strategy for Athabasca rainbow trout. The document identified habitat disturbance from industrial activities as the primary threat to the species and was quite comprehensive in identifying the specific activities that were to blame. For example, the strategy points to a study conducted in the Tri-Creeks area in the McLeod River watershed south of Hinton where after logging, they observed "increases in mean annual water temperature and summer maximum temperatures up to near lethal (23°C) levels." In addition, there are seven coal mines within Athabasca rainbow trout range which "have caused the loss of nearly 15 km of Athabasca Rainbow Trout spawning and early rearing habitat in the Embarras, Erith, upper McLeod and Gregg River watersheds." These mines also have loaded selenium into these waterways, causing documented embryonic deformities.

There was also the 2013 disaster at



Stream resident Athabasca rainbow trout PHOTO: © J. SKRAJNY

the Obed Mountain Mine, when a catastrophic failure of an earthen berm resulted in the release of 670 million litres of coal sludge and waste water, causing significant harm to Apetowun and Plante Creeks and then flowing into the Athabasca River.

Disappointingly, despite these clear threats to the future of Athabasca rainbow trout, the Recovery Strategy does not demand the necessary level of legal habitat protection required to save the species. Instead, it hedges any habitat protection into a "bounding box" approach where only certain sections of a creek will be protected and then, only if you can prove those sections have certain "functions, attributes, and features" that Athabasca rainbow trout are known to rely on. Due to the lack of available on-the-ground data, it is easy to imagine a hypothetical situation where someone destroys critical habitat, only to claim that those critical habitat features didn't exist in the first place. As many Athabasca rainbow trout are migratory and rely

on different habitats through their lifecycle, it is also harmful to believe that only certain portions of a stream with certain attributes need to be protected.

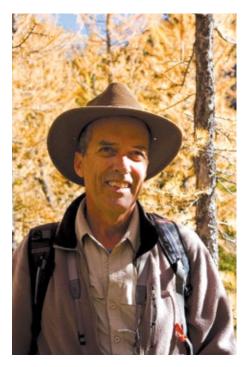
Another major threat to Athabasca rainbows are introduced rainbow trout. These introduced trout hybridize with native Athabasca rainbow trout, threatening the loss of the Athabasca's unique genetic traits. As retired fisheries scientist Jim Stelfox has so aptly explained on many occasions, genetic hybridization is like putting creamer in coffee: it's so easy to put the cream in, but much, much harder to take out. The draft recovery strategy notes that hybridization has occurred in the main stem of the Athabasca river, but that pure populations exist in smaller creeks and streams in contributing watersheds. The draft strategy has committed to studying exactly to what extent Athabasca rainbow trout have hybridized with introduced species. In the meantime, however, AWA believes the federal and Alberta governments should immediately implement habitat actions to benefit Athabasca rainbow trout, regardless of genetic purity, such as protecting and restoring the watersheds where they live.

AWA believes habitat protection shouldn't just be limited to some pockets of creeks. Instead, it should be expanded to include the floodplains and upland watersheds that are responsible for delivering the cool, clear waters that Athabasca rainbow trout rely on. Protecting the broader landscape would also have other benefits: it would help to protect other native fish species such as western Arctic bull trout and Arctic grayling; it would benefit terrestrial species such as SARA-listed woodland caribou, boreal songbirds and valued fur-bearing animals. It also would help protect the upper Athabasca watershed, by reducing the severity of flood and drought events and supporting a clean drinking water supply for municipalities downstream.

Our Need for Nature:

Kevin Van Tighem – Wilderness Defender

By Vivian Pharis, AWA Board Member Emeritus

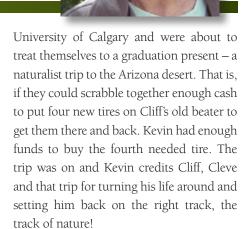


Even though Kevin Van Tighem's primary career began and ended with Parks Canada, early on he enjoyed a challenging, productive and very happy eight-year interlude with Canada's Wildlife Service. This job was to assess what we now call biodiversity but in the 1980s was simply called a wildlife inventory. At an opportune time for the young biologist, Canada commissioned biologists to catalog and describe natural life throughout the four mountain parks as well as Elk Island Park near Edmonton. Working with such wildlife icons as Geoff Holroyd, Margaret Skeel, Joe McGillis and George Scotter over eight years the team used helicopters and hiking boots to access the most critical, inaccessible and fabulous lands in Canada's Rockies. It was a dream job - one where the grand picture could gradually come into focus and grand ideas could form: Ideas like the need for humans to remember they are part of nature, something they cannot escape or live without, either physically or psychologically.

But, how did young Kevin find his way so deeply touched by the natural world that it directed his life and career? Understandably, Dad did it again! Kevin and his siblings were taken on excursions, fishing and hunting at early ages, with the first fish to nab Kevin's line at around the age of seven. The Van Tighem children grew up on the edges of Scarboro, an inner city community in Calgary, with nature just steps away. One day of the week out with Dad however, only whetted Kevin's appetite for hunting. On his own he would scour neighboring rough lands for pheasant, but instead he found kinglets, grosbeaks, and chorus frogs, and realized they too were interesting, even exciting. A naturalist was born.

But, a naturalist can be lost too. As Kevin's childhood advanced and hormones raced and a hippie lifestyle beckoned, old interests faded. Graduating too young and immediately enrolling in university at age 17 left too much to sort out and after two fruitless years testing an arts program and not achieving, Kevin dropped out – a lost soul.

However, just as happened a number of fateful times in his life, as when he was there at the right time and place to become part of the Canadian Wildlife Service's team, an old friend stepped back into Kevin's life. This old friend was Cleve Wershler, a long-time AWA supporter. Cleve introduced Kevin to another AWA notable, Cliff Wallis. Cliff, Cleve and another friend had all just graduated with degrees in biology from the



That fall, Kevin returned to university and four years later graduated with Distinction, as a biologist. His parents were relieved, to put it mildly.

He'd started his park's career as a seasonal naturalist in Kootenay National Park, and returned to the parks eight years later as a seasoned biologist, taking on roles as interpreter and warden in Waterton Lakes National Park, soon climbing into a managerial position in Jasper's Ecosystems Secretariat, and culminating with the Superintendent's office of two national parks. For two years Kevin held the highest position in Prince Albert National Park, before being promoted into one of Canada's toughest park's positions - the superintendent of Banff National Park. There, Kevin served three and a half years of what he described as constant turmoil, where every decision was contested and the park sometimes seemed to have a half dozen superintendents, most of them in Ottawa. He broke down old boys' clubs, welcomed the Stoney First Nations back to their ancestral lands and worked with staff to produce a new management plan for the park, but life in the fish bowl took its toll.

Feeling tired and battered, Kevin took

leave of the parks system in 2011, and entered a whole new phase of life, one directed now, by himself. Not yet able to curtail his workaholic tendencies, the next phase found Kevin on a writing binge. Four books were set free in rapid succession, adding to a number already in publication. To date, Kevin has released 14 books and another is to reach the world in 2021. Through books like Our Place, Heart Waters, Bears Without Fear, and The Homeward Wolf, Kevin has deliberately set the route for Albertans to explore their home world and its abundance of natural features and fellow life. These books are also designed to instill a "sense of place" and to arouse feelings of pride and ownership in our home lands. They are meant to gently lead readers into understanding and activism.

Before long, Kevin's ability to reach fellow Albertans with nature and conservation-related stories, caught the eye of those responsible for producing *Alberta Views* magazine and he became a regular contributor and an integral member. Working with *Alberta Views*, Kevin says, is like working within another family - a cordial, fun and principled one. But, as he continues to live a more relaxed life, even a monthly column means meeting a lot of deadlines, so Kevin

is pleased to have his column appear now, only in alternate issues.

Today, living in a Canmore condo but also able to escape to an Oldman cabin and vegetable garden, Kevin continues to write his column and books. Increasingly, however, Kevin is finding reward in social media and in leading his growing numbers of Facebook followers into understanding their essential place in nature and their essential role in fostering and maintaining that place, or those places. It is Kevin's premise that people love nature - they love it knowingly and intrinsically. And, if one can guide them in how to reconnect to nature and instill their love, one can also instill enough passion in many people that they will act on behalf of nature, as its protective owner. Owners willing to defend their home places.

Although not lucrative, helping citizens to regain their natural connections through social media, by increasing their understanding of biodiversity and sustainability, then raising their passions for the natural world and encouraging their activism is rewarding to him. However, he says this approach must be guided carefully and cautiously so as to maintain comfort zones while edging people along to greater understanding and action. It takes time and

patience and his Facebook pages must include enough encouraging examples and ideas to keep inspiring people. Kevin feels his Facebook efforts, although time consuming, are yielding results. Enough, that he has set up a new page ("Coalition of Alberta Conservation Voters") designed to encourage specific citizen activism, at the ballot box.

Ever the determined optimist, Kevin feels that no matter how bad the current ecological situation is, it can be fixed, but only if enough people become mobilized or engaged. We must be willing to forego the commodification of nature and outdoor experience that has gripped us for so long, to say "no" to the corporate agenda that has long directed our and our government's thinking, and to fight the good fight for home place, be that a city lot or the planet. He feels that enough engaged people can change the world, and his goal in life now, is to raise those numbers through the best way he knows - by educating people through writing and social media.

Finally, I asked Kevin for some wise words to guide AWA into the future. Surprisingly, his advice for AWA is to keep doing what it does best, just do more of it - make it more obvious and hold it up with greater pride. And that is? To keep reminding people of who they are - that they are conservationists AND Albertans, not conservationists versus Albertans. Remind them that they are part of a majority of Albertans who love nature, a healthy planet and a sustainable life. We are the real Albertans. And AWA is there to represent those who love nature, a healthy planet and want a sustainable life. AWA, in Kevin's view, should flaunt the fact that it is the "home" conservation group, with roots totally within the province and that it has always been the group "on guard" for Our Place. AWA needs to maintain its grassroots connections and build on its strengths as friends and neighbours within Our Place.

Kevin lives in Canmore with his wife, hiking buddy and life-long partner, Gail. They have three children and one grandchild and conservation activism appears likely to be a continuing family tradition.

Featured Artist Tyler Los-Jones

Aggregates no.4 Archival ink on rag paper 40.6cm x 61cm, 2018 PHOTO: © T. LOS-JONES



Telling Our Own Stories:

Kevin Van Tighem's Martha Kostuch Lecture

By Ian Urquhart

Albertans are victims of gaslighting. This was the powerful message Kevin Van Tighem delivered in his Martha Kostuch Annual Lecture on September 15th. Kevin entitled his talk "Telling Our Own Stories." The stories that are told about Alberta and the stories that could be told about this place was the theme of his remarks.

Gaslighting is psychological manipulation. A British management consulting firm describes it as when an individual or organization "puts out information with the intent of sowing seeds of doubt in individuals or the population as a whole, making people doubt themselves and even their own sanity." It's a technique for gaining and maintaining power. Stories may be used to this end.

With respect to most of the stories told about Alberta, Kevin's blunt message was that they are lies. These lies are essentially minor variations of one story, a story of conquest and conflict. White Alberta men fight Indians, Ottawa, and tree hugging environmentalists to attain the heroic goal of industrializing the

landscape. It's a story of anger, alienation, and entitlement. It's a story where environmentalists are marginalized and demonized as outsiders. Environmentalists, and their organizations like AWA, don't represent mainstream society. "We've been told stories about ourselves," he said, "that give an image of this province that makes us outsiders to the province." We don't belong; we have no place here.

The stories that could be told are ones that challenge this dominant narrative. They are stories of goodness and caring, stories that in



The Whaleback, one of the Alberta landscapes that is very special to Kevin. PHOTO: © C. WEARMOUTH

Kevin's opinion are truer to this place and Alberta's peoples. This alternative narrative sees the land as much more than "just being a bundle of resources" that demand to be exploited.

The dominance of the first narrative matters importantly to our future because stories transmit culture and affect how we see and define ourselves. They are important socialization mechanisms that help to establish what is normal and what is abnormal. Stories offer answers to questions about what we should value and what we should shun. They deliver power and legitimacy.

Kevin urged his audience to tell more of the "could be told" stories. Through much of his writing Kevin does exactly that (Heinz Unger reviewed Kevin's most recent book, *Our Place: Changing the Nature of Alberta*, in the September 2017 issue of *Wild Lands Advocate*). During his talk Kevin offered powerful, moving examples of both types of stories and the political resources he feels they provide to those who tell them.

The first narrative is found on a place on the road from Beaver Mines to the Castle. On one side of the road stands a young, monoculture lodgepole pine forest. On the other side of the road is a two-hectare patch of mixed forest – its patchwork of conifers and deciduous trees is interspersed with dead lodgepole pines.

A sign on the road is the story and explains why the two forests look so different. Mountain pine beetle went through this part of the Castle in the late 1970s/early 1980s.

Government responded by letting the forest industry clearcut the forest, "treat" the site, and replant it with lodgepole pine. Industrial logging saved us; our savior cut down sick trees

and replanted healthy trees.

The language on the sign makes it very clear that this is "the" story. The clearcut logging practiced here is instead called "salvage logging" and when you salvage something you save it. The pine beetle is plague: "By 1990 they reached epidemic numbers killing millions of trees." What normal person then wouldn't want to salvage log the forest to rescue Alberta from the epidemic? In this story natural events demand the type of logging that occurred here; some outsiders might suggest it's a story that is very good a privileging a special interest that profited from this intervention.

Kevin sees a very different story here. The unsalvaged/unsaved two-hectare patch of forest is the healthy forest. Its health rests in its diversity, resilience, and dynamism. The health of this patch of forest is heard in the bedlam of bird song from within it in June. The beetles were the rescuers in this story. Their impact is "probably one of the best things that has happened to Foothills' forests in the last 50 years."

The designation of the Whaleback as a protected area was offered as a more positive example of how stories may be empowering. Unlike areas like the Little Smoky River that have been sacrificed to industrialization, many more people had connections to the Whaleback. They had stories about special times there and they weren't going to stand by and let their special place taste the steel of drill bits and hear the whirring of compressors. This is what Kevin said about the government's decision to establish two protected areas in the Whaleback:

It happened because people knew it, people had a different story about it than

it just being a bundle of resources and they refused to surrender their stories, and their culture, and their beliefs, and their love to a future that was not going to respect them.

Through his encouragement to challenge the dominant narrative with our own stories, Kevin delivered remarks that complement Mark Lisac's message about Alberta politics. In his 2004 book Alberta Politics Uncovered: Taking Back Our Province, Lisac argued that Albertans lived in a mythical world resting on stereotypes that are less and less germane to who Albertans really are. That myth saw the population as monolithic in its views, as a place of mavericks and victims (Kevin's white men). Lisac showed that the opinions and interests of Albertans were much more diverse than you would conclude if you only listened to the sirens of Western alienation (today's Wexiteers). Lisac certainly wouldn't have been surprised when the New Democrats came to power; what might have surprised him is that it didn't happen until 2015. Neither Lisac nor Van Tighem believe that the best future for Alberta is the one we see by looking in the rearview mirror.

Kevin's lecture was insightful and moving. Telling better, different stories certainly should be part of our search for healthy livelihoods in this place. So too should be the advice he offered early on in his remarks about the importance of getting our children and grand-children out into nature. Those experiences are formative ones. As he said: "If there is one gift that we can give to the future of Alberta that might give it hope it's children that we put into nature as soon as possible and as frequently as possible."

Featured Artist Tyler Los-Jones

Being with fictions no.7 Archival inkjet print on rag paper 45.7cm × 152.4cm, 2015 PHOTO: © T. LOS-JONES



Adventures for Wilderness:

Albertans Honour AWA's 55th Year by Embarking on a Province-spanning Series of Wilderness Experiences

By Sean Nichols, AWA Program Specialist

A sense of anticipation permeated the association's Hillhurst Cottage School as the final days of 2019 rushed towards us and AWA began looking forward to its 55th year.

Every year since 1992 we have been holding our annual major fundraising event, the Climb for Wilderness, to mark Earth Day in April; first at the Calgary Tower, and later at the Bow Tower. For years this has been one of the main fixtures on the AWA calendar. It served both as a fundraiser and as an awareness-raising "open house" where we engaged with the broader public outside the traditional AWA family and invited them to explore the work we do across the province. Indeed many readers of this issue of the Wild Lands Advocate will doubtless recall an occasion or two taking the train downtown on a cold April morning to bump shoulders in the stairwell with other like-minded souls.

For just as long, though, something has been missing from that blueprint. Climbing a set of concrete stairs in a windowless abyss is in many ways the exact antithesis of the type of experience AWA members cherish. The wonderful murals painted over the years in the Calgary Tower notwithstanding, there there was scant sense of nature, or of the outdoors, associated with the effort. Competitive climbers bounding up the stairs to see how many laps they can get in undoubtedly appreciated that aspect of the event, but a hike in the wilderness, or a walk in the woods, are for most of us not a race, not a competitive endeavour. Rather, these are more contemplative efforts; a chance to escape from the rat-race of daily life, to commune with nature, and to literally stop and smell the flowers.

So as fun as the Climb for Wilderness

was, we increasingly knew that something had to change. We needed to re-think what a truly wilderness-oriented fundraiser should look like.

After much soul searching, head scratching and brain storming, we came to a compelling realization: everyone has a different idea of what Wilderness means to them. Everyone has a different way that they like to engage with Wilderness; everyone has a different way that they like to be active.

Rather than try to come up with a one-size-fits-all event, we needed to let Albertans show us how they get out into nature. It's an idea we had talked about, now it was time to put it to the test. We would let our members, supporters, friends, and neighbours design their own activities: activities inspired by the mountains, forests, grasslands, and wetlands of the province. And we would work with them to turn those activities into fundraising

events for AWA that would allow the participants to truly connect with the parts of the province they were raising money to defend.

Thus was born Adventures for Wilderness.

Not one, but a whole anthology of adventures, events small and large, could be designed and embarked on by those Albertans with a passion to share their corner of the province with new-found friends. What would these adventures look like? What would our supporters bring to show us? We were curious to see.

We were also curious to see how the logistics would work out. Some adventures would likely be summer events and some might be winter events. Some might be indoors, in some fashion, and others might not be. We hoped that the adventures would take Albertans all over the province. With such a diversity of requirements, we quickly realized that they could not all be accommodated on the



Experiencing the vastness of Milk River Ridge PHOTO: © C. SAUNDERS



Moving Through Alberta's Badlands at Dry Island Buffalo Jump PHOTO: © R. BARRATT

same day, so the schedule would necessarily be spread out over the winter, spring, and summer months. We planned a grand celebration in June, to be held simultaneously in Calgary and Edmonton (and anywhere else that enthusiastic hosts would be able to step up to volunteer their time) to mark the UN Environment Day and Canadian Environment Week. Then we would have prizes and festivities. It was a pretty exciting plan.

In early March, the first adventures kicked off the schedule: *Friends Fish-a-Thon*, an ice fishing adventure combined with citizen science measuring ecological lake health; and *X-Country Ski Canmore to Banff*, an epic ski trip in the foothills along the Bow Valley. Adventures for Wilderness was off to a great start... (for stories and photos of those Adventures see the June issue of *WLA*).

Of course, no account of events in 2020 could fail to address what we all know happened next.

With the world's headlong descent into a global pandemic and the widespread cancellation of events as everyone wrapped their heads around what "social distancing" would mean, the Adventures for Wilderness were similarly affected. A few adventures were can-

celled; and many postponed or reconfigured to conform to Alberta's new reality.

The next adventure up was *Pollinator Power!*. Originally to be a day when everyone could get together and build bee boxes, we realized it could be re-shaped into an event where boxes could be built individually, at a distance, and the adventure could still take place while observing pandemic-related health guidelines.

As governments and citizens responded to the pandemic, an unexpected benefit of our new fundraiser format revealed itself. Had AWA planned to hold a Climb for Wilderness in 2020, it would have certainly been cancelled outright, with no replacement evident. But with many smaller adventures taking place instead, it was possible to reconfigure many of them in a way that they could still take place. Once some of the social distancing restrictions began easing in May, this became even easier to do, as a 10-person hike in the outdoors could logistically still occur, even in 2020.

Of course, the Adventures for Wilderness have not proceeded precisely as anticipated; a few were cancelled and sadly the celebration in June never happened. However the format has proven gratifyingly resilient and as of publication nearly 30 adventures have taken place, with several more remaining in the schedule for this year. For a "test run," taking place in this very strange year, we can only consider it an unqualified success.

Once this new approach was worked out, the adventures began taking place again, starting in late May: first up, *Getting Dave to the Summit:* an adventure (in many senses of the word) led by long-time Climb for Wilderness volunteer Ed Hergott, who challenged himself and his team of supporters to guide his friend Dave Wodelet to the summit of Junction Hill, despite the latter being legally blind (see the June *WLA* issue for Ed's account of this Adventure).

In early June, Bob and Jim's Adventure for Wilderness saw Bob Patterson celebrate his 65th birthday with a 65km trip entirely self-propelled, including legs (pardon the pun) undertaken by canoe, bicycle, and finally a good old-fashioned trail run.

No event schedule in the times of COVID-19 would be complete without a Zoom call, and that's exactly how George Campbell celebrated his birthday, and his and Carolyn's 20th wedding anniversary. George's Zoom birth-

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day party included a singalong with friends from the AWA community – how very appropriate for someone who has put his heart and soul into designing and organizing AWA's Music for the Wild program for the better part of a decade.

Several socially-distant and reduced-capacity hikes followed, including the *Lethbridge Coulee Birding Tour* in Lethbridge and the *Jumping Pound Mountain Circuit Hike* in Kananaskis Country. Of particular note was the two-parter *Dinosaurs and Badlands* adventure organized by Elnora volunteers Rob and Tjarda Barratt. An evening slideshow presentation (again over Zoom) on the Paleontological Wonders of Alberta by Dr. François Therrien, Curator of Dinosaur Palaeoecology at the Royal Tyrrell Museum, was followed up by a hike to the world-renowned *Albertosaurus* bone bed in Dry Island Buffalo Jump Provincial Park.

Wild Gardens was a walking tour through a selection of three magnificent recreational gardens west of Calgary that explored different approaches to gardening in the Chinook Belt.

A two-day camping-and-hiking adventure on Mount Tecumseh in the Crowsnest Pass, Tecumseh Adventure, was followed by Joanna Skrajny and Grace Wark's Weekend for Wilderness at Boivin Lake in the Castle Wildland Provincial Park, celebrating the fruits of one of AWA's greatest success stories, the establishment of said park after many decades of hard work. July's last adventure was the well-received Porcupine Hills Hike among the wildflowers of that beautiful location.

August saw another four adventures, including one of the first to be added to the Adventures for Wilderness schedule: *Prairie Paddling* comprised a summer stand-up paddle boarders paddling down the North Saskatchewan River in Edmonton. This was joined by the hike *Exploring the Wainwright Dunes*. There participants explored the Wainwright Dunes Ecological Reserve which contains one of the world's last large remnants of the aspen parkland. Senior petroleum geologist Tako Koning led his adventurers on *Field Tripping Southern Alberta*, an all-day road trip visiting diverse locations including a shallow water slough where hundreds of bird species

have been identified and the site of an orphan gas well assigned to the Orphan Well Association for abandonment and site remediation. Finally, one of the more unusual adventures was *Trivia in the Garden*, a charity trivia event held in the gardens on the AWA grounds where participants competed to raise money to defend wild Alberta.

The Adventures for Wilderness format has also lent itself to several adventures that are ongoing or recurring. Keep It Wild, Help Us Clean challenges participants to choose a location of particular interest to them and keep it clean of the garbage that is potentially harming wildlife. Biodiversity Bees in Brentwood hosted by Polly Knowlton Cockett and Robin Cockett is a weekly meetup involving social stewardship through biodiversity conservation. And Photographs for Wilderness, an ongoing nature photography contest, has brought in some truly stunning photographs by amateur (and not-so-amateur) photographers from around the province. We'll be particularly excited to feature some of the winning photos from this adventure in the December issue of the Wild Lands Advocate.

As of press time, several more adventures

are coming up on the schedule, with new ones being added regularly. We couldn't be more thrilled with how this series of events has taken shape and we hope you will check out the website to see if there are any upcoming adventures that tickle your fancy. Of course, if you would like to host your own adventure, we would be ecstatic to get in touch and work with you to make it happen.

All of these adventures, with signup forms, can be found on our website www.adventures-forwilderness.ca. You will also find full stories and photographs from past adventures, and more, at https://www.adventuresforwilderness.ca/photo-gallery/. Additionally, the site includes an interactive map of Alberta showing where adventures have been taking place. We are excited to watch the map fill up with adventures showing where members of the AWA community are inviting us to engage with and take care of their favourite spots in the province. We highly encourage you to check it out.

And of course, we can't wait to see what Adventures next year will bring. That sense of anticipation? It's only growing stronger, every day.



Taking in a Bit of Heaven on the Tryst Lake Hike PHOTO: © D. CHANG-YEN

Updates

"Optimizing" Alberta's Parks means losing protection where we need it most

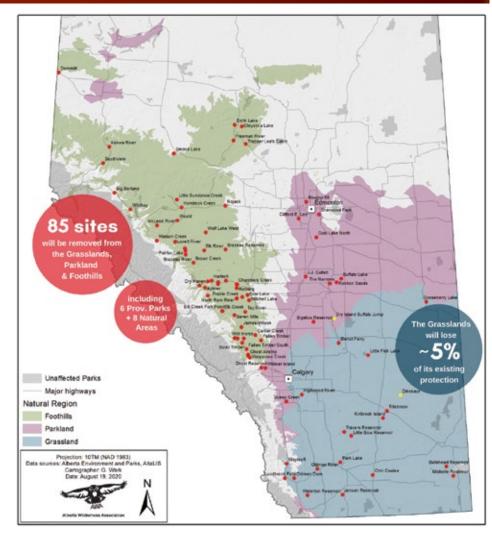
The Government of Alberta's plan to remove 164 sites from the provincial parks system will take a significant bite out of the little protection offered currently to Alberta's most endangered and least protected Natural Regions: the Parkland, Grasslands and Foothills. Between these three regions, 85 sites will lose their protected status, resulting in the loss of nearly 9,000 hectares of protection - equivalent to around eight times the size of Ghost Lake or one-half the size of Elk Island National Park. Without shrinking protections in these areas further, the Grasslands, Parkland and Foothills Natural Regions have only 1.25%, 0.9% and 1.4% of their landscapes protected, respectively.

Although many of these park sites are small, they offer important refuge for migrating wildlife, improve habitat connectivity, and prevent conversion of native prairie and foothills landscapes.

This decision will result in a five percent loss of protection in the Grasslands Natural Region, which provides critical habitat for over three-quarters of Alberta's species at risk. Little Fish Lake Provincial Park, slated for removal, has important habitat for piping plover, a small shorebird listed as *endangered* under the federal *Species at Risk Act* (SARA).

In the Foothills, Ghost Airstrip Provincial Recreation Area contains critical habitat for westslope cutthroat trout, another SARA-listed species. Cutthroat trout, which have been listed as *threatened* since 2013, already have experienced significant habitat degradation on public lands – losing protected areas may only further exacerbate the issue.

If you are interested in sharing your thoughts with Alberta Environment and Parks on the 'Optimize Alberta Parks' decision and its impacts on Alberta's least



protected Natural Regions, you can reach Minister Jason Nixon at aep.minister@gov. ab.ca or 780-427-2391 (Ministry office).

We always appreciate receiving a copy of your letter at awa@abwild.ca

- Grace Wark

AWA and the Grassy Mountain Coal Project Joint Review Panel Hearings

On October 27th a federal-provincial Joint Review Panel will begin public hearings into the Grassy Mountain Coal Project. This open-pit coal mine would be located approximately seven kilometres north of Blairmore and would be designed to produce up to 4.5 million tonnes of metallurgical coal per year. Benga Mining, the project's proponent, expects to mine coal there for the next 20-plus years. The mine would sprawl over more than 60 square kilometres. All of the mine's

operations would occur in one or more Environmentally Significant Areas.

AWA will be at those public hearings. We have joined forces with the Grassy Mountain Group, a group of local landowners in the Crowsnest, to oppose this major threat to the ecological integrity of this corner of southwest Alberta. The law firm of Ackroyd LLP is representing our coalition.

In addition to submissions of the landowners, our Coalition retained experts to examine many of the impacts this project will have on the environment and the people who live in the Crowsnest. Our experts' evidence and

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their subsequent testimony to the Panel will address:

- Land use, Access, and Residential Impacts;
- Property devaluation;
- Water impacts, including ground water and surface water impacts, inflow needs assessment and water chemistry, impacts on aquatic resources including westslope cutthroat trout, and climate change;
- Wildlife, biodiversity, and habitats impact assessment;
- Noise and air pollution impacts;
- Socio-economic effects; and
- Coal quality.

AWA's participation in this hearing is the latest chapter in AWA's history of opposition to this proposal. AWA has objected to Grassy Mountain and other proposed projects in the Oldman and Crowsnest Pass areas since the Grassy Mountain's initial exploration and drilling program began in 2013.

Thanks largely to the fact this project must be approved by the federal government, AWA was granted the right to participate fully at the upcoming public hearings into this proposal. Full participation enabled AWA and its coalition partners to submit the expert reports mentioned above. It also enables our lawyers from Ackroyd LLP to cross-examine the corporation and its experts about the project and to submit a final argument to the three-member panel.

Despite the UCP government's efforts to encourage the exploitation of coal in Alberta, the current metallurgical coal economic climate is not friendly to these ambitions. Teck Resources Ltd. cited poor economics as the reason for not proceeding with the Mackenzie Redcap project that would extend the life of the Cheviot Mine. Importantly, Teck had the regulatory approvals in place needed to carry out this project.

The hearings commence on October 27, 2020. Due to COVID-19, they will be conducted entirely online, using electronic means. The public will be able to watch the hearings via YouTube and AWA will pass on those details once they are available.

- Ian Urquhart

Coalspur Vista Coal Mine Phase II: Frustration Served by the Alberta Energy Regulator

On March 10, 2020, AWA submitted a Statement of Concern to the Alberta Energy Regulator (AER) regarding an application from Coalspur Mines Ltd to divert water for operations from the Mcleod River. As a major tributary of the Athabasca River, Mcleod River is an area of regional significance. It serves as an important wildlife corridor and produces many ecological goods and services by means of sustaining nearby wetlands. This watershed basin is also integral to the traditional knowledge and oral history of local Indigenous Peoples.

AWA cited specific concerns about how Coalspur's water withdrawals could negatively impact aquatic life and species at risk such as endangered Athabasca Rainbow Trout and threatened Bull Trout. Significant water diversions have the potential to reduce instream flows, which ultimately could degrade critical fish habitat and further contribute to population declines in both species. AWA also pointed to the fact the watershed will be subjected to compounding effects from coal mining operations in the area. Deleterious substances such as heavy metals and selenium will be deposited into the river. Science tells us that both bioaccumulate, causing premature death and/or deformities within fry and redds. This has the potential to further reduce fish population sizes. These inputs into the area's waters also reduce the quality of water for downstream aquatic ecosystems and the drinking water for communities.

AER wrote to AWA on August 13, 2020 to inform us that our submission had been reviewed and deemed insufficient to warrant further action. AWA had "not demonstrated that it may be directly and adversely affected by the application." In reviewing AWA's concerns, AER used the following to reject our statement of concern:

1) AWA is located approximately 343km from the project, and does not own land in or near the project area. AWA didn't indicate how the organization or

- its members make use of the project area or how the project could impact such activities. "Accordingly," the AER wrote, "the AWA does not identify in sufficient detail how the Application may directly and adversely affect the AWA and its members."
- AWA's concerns regarding potential negative impacts regarding "water and food security for Indigenous and non-Indigenous communities are vague."
- 3) Concerns regarding the potential impacts to the ecological health of the McLeod River are insufficient as the majority of the project is located on an existing right-of-way and the temporary diversion licence (TDL) is valid only for one year. The TDL also contains a Diversion Schedule that incrementally restricts Coalspur's diversion flow rates ensuring ecological conditions are met for aquatic habitats and surface water conditions, while requiring Coalspur to monitor the rate of flow during diversion and reporting these values monthly to the AER.
- 4) The TDL requires Coalspur to design and install fish screens in accordance with the Department of Fisheries and Oceans Canada's "Interim Code of Practice" to protect resident fisheries.
- 5) Coalspur's application does not seek authorization for any releases into the McLeod River, therefore AWA's concerns regarding deleterious substances inputs are "outside the scope of the Application.

This is another example of how difficult it is for organizations like AWA to satisfy the "directly and adversely affected" test of Alberta's energy regulators and participate in these important decision-making processes. We will continue to regularly monitor upcoming applications for coal mining operations as they become available publicly and redouble our commitment to ensuring that Alberta's wilderness is protected from intensive and potentially harmful land-use activities.

- Nissa Petterson

AWA to Participate in Managing the Ronald Lake Bison Herd

The Ronald Lake bison herd range is slightly south of the southeastern corner of Wood Buffalo National Park and overlaps the traditional territory of the Athabasca Chipewyan First Nation (ACFN). A 2016 article in the Wild Lands Advocate examined the circumstances of the Ronald Lake Bison Herd at a time when bison, in the government's eyes, were not considered wildlife in Alberta. Despite the fact that the herd was known to be disease free it wasn't until a 2016 amendment to the Alberta Wildlife Regulation that the Ronald Lake herd received protective status as non-game wildlife.

Three years later, in December 2019, Alberta Environment and Parks Minister Nixon wrote to invite AWA to participate as a member of the Ronald Lake Bison Herd Cooperative Management Board. In August 2020, Minister Nixon confirmed that the board will meet in the fall of 2020. The board will advise the minister on "mat-



ters related to the long-term sustainability of the Ronald Lake Bison Herd, including sustainability of the Indigenous traditional use of and cultural connection to the herd." AWA is pleased that Carolyn Campbell, AWA Conservation Specialist, will be our representative on the board.

- Christyann Olson

In Memoriam:

Margaret Main October 10, 1935 – July 15, 2020



It is with great sadness and fond memories that we say goodbye to Margaret Main, longtime volunteer and dear friend to AWA. Those of us who have participated in AWA events in and around Calgary over the past several decades will surely recall on numerous occasions being greeted by her warm smile and helped by her omnipresent cheerful enthusiasm.

She has been always present, and always ready with a helping hand at our talks program, the erstwhile Masters of Teaching program, the Martha Kostuch Annual Wilderness and Wildlife Lecture, AWA's annual Wild West Gala, and many more events. As those events developed and evolved over the years, one constant was always Margaret's presence. Her name is nearly synonymous with the Climb for Wilderness especially during the 14 years of the Wilderness Mural Competition at the Calgary Tower.

Margaret spearheaded the mural initiative in 2003 to broaden the activities surrounding the Climb for Wilderness. The results were quintessentially Margaret. Over the following decade and a half, the drab concrete stair-

well on the inside of the Calgary Tower was transformed under her guidance into a place of joy and beauty, with figurative flowers blooming in a place of monotony. Thanks largely to Margaret's efforts, year after year, to keep the contest going and the paint flowing, climbers at the tower were able to truly enjoy their outings in the tallest art gallery in the world. In this way, with over 140 murals completed in the tower, Margaret truly and literally, made her mark on the Calgary landscape. We are honoured to have known her, learned from her, and will remember her forever.

If friends so desire, Margaret's family would like to remember her passion for wilderness and wildlife with memorial donations to Alberta Wilderness Association.

By Sean Nichols

Cub Reporter Corner

Pollinator Power!



By Abigail Hadden

In February, my family and I attended Megan Evans' session on Alberta native bees at the AWA office. We learned all about Alberta native bees and how to make a bee box - a house for bees. One of biggest things you can do to help native bees is to have a bee box in your yard in addition to having native plants and flowers

After attending the session and learning how bees are losing their habitat, my family decided to design an Adventure for Wilderness for adventurers that included an informational GPS scavenger hunt ending with building a bee box in our backyard. Covid 19 changed our plans. Instead of giving up on the adventure we convinced my Papa to help us build bee boxes to raise awareness for the bees and raise money



Success! PHOTO: © P. HELFRICH

for AWA. Originally we were only going to make 20 boxes but it turned out to be really popular and we ended up making 65 boxes. These boxes have been distributed all the way from Edmonton to Lake Louise. Our adventure raised \$5,500 for AWA!

Here are some facts we learned during our adventure. Did you know...

- there are 321 species of native bees in Alberta?
- the difference between native bees and honey bees is that native bees are strictly pollinators and the native bees only produce enough honey for them to live off of?
- bees eat nectar and pollen?
- a bee's typical range is close to their home but they can travel up to 5km if they must find food?
- bees are typically yellow and black to warn predators?
- only female bees have stingers?
- threats facing native bees include habitat loss, disease from managed bees, and climate change?
- a bee box is a great way to help native bees?
- most bee boxes do NOT get colonized the first year because they smell too new?
- bees like weathered boxes?

If you put a bee box in your garden this is what you need to keep in mind. You can do your part as a citizen scientist and register it with the Alberta Native Bee Council (ANBC). The box should be put out in the early spring. Do not peek or move the box! If your box does get colonized, enjoy watching the bees come and go. Once Thanksgiving comes around you can contact the ANBC to collect the contents. Wash the box, especially around the hole, with a mild bleach solution. You can keep it outside to continue the weathering process or bring it inside. If your box doesn't

get colonized, keep it outside to weather and choose a new spot for it in the spring. Be citizen scientists and report your bee box activity to the ANBC in the fall.

Neither of my family's bee boxes were colonized this year but we won't lose hope. My family and I are going to leave them out through the winter to get weathered and we will pick new spots for them in the spring.



Abigail learning how to identify different species of bees. PHOTO: © H. HADDEN

We have noticed all kinds of bees around our yard. From tiny ones to big, fat bumble bees, we have tried to identify them but they fly too fast! Protecting our Alberta native bees is important because they pollinate all kinds of plants and flowers. Bee decline is a real phenomenon in Alberta and we all need to do our part to save the bees.

I would like to thank Megan Evans from the Alberta Native Bee Council for allowing me to interview her for my article. I would also like to thank all the people who dontated to our adventure and for keeping us up to date on the status of their bee boxes. I love the pictures! If you want to get more information on Alberta's Native Bees, to register your bee box, or report your bee box activity check out the Alberta Native Bee Council's website: https://www.albertanativebeecouncil.ca/

Hey young conservationists! Tired of adults dominating conservation discussions, discussions about your future? If so, pitch a story idea for this Cub Reporter Corner to the editor at iurquhart@abwild.ca. Stories should be approximately 250 to 500 words long and may report on any environmental or conservation issue you feel is important to Albertans.

Pollinator Power!

Across

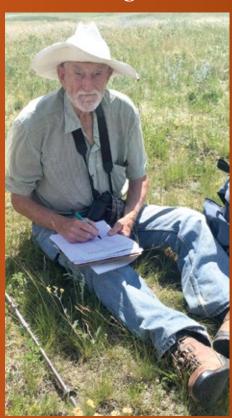
- **3** Alberta native bees are blue and yellow.
- **4** What is the sound bees make?
- **6** Why are bees yellow and black?
- **8** What is the largest threat to native bees?
- **9** What type of bee box do bees prefer?

- 1 One of the things bees eat.
- **2** The job of Alberta's Native Bees.
- 4 What is something that you can do to helpthe bees?
- **5** What type of bees have stingers?
- **7** Is bee decline real?

Answers on Page 35

In Memoriam:

Gus Yaki August 19, 1932 – August 10, 2020



AWA Wilderness Defender Award Winner, Gustave Yaki passed away August 10, 2020. Gus would have been 88 on August 19th, 2020. He was diagnosed earlier this year with pancreatic cancer and deteriorated quickly. There are many fond AWA memories of Gus, times he spent helping others learn what he knew and inspiring others to care. Gus was the generous master and mentor, whether he was teaching at Kids' Camp Days, exploring Nose Hill with Brownies and Guides, or helping people of all ages and backgrounds find new experiences through observing and respecting nature. He led bio-blitz days with any who would like to learn and join him and documented the flora and fauna found on private and public lands throughout the province. In 2017, Gus celebrated Canada's 150th birthday by organizing and leading a walking tour across southern Alberta. From May 19th to June 22nd Gus guided

people from the Saskatchewan border to Waterton Lakes National Park. This incredible adventure brought renewed interest in the endangered species and habitats that lack protection in Alberta's grasslands (See Angela Waldie's account of this tour in the September 2017 issue of Wild Lands Advocate). On New Year's Day 2020, along with a few others, I spent a great day with Gus walking and counting birds and making observations of their behaviour in the woods. It has been an honour to count Gus as a friend. He is missed greatly and, thankfully, his legacy lives on in all of us who he inspired to care about nature. AWA is grateful and honoured for the kindness and caring he showed even in his dying days by making the request that, if his friends so desired, they could make donations in his memory to the Alberta Wilderness Association or the Nature Conservancy of Canada.

By Christyann Olson

Speaker's Corner



A Speaker's Corner, made famous by the northeast corner of Hyde Park in London, is a place of open debate and discussion. Members of AWA are welcome to use this space to comment on environmental issues they are concerned about. The opinions you will see here should not be interpreted as AWA policy statements. If you would like to submit a comment for Speaker's Corner, please email your submission to me at <code>iurquhart@abwild.ca</code>. Submissions should be no more than approximately 500 words, be connected to environmental/wilderness issues in Alberta, and are subject to editorial approval.

The well without a handle

This water well has been in the Alberta badlands for at least 49 years. Probably a lot longer. Probably for longer than most of our politicians have been alive, it's served at the Bleriot Ferry provincial campground, in a grove of cottonwoods on the Red Deer River near Drumheller, Alberta. For decades, it has topped up water jugs; slaked the thirst of weary paddlers; cooled kids off on hot days; washed sandy feet; filled coffee pots on brisk September mornings. It ran for decades on simple human muscle power.

I first used it in 1971, as a young boy, when my parents took my brothers and I camping to the badlands. Since then I've been back to this magical place more times than I can count, on family camping weekends, field trips, and canoeing adventures. That simple hand pump has always been there, serving up cold water to thirsty travellers.

Until this year. Last fall, the Kenney government decided it could save about \$1.14 per citizen if it shut down this campground and 183 other parks and protected spaces around the province. The campground closes for good today, at the end of this September long weekend, but they've already decommissioned the well by taking off the handle. They did the same thing a couple of days' paddle upstream at Tolman Bridge campground, where we started our pad-



dling journey that brought me here today.

It takes a special kind of vindictive, short-sighted brainlessness to destroy a source of drinking water in these parched badlands (hundreds of cattle forage freely along the river, so it isn't safe for people to drink from). Even if the campground had to be closed, and the outhouses boarded up for want of maintenance, why on earth would you take the pump handle off? Would you also pour salt in the garden and burn down the house when you move off the farm? That's not just petty; it's evil.

This old water well with no handle now stands as a monument to the small minded vindictiveness of our current government leaders. A simple, effective machine that served Albertans for so many years, rendered useless by a misguided bureaucratic decision. I pity the future traveller arriving thirsty at Tolman or Bleriot. The First Nations ancestors, voyageurs, and early homesteaders would be ashamed of what Alberta has become in 2020.

- Greg Pohl, Bleriot Ferry campground, September 2020.

Reader's Corner

James Wilt, Do Androids Dream of Electric Cars? Public Transit in the Age of Google, Uber, and Elon Musk, (Toronto: Between the Lines, 2020), 293 pp.

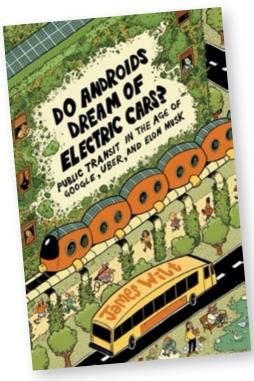
By Joanna Skrajny

James Wilt provides a compelling and well-researched case for phasing out all personal vehicle use and focusing our resources instead on publicly owned transit systems. Even in cities such as Calgary and Edmonton, notorious for their sprawl and love of the automobile, Wilt demonstrates that good public transit is both achievable and desirable.

Public transit has suffered the fate of many of our public services, where transit planners have been dealt with successive cuts to their budgets while being forced to justify the expansion of bus routes or service based on ridership figures. [You can see a similar issue currently plaguing Alberta's parks system, where parks have been removed in the name of "cost savings".] In reality, the addition of one single bus route often isn't enough to convince people to give up their cars. Wilt points to the work of Jarrett Walker, who has identified seven criteria that need to be met before riders will rely on public transportation:

- It takes me where I want to go.
- It takes me when I want to go.
- It is a good use of my money.
- It respects me in the level of safety, comfort, and amenity it provides,
- I can trust it.
- It gives me freedom to change my plans.

My story is one I assume rings true for a number of people. I began to drive out of necessity once I entered university, in order to cut my commute from 90 minutes by public transit to 30 minutes by car. Wilt explains this is often the case for many people, where we essentially have been forced into car ownership (willing or not) based



on a choice that balances convenience with financial and time costs.

Automobile companies, on the other hand, have been working for decades to successfully lobby cities to be car friendly. As a result, our cities have become large, sprawled, and concrete-filled. In turn, we have become increasingly isolated as individual transportation became king.

With the rise of electric vehicles, many of us (including myself) believed they would be a solution to Calgary's sprawl and GHG emissions problems. Wilt explains that This is where the book truly sings, effectively dismantling many of the assumptions made about personal electric vehicles and bringing to light troubling aspects about ride-sharing companies such as Uber.

Each chapter focuses on a different aspect of transportation — including impacts on climate and environment, rural areas, social justice, and safety. Wilt tackles each issue by bringing up the very real problems with the North American transit system as it currently operates and the concerns with relying on ride-sharing companies and a transition to

electric vehicles as a solution to our problems. He then finishes each chapter by suggesting changes to our public transit systems so that they are both good for the environment and our communities.

As the world grapples with a pandemic, there is a legitimate concern that cities will abandon funding public transit as people increasingly travel by vehicle. However, I believe that we should not only retain, but significantly invest in public transit in Alberta.

Such investment would reduce the number of roads required and slow the expansion of our cities into native grasslands and wetlands, environments providing immeasurable ecosystem services and benefits. It would help our cities meet their climate targets by significantly reducing greenhouse gas emissions and air pollution. Denser, transit-friendly cities are also more climate resilient and are also accessible to pedestrians and cyclists. One positive outcome of this crisis is that shelter-in-place orders have helped the general public foster a greater appreciation for walkable and bike-friendly cities with plenty of nature. Transit access into our provincial and national parks would provide more accessibility to wilderness for those without access to a personal vehicle.

Climate change isn't going to go away and, unfortunately, we are likely in an era where overlapping crises are going to become more common. Let's create a future where we are more prepared for what's to come.

Notice to Members

Annual General Meeting of Alberta Wilderness Association November 21, 2020 8:30 am

AWA's Bylaws require some minor wording updates and a resolution to accept the changes will be presented at the AGM of the Association on November 21, 2020. The bylaws with proposed changes are posted to the Association's website; www.AlbertaWilderness.ca

This meeting will be held by video conference and pre-registration will be required; registrations will be online after November 1, 2020.

- 6 Why are bees yellow and black?
- 8 What is the largest threat to native bees?
- 9 What type of bee box do bees prefer?
- 4 What is something that you can do to help the bees?
- 5 What type of bees have stingers?
- 7 Is bee decline real?

Featured Artist Tyler Los-Jones

Being with fictions no.2 Archival inkjet print on rag paper 45.7cm x 61cm, 2015 PHOTO: © T. LOS-JONES



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