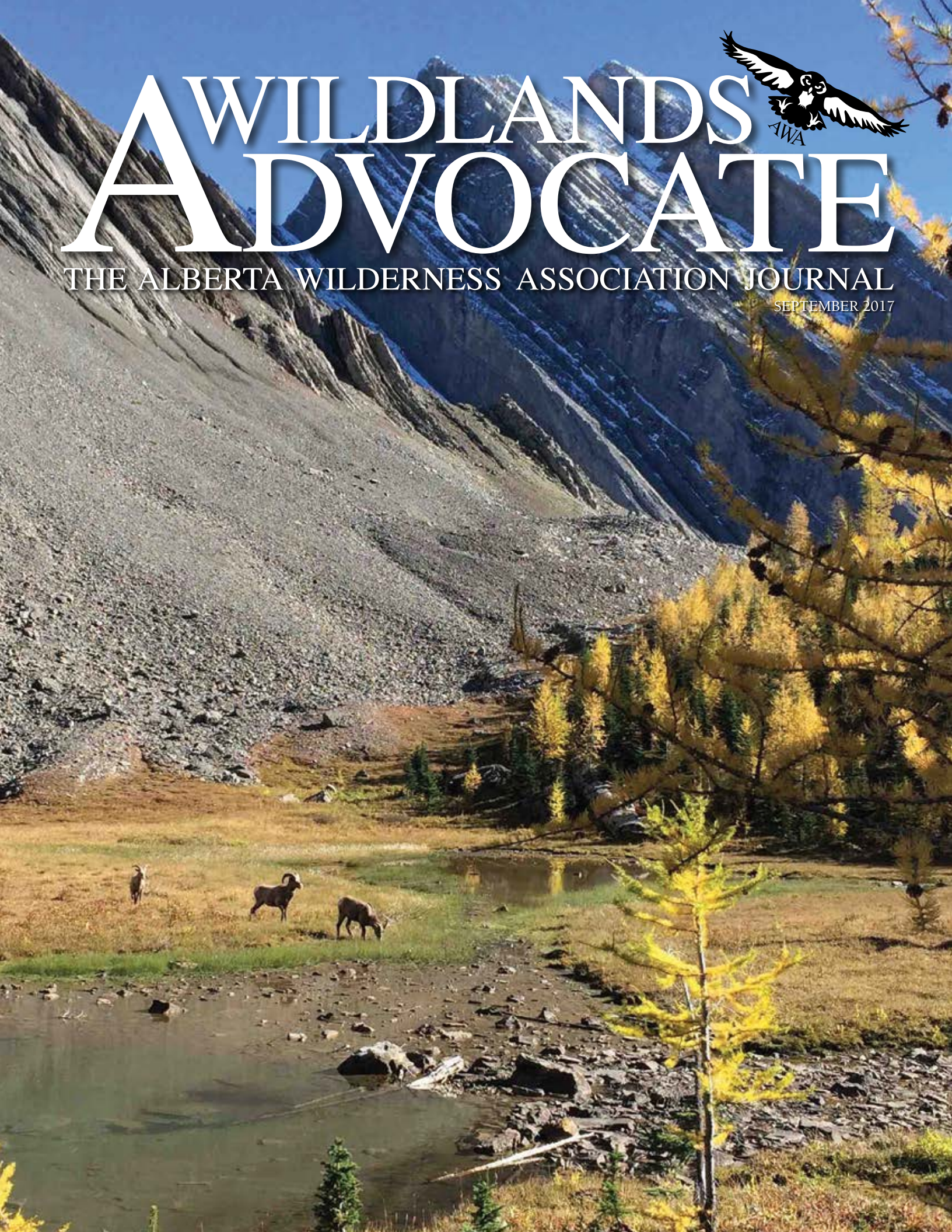


A WILDLANDS ADVOCATE



THE ALBERTA WILDERNESS ASSOCIATION JOURNAL

SEPTEMBER 2017



C O N T E N T S

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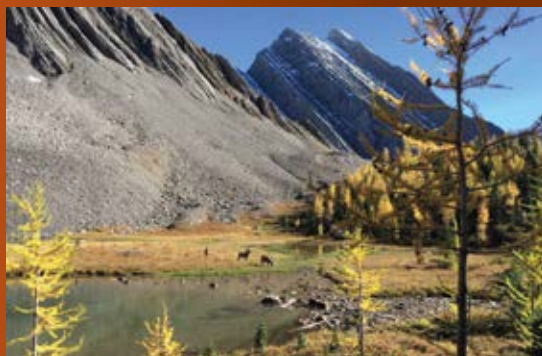
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Cover Photos

Fall is a glorious season in Alberta's Rockies as Dave Mayhood's spectacular photo of Chester Lake underlines.

PHOTO: © D. MAYHOOD



Featured Artist: Dallas LaRose

We are very pleased to include Dallas LaRose's acrylic paintings in this issue of the *Advocate*. Dallas is an established Canadian Artist from Edmonton, Alberta. Dallas is self-taught and has had a natural ability in art from a young age, but started her career later in life.

She uses modern and contemporary approaches to push the barriers of traditional Canadiana art and is rooted firmly in the natural beauty of her home province. Dallas' work is characterized by bold and vibrant colour palettes; she explores the boundaries in colour theory using personalized techniques.

Being a mother of four and a wife, she felt the need to create on a more permanent basis and completely changed her career path in 2015, pursuing her passion for art full-time. She began selling her work at a number of Art Walks, exhibitions, and festivals province-wide. This led to recognition and opportunities to participate in larger public art projects and to display her work in galleries. Most recently she was involved with Vignettes Design Showcase, Experience Jasper Avenue with The City of Edmonton, and group shows at venues such as Sparks Centre, Sacred Arts Gallery, and Jakes Gallery & Framing. Dallas now works from her downtown studio in Edmonton, selling and showing her work. To see more of Dallas' work please visit her website: <http://www.dallaslarosefineart.com/>

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Fake News...Beware the Rhetoric of Conservation Politics

"Fake news." I envy you if you're unfamiliar with this phrase. If that's the case my guess is you live a blissful existence away from the madness of modern life with its 24-hour news channels. Those of us who study and teach politics have had more than our fill of the term in the first eleven months of the Trump presidency. Any and all criticism of President Trump is likely to be met with the President's primal Twitter scream of "fake news." What makes news fake? It's fake because the story might damage the President or one of his supporters. The story can't be accurate because the news originates with the "liberal" media. Its pedigree makes it, by definition, untruthful. If right-wing media, such as Fox or Breitbart News, are guilty of publishing "fake news" I've missed hearing that from the White House.

I was struck, in reading Nick Pink's story about the Obed mine spill in this issue of the *Advocate*, about how we should be on the lookout for "fake news" about environmental conservation. In this context, however, the intent of the fake news isn't to make a politician, department, or corporation look bad. It's to

make those actors look too good (or at least less bad) when it comes to judging their impact on the healthy natural heritage we hope to leave to future generations. Don't worry, be happy...everything is under control. That's what this version of fake news counsels.

Nick's story focuses on a toxic spill of more than 600 million litres of wastewater from the Obed mine in 2013. The size of the spill is mind-boggling. It ripped trees out of the ground as it rushed down two creeks to the Athabasca River. The *Edmonton Journal* reported that its plume stretched for more than 100 kilometres down the Athabasca.

The day Westmoreland Coal purchased this mine from Sherritt International Westmoreland benignly called this gigantic spill an "impoundment release." And why shouldn't they have called it that? Alberta's department of Environment and Sustainable Resource Development called it a "release" as well. Don't worry, be happy...everything is under control.

I suspect such rhetoric is becoming more and more prominent in politics generally, in conservation politics particularly. Gov-

ernments of all political stripes are too often guilty of serving their publics inflated claims that look more intent on soothing us than informing us. Beware the rhetoric as you consume media reports and news releases about conservation; go beyond the headlines and interrogate the claims more closely. You might not like what you find but you really will be a better, more informed citizen for your troubles.

One reason I'm very proud of the *Advocate* is because, when the opportunity presents itself, our staff endeavour to go beyond the headlines and offer you some of the detail and perspective you can use to be a stronger, better-informed participant in decisions that affect our natural world.

Someone who encouraged us mightily in this mission was Dr. Herb Kariel – professor, mountaineer, and activist. We are both sad and proud to pay tribute to Herb in the In Memoriam section at the back of this issue. Herb, an Emeritus member of AWA's board, passed away in September. His commitment to nature and its restorative values was without equal and an inspiration to us all.

-Ian Urquhart, Editor

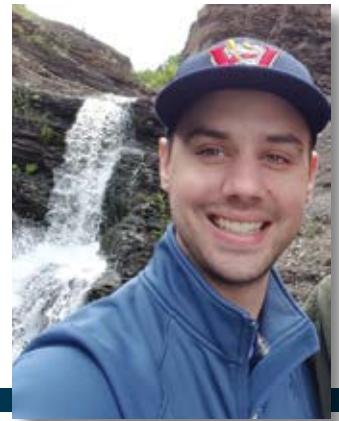
Fake news



Countdown to Disaster:

The Obed Mine Spill

By Nick Pink, *AWA Conservation Specialist*



October 31. To most people, the first thing that comes to mind is Halloween. It's a fun time of year; excessive consumption of candy is encouraged and you might dress up in a favourite costume. Who knows...maybe you'll get invited to a party. Fun indeed!

But, connotations of fun aside, Halloween has a darker side; the "trick" to the proverbial "treat". Four years ago a Halloween horror was delivered to Alberta's environment. Halloween was the day in 2013 of the Obed Mountain Mine coal tailings spill. That spill released 670,000 cubic metres of water and toxic tailings into the Athabasca River via two tributaries: Apetowun and Plan-te Creeks. The spill, despite receiving little media attention, is considered one of the most damaging environmental disasters in Alberta history. It took nearly four years for the courts to pass judgment on this spill. In June, Prairie Mines & Royalty ULC (Prairie Mines) – the owner and operator of Obed Mountain Mine – pleaded guilty to two counts of violating the federal *Fisheries Act* and one count of violating Alberta's *Environmental Protection and Enhancement Act*. It was ordered to pay nearly \$4.5 million for the contamination the spill caused. AWA has compiled troubling details since that judgment through sentencing documents, an agreed statement of facts, the Alberta Energy Regulator (AER) Investigation Summary Report, and through a *Freedom of Information and Protection of Privacy Act* inquiry by Ecojustice, on behalf of AWA. Those details lead us to question whether the operator and regulator acted with due diligence.

The Mine, the Tailings, the "Impoundment Release"

Obed Mountain Mine is an open pit coal mine – not currently in operation – approximately 30 kilometres northeast of Hinton. The Obed operation mined thermal coal (thermal coal is used to generate electricity as opposed to metallurgical coal which is used in steel production). The mine opened in 1983 and operations waxed and waned according to coal prices. Obed began shut-down and reclamation procedures in 2012 when coal prices sank. Now owned through a subsidiary of Westmoreland Coal Company, Sheritt International Corporation owned the Obed mine at the time of what Westmoreland called the "impoundment release."

Like other mountain coal mines, the Obed mine used water to process raw coal. The process creates a mixture of fine particles and water, called "tailings", which were pumped to a tailings pond. Fine particles would settle to the bottom of the tailings pond and the water would be re-used for coal processing. Over time, as the volume of settled coal fines increases in a pond the size/capacity of the pond must be enlarged to continue to process coal. One way to do this is to increase the height of existing ponds. Building additional ponds would be another way of increasing capacity. Though Obed planned to increase the height of their main tailings pit, this was never completed. Instead, two ponds were constructed and an additional two that joined mined out pits were converted to hold tailings. Four years ago, a catastrophic failure of a containment wall, Dyke E, caused 670,000 cubic metres of toxic water to spill into the environment.

How much water is that? More than twice the volume of water than what the 1.4 million residents of Calgary use daily.

The Countdown to Disaster

Red Flag #1: Shoddy construction that didn't meet regulatory requirements

The countdown to this disaster started in 1996. Then Obed Mountain Coal Ltd., the mine submitted a proposal to prepare the aforementioned joined mined out pits, named the Red/Green Pit, to accept tailings; six dykes (dykes A through F) would be built to increase storage capacity of the pits. These plans, designed by a senior engineering geologist, specified building materials, location, method of construction, and the eventual construction of a spillway. One week, seven days, after receiving the miner's submission, the then-regulator, the Energy Utilities Board, approved the proposal. Construction of Dykes E and F began soon after.

During the AER's investigation of the spill, the Regulator interviewed the engineering geologist who had designed Dyke E. He stated that, not only had Dyke E been built in the wrong location, but that it was built too quickly to have been done properly. The environmental coordinator at the time Dyke E was constructed corroborated these serious inadequacies. He stated:

"I think we probably just dumped material in and pushed across to fill in the old access [...] I suspect that we just started building a road across, dumped on the bottom and then just compacting [sic] the ma-

terial with trucks.”

Both statements are accurate. The Regulator’s investigation revealed that the construction of Dyke E did not comply with the design the Regulator had approved. The dam was constructed using low density coarse coal waste rock, an inappropriate material prone to erosion. It also used debris, what some would call garbage or junk, to build the dyke. Rubber hoses, truck air filters, and a truck door were used to build a dyke to keep toxic tailings from despoiling the environment.

About the construction of Dyke E the environmental coordinator went on to say that it was “probably the cheapest way to get it done, that would have been the approach I think we would have taken at that point just because it’s the economics that were associated with that.”

Following construction of Dyke E, no as-built was submitted to the Regulator, nor was there any evidence that one had been created. An as-built is a drawing of a completed project that shows how it was actually constructed and includes any deviations from the original design. This is important for operation and maintenance, as well as

a requirement by the Regulator to ensure the completed structure still meets approval conditions. Neither Prairie Mines nor regulators have documentation of any maintenance or inspection activities regarding Dyke E from 1998 to 2009. In addition, Prairie Mines was not authorized under the *Water Act* to operate Dyke E as a dam. As owners of a dam (albeit, unauthorized), they were also in contravention of *Water Act* Regulations for operating a dam, including such requirements as operating the dam according to an emergency response plan.

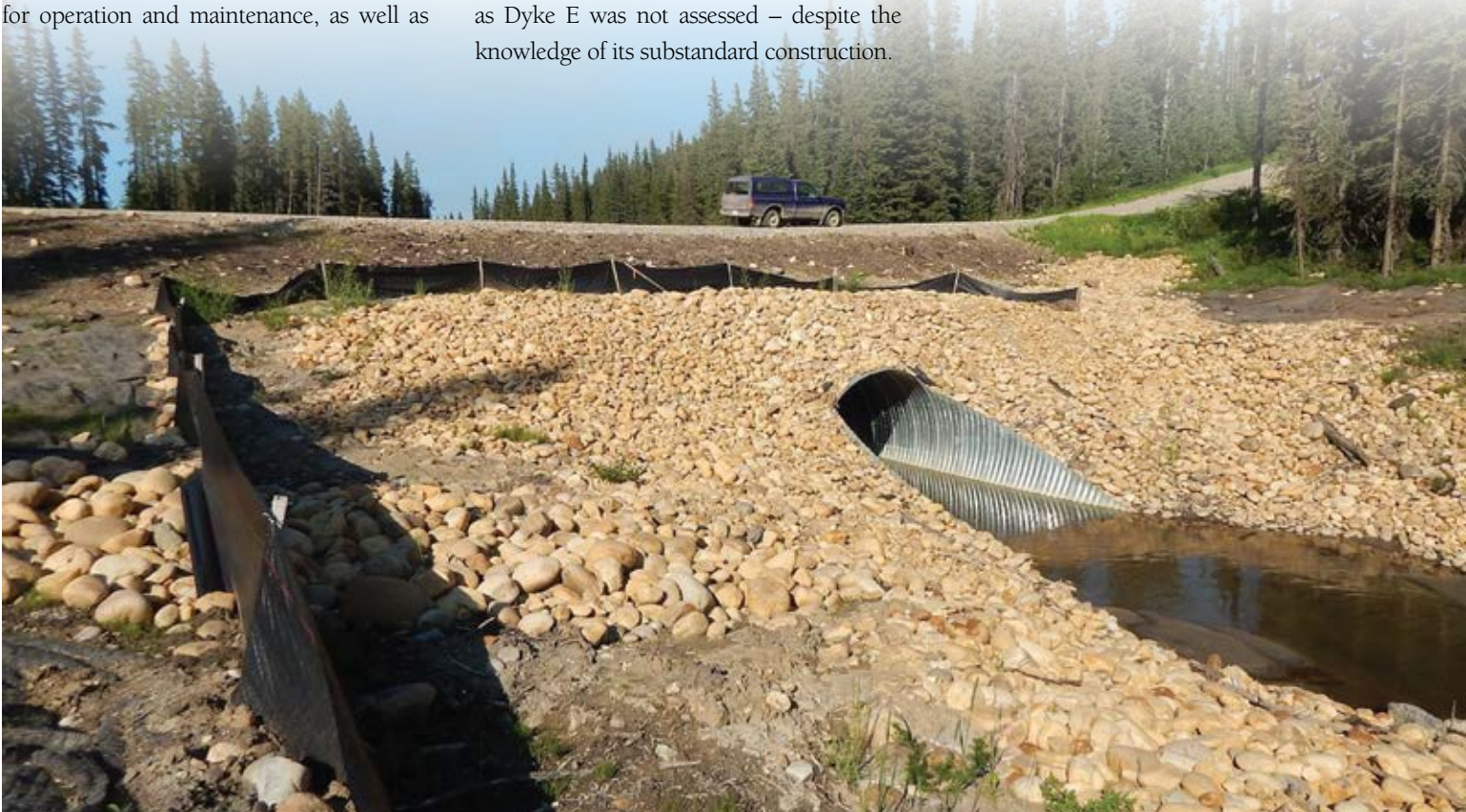
Red Flag #2: The same may be said about Dyke F

Dyke F is located on the opposite side of the Red/Green Pit and was built around the same time as Dyke E. The AER investigation found that it too was built improperly and very nearly failed when wastewater seepage was discovered in 2002. Internal memos between Obed employees, revealed during the investigation, showed that a near-disaster was averted when the dyke was reinforced with additional material. It doesn’t appear any lessons were learned from this close call as Dyke E was not assessed – despite the knowledge of its substandard construction.

Red Flag #3: Where maximum water levels are ignored.

In mid-April 1997, the Red/Green Pit began receiving tailings water from the processing plant. The pit had a maximum water level of 1440 metres above sea level (ASL) which was to be maintained by one, occasionally two, outflow pumps. In 2000, plans to raise the height of Dyke E, to increase its water storage capacity, were not supported by the original designer of Dyke E since the original dyke’s integrity was suspect. Thus, the maximum water level remained 1440 metres ASL.

In June 2010, water level surveys of the Red/Green Pit began to be conducted, with the first reading being recorded at 1441.4 metres ASL – 1.4 metres above the do-not-exceed rating of Dyke E (1440 metres ASL). At that time, Dyke E was judged to be stable. Just one month later water was found leaking from dams at two unspecified locations at the Red/Green Pit. Six months after Dyke E was assessed as stable, in December 2010, leaks had been observed coming from three locations at the Red/Green Pit.



Rebuilt road and culvert along Apetowun creek. The wall of water and sludge that rushed down this creek blew out the original road. PHOTO: © P. BELANGER

The maximum water level for Dyke E continued to be ignored. In June 2011, it had risen to 1443.6 metres ASL; in July 2012 it had crept up to 1444.2 metres. By then the water level was only about 1.5 metres from overtopping the dyke. Not only were these maximum levels exceeded, they don't appear to have ever been numerically reported during regular inspections. The water levels of the Red/Green Pit were checked twice a day. Sometimes there was no comment made about the water level; on other occasions the checklists contained comments such as "low," "good," "ok," "full," "high," "very high," and "100%." The reality of the water levels being well past the maximum was not acknowledged or reported during these inspections.

Red Flag #4: The missing emergency spillway.

An emergency spillway would provide a channel for the release of water should levels become too high. It would prevent the dam from being destroyed. The original application of Dyke E was designed with the understanding that an emergency spillway would be constructed, as per the approved design plan. It was never built.

Instead, according to the AER investigation report, construction of a spillway was discussed internally by Obed staff with some frequency. The original designer of Dyke E expressed concern to mine employees in 2010 that the water level was approaching the maximum 1440 metre level. When the three leaks from the Red/Green Pit were recorded in December 2010, an emergency spillway was again discussed. The employees concluded that the outflow pump was the immediate solution to managing water levels and that continual operation of the pump would be required for as long as the Red/Green Pit received tailings. In June 2012, when the water level was identified as being approximately 1.5 metres from the top of Dyke E, an emergency spillway was identified as the long term solution. This conclusion was reiterated in December 2012. No action was taken.

Red Flag #5: Neglecting water management responsibilities

In November 2012, the mine stopped processing coal in response to the declining price of coal. It also shut off the outflow pump from the Red/Green pit. It did

this despite the fact the pit was still over capacity. It appears that when the mine stopped processing coal it acted as if its water management responsibilities ended. No thought appears to have been given to the risks that precipitation events would add to a pit that already contained more water than it was designed to hold.

In October 2013, the mine began to process its remaining stockpile of coal. In twenty-three days of pumping waste water to the Red/Green Pit, water was only pumped out of the pit for eight and one half days. This pump, as noted above, was the only thing preventing a dam failure at Dyke E. The additional waste water pushed the water level of the Red/Green Pit up to 1445 metres – the lowest point of the rim along the top of Dyke E.

Disaster

On October 31, 2013, twenty three days after Obed Mountain Mine once again began to process coal, Dyke E failed. Water rushed from the Red/Green Pit into the Main Tailings Pond. This surge of water caused the Main Tailings Pond to spill over the containment wall. The failure released 670,000 cubic metres of water and 90,000 tonnes of sediment into Apetowun Creek. The water rushed down this stream bed for 22 kilometres before it reached Plante Creek. Once in Plante Creek these floodwaters were only six kilometres from the Athabasca River. Over two days, enough waste water to fill 268 Olympic swimming pools poured into the Athabasca.

Environmental Impact

The initial release tore a deep 1.75 kilometre long gully from the Main Tailings Pond into Apetowun Creek. The streambed and banks of the uppermost portion of the Apetowun Creek were eroded and degraded seriously by the wave of wastewater from this failure. Nearly all the riparian vegetation was washed away and large quantities of sediment were deposited in their place. The price tag to rehabilitate this portion of Apetowun Creek alone is estimated to still require more than \$6 million.



The force of the wastewater was powerful enough to uproot large trees. PHOTO: © P. BELANGER

The lower segment of the Apetowun Creek also was significantly eroded, while the Plante Creek and Athabasca River were mostly spared from streambank erosion. But fine coal sediments were deposited throughout these watercourses. Up to fifty centimetres were deposited in some areas. As hard as it may be to imagine, a large sediment plume was carried over 1,100 kilometres from where the spill entered the Athabasca to Lake Athabasca. Suspended sediment levels in the Athabasca River were recorded at levels exceeding Canadian Environmental Quality Guidelines (CEQG) up to 400km downstream. They remained at these excessive levels as late as a week after the spill.

Water sampling at the time of the “impoundment release” showed that the levels of 11 metals and several hydrocarbons were also in excess of CEQG levels. These levels improved quickly and no effects of metal or hydrocarbon toxicity have been observed. No immediate or

long term effects to human health were expected from the release.

Among other fish, Apetowun Creek, Plante Creek, and the Athabasca River all contain endangered Athabasca rainbow trout, while the Athabasca River also contains endangered bull trout. The torrential release of wastewater likely eliminated any resident fish in the upper reaches of the Apetowun Creek and removed significant fish habitat suitable for a wide range of uses, including spawning, food supply, and overwintering pools. Along the rest of the flow path, fish were assumed to be affected by increased sedimentation.

On June 9, 2017, Prairie Mines & Royalty Ltd. (Prairie Mines) was sentenced to pay monetary penalties totaling \$3,500,000 after pleading guilty to two counts under the federal *Fisheries Act*. The same day, the AER levied a \$925,000 penalty after finding the company guilty under one count under the provincial *Environment Protection and*

Enhancement Act. If those totals sound high, that’s because environmental offences typically do not garner multi-million dollar fines in Alberta. If those totals sound low, that may be because this fine is equivalent of paying a roughly \$1.40 tax on every tonne of coal produced **in one year** at Obed Mountain Mine. In addition to these fines, Prairie Mines reported it spent over \$55 million in response to the spill.

The most positive aspect of these judgments rests in the fact that polluters will be held accountable for their environmental transgressions in Alberta. There are over 100 tailings facilities in Alberta, some with over 1,000 times the storage capacity of the facilities that failed at Obed. Therefore, it is critical for government and corporations alike to ensure that the regulatory and operational shortcomings that led to the Obed spill do not contribute to a similar disaster in the future.▲



Part of the reclamation efforts along Apetowun creek. PHOTO: © P. BELANGER

Immersed in the Southern Alberta Grasslands with Gus Yaki:

By Angela Waldie, PhD



For three glorious weeks this spring, my days were framed by movement and discovery. Rather than sitting at my desk, I spent my time walking across pastures, through nature reserves, along gravel roads and hiking trails with a group of fellow wanderers. I had met most of my travelling companions only a few weeks earlier. Mostly amateur birders and botanists, we shared a desire to learn more about the species of southern Alberta. We also shared a deep respect for the knowledge and dedication of our guide, Calgary-based naturalist Gus Yaki.

To celebrate Canada's 150th birthday and raise funds for conservation, Yaki organized a walking tour of southern Alberta. Between May 19 and June 22, he guided

participants westward from the Saskatchewan border. On the trip we documented many species of birds, mammals, reptiles, amphibians, and plants; we familiarized ourselves with the diverse ecosystems and varied topography of southern Alberta.

At 85, Gus has the energy of many people half his age. He attributes this to a vegetarian diet and daily walks with others who care about the natural world. He leads birding classes year round for the Friends of Fish Creek Provincial Park Society and botany classes twice weekly throughout the growing season. Since retiring to Calgary in 1993, he has also coordinated the monthly Elbow River Birding Survey, leading birders along a stretch of the Elbow River on the first day of each month and recording the

bird species seen along the route.

While much of his guiding is now within Calgary, Yaki is no stranger to extended journeys. As owner and operator of Nature Travel Services, he spent many years guiding participants on birding excursions worldwide. Throughout these travels, he estimates that he's seen 5,000 of the world's approximately 10,000 bird species.

In comparison to his international expeditions, a trek across southern Alberta is more local and intimate. Yaki had initially thought of completing this journey on his own, but then decided "it would be much more fun and productive if other interested folks came along—for a day, or two, or a week, or the whole trip." When he extended the invitation to his network of birding and botany enthusiasts, he quickly filled all available spots on the trip as well as a waitlist of others hoping to join him.

The trip began in the southeast corner of the province on May 19 and ended in Waterton Lakes National Park on June 22. The route was divided into two sections, from the Saskatchewan border to Writing-on-Stone Provincial Park, and from Writing-on-Stone to Waterton. Because of the popularity of the grasslands, Yaki guided two groups across the southeast section before proceeding to Waterton. He timed the walk so that most of the migratory grassland birds would have arrived at their breeding grounds and begun nesting when we began, while delaying our arrival in Waterton in hopes that the winter snowpack would have melted from the trails.

Altogether, Yaki spent a full month in southern Alberta – waking to a chorus of



Great horned owl fledglings at John and Kathy Ross's PHOTO: © A. WALDIE



Gus and birders near Del Bonita campsite PHOTO: © A. WALDIE

birdsong that began earlier each morning as the days stretched towards summer solstice. Twelve participants joined him for the entire route, and 25 more completed one part of the walk. I participated in the first part, from May 19 to 29, and the final part, from June 12 to 22. The route did not consist of a continuous path, but participants who completed both parts of the walk covered much of the terrain between the Saskatchewan and BC borders. Yaki arranged for eight different campsites along the way, most of which served as our home base for two or more days of the trek. He also obtained permission from landowners and leaseholders for us to walk across private and leased public lands.

One of the great luxuries of this journey was having the time and permission to explore this landscape on foot. Driving across stretches of southern Alberta in the past, I've seen meadowlarks perched on fence posts or pronghorn sprinting through fields, but these glimpses were fleeting and distant. Walking allowed me to immerse myself in the landscape, rather than simply

observe it.

On the first day of our trek, we walked across leased ranchland to the Saskatchewan border in order to begin at that marker. Shortly after we embarked, we saw an endangered short-eared owl, which seemed to foretell a safe journey with its fluid, intentional flight. As we walked amid buffalo beans, prickly pear cacti, and blue gamma grass, I began to feel the rhythms of the prairie around me. Horned larks and chestnut-collared longspurs flitted among the sagebrush, pronghorn monitored our progress with guarded curiosity, and storm clouds circled the vast horizon. Wind was always with us, whether subtle or insistent.

There is a sense of exposure on the prairie that I've experienced in few other places. Of the grasslands on the Saskatchewan-Montana border, Wallace Stegner wrote, "The drama of this landscape is in the sky, pouring with light and always moving." We witnessed this drama on our first morning as we tried to predict the direction of the storm that circled. As we approached a fence marking the Alberta-Saskatche-

wan border, the clouds unleashed thunder, lightning, rain, and hail, and we huddled together in whatever rain gear we'd had the foresight to bring.

Less than an hour later we gathered around a slough in warming sunshine, stripping off our raingear as we marveled at the number of species on this small wetland. On water still furrowed by wind, we identified northern shovellers, blue-winged teal, green-winged teal, ruddy ducks, American wigeon, Wilson's phalarope, and eared grebes. The brilliant orange heads of American avocets appeared through the grass as killdeer and willets explored the shoreline. Helping us to locate one of the willets, Yaki instructed us to "Look at the Sweetgrass Hills – find the highest point on the right and come down to the shore." The Sweetgrass Hills, which would be our constant companions throughout much of the journey, proved valuable wayfinders from the very first day.

As we moved across the landscape, we encountered many birds in their nesting habitat, but we also intersected other spe-

cies on their northward migrations. Some found sanctuary on their migratory journeys in rare stands of trees, which indicated past or present human settlements.

On our third day, we stopped for lunch at the townsite of Onefour, a small cluster of buildings abandoned when the federal government closed this Agriculture Canada research station in 2012. As we lounged in the grass after lunch, we noticed many birds flitting through the deciduous trees. A walk through abandoned streets revealed a remarkable array of species, including endangered loggerhead shrikes, American goldfinches, blackpoll warblers, a yellow-rumped warbler, an American redstart, and a lazuli bunting. In deserted backyards, birds sheltered in lilac hedges and flowering fruit trees. Devoid of human habitation, this town vibrated with colour and song.

Farther along on our journey, we found an oasis of trees that had grown from an unlikely origin. Near the Milk River south of Foremost there are two perpendicular rows of cottonwoods framing a farmhouse. A plaque reveals that these trees grew from green poles that the Hall family pounded

into the ground to build a corral in the early 1900s. More than a century later, these remarkably straight rows of cottonwoods provide valuable habitat for a myriad of bird species.

Today's residents assisted our journey in several ways. Not only did many landowners grant us permission to walk across their pastures, some also offered to act as our guides for a day. Lee Finstad, for example, guided us across his land on the north side of the Milk River, taking us to the site of a former NWMP outpost and through an underground cavern carved by the river. As we walked, he entertained us with stories of the species he's seen in a lifetime spent on the land.

Hearing firsthand from ranchers about their knowledge of the species that occupy the land gave us much to think about. Dianne Leonhardt, a geologist from Calgary who participated in the full walk, was struck by "the intricacies of ranching and grazing." As she explains, "I was amazed at the thought, effort and various opinions of all the people that we met and talked to along

the way. I guess you don't just put cattle into a field and walk away.

Shortgrass prairie is one of the most endangered ecosystems on the planet, threatened primarily by agriculture. Although ranching is generally not as detrimental to bird species as farming, it can still have a negative impact if native plant species are replaced by non-native ones. As we moved from pasture to pasture, becoming adept at rolling under barbed wire fences, we noticed that pastures where the native grasses remained undisturbed, or only minimally disturbed, hosted a far greater abundance and variety of birds than those where the native grasses had been largely replaced. On healthy native grasslands, we saw an abundance of lark buntings, vesper sparrows, chestnut-collared longspurs, as well as endangered long-billed curlews and ferruginous hawks. It was heartening to see these species, but also concerning to realize that the habitat on which they rely has been shrinking for decades.

Some species – such as greater sage-grouse and burrowing owls – were notable in their absence. We didn't anticipate seeing sage-grouse as we had planned to stay away from known leks in order not to disturb them. We looked for burrowing owls, guided by the knowledge of landowners who knew the sites of burrows they had occupied in previous years. One evening, as we stood with binoculars trained on last year's nesting site, one participant believes she may have briefly seen the head of an owl, but this sighting remains unconfirmed – as ephemeral as the species itself.

The walk was haunted, at times, by stories of past abundance. In 2012, Environment Canada reported that the number of breeding pairs of burrowing owls was over 3,000 in the early 1980s. By 2012 there were less than 800 pairs. Anecdotally, when we heard the calls of Sprague's pipits high above the Onefour Heritage Rangeland Natural Area, Gus remembered that when he walked to school in Saskatchewan each spring he would hear



Savannah sparrows at Police Outpost Provincial Park PHOTO: © A. WALDIE

these calls throughout his entire walk. On our trek, we heard the Sprague's pipits only above the healthiest of grasslands, and each one felt like a privileged encounter with rarity.

Walking allowed us to hear the symphony of birdsong that still inspires the grasslands. Song was often our first indication of the presence of a bird, whether it was the liquid music of meadowlarks, the trills and warbles of chestnut-collared longspurs, or the ethereal skysong of Sprague's pipits. Kingley Blades, who has helped Gus to facilitate the Friends of Fish Creek Provincial Park Society birding courses, compared hearing birdsong to hearing a favourite song on the radio. "I love music," he said, "And you know how you can sometimes recognize a song by just one note? Bird calls are like that."

In places, the birds shifted ahead of us as we walked along fence lines – meadowlarks, vesper sparrows, lark buntings, and horned larks appeared frequently on fence posts and scattered like musical notes along the wires. We had to watch carefully where we walked to avoid stepping on nests. On a number of occasions, we saw clutches of eggs camouflaged in the grasses, and we also saw a nest filled with newly hatched chicks stretching their tiny mouths towards the sky. As we moved away to avoid bringing the nest to the attention of predators, I was awed by both the resilience and vulnerability of life in the grasslands.

Gus recorded 160 species of birds over the course of the entire walk, as well as 27 mammal, four reptile, and two amphibian species. We encountered rattlesnakes fairly regularly from the Onefour Heritage Rangeland to Writing-on-Stone Provincial Park. At Onefour we also saw the endangered short-horned lizard.

Although I knew few grassland plant species before beginning this trip, I learned to name many of the plants that characterize the grassland landscape, including pussytoes, scarlet mallow, evening primrose, wild tomato, and many others. Gus also showed us how to iden-

tify and remove invasive species such as dalmatian toadflax. When identifying plants, he encouraged us to rely not simply on sight, but also to engage our sense of smell and, when appropriate, taste. Over the course of our journey, we sampled delicacies from the grassland buffet, such as ground plums and mint. Sometimes when asked of a new species, "Can you eat it?", Gus would playfully reply, "You can eat anything once."

Reflecting on the prairie walk, Ann Lawson, a retired veterinarian who has been birding with Gus for years, said: "It was a privilege and a thrill to join Gus for this walk. His knowledge and love for the flora and fauna we encountered was an inspiration, and I truly appreciated his enthusiasm to share this experience with the group."

Gus and his fellow participants raised tens of thousands of dollars for conservation organizations, including the Al-

berta Wilderness Association, Bird Studies Canada, and the Nature Conservancy of Canada. This walk also brought vividly to life the species and ecosystems these organizations are working so hard to preserve.

Gus has given a number of illustrated presentations documenting the journey and has more upcoming. He has also received numerous requests to organize a similar walk next spring. 🐾

Angela Waldie, recipient of a Distinguished Staff Award from Mount Royal University in 2017, is a Writing and Learning Strategist at Mount Royal. This vocation sees her spend considerable time at the Iniskim Centre, supporting Aboriginal students.



Gus Yaki watching a rattlesnake near the Onefour Heritage Rangeland Natural Area PHOTO: © A. LAWSON

Bear 148's Last Summer

By Joanna Skrajny, AWA Conservation Specialist



It seems that almost every week this summer Bear 148 was in the news. She demonstrated the kind of media prowess that one could only expect from Banff National Park's most iconic female bear.

She first made the news in late April, when a woman who was dog sledding on the Spray River Trail was surprised when Bear 148 came out of the trees and followed her for a while, before retreating back into the trees.

In May, Bear 148 was at Mount Norquay, likely taking advantage of the spring forage on the sunny slopes. That was when a group of hikers, with a dog in tow, came around a corner and caught her off guard. She huffed and followed them for a distance and the hikers – nervous about being followed – let their dog off the leash. Bear 148 then chased the dog for some distance before the dog, not surprisingly, ran back to its owners. The hikers took refuge in a Parks Canada vehicle and waited for Bear 148 to leave.

Less than a week later, Bear 148 stumbled upon a rugby practice after an unsuccessful evening of chasing elk near the Bow River. She surveyed the scene – 80 high schoolers huddled in a group, packs strewn about with snacks inside – and crossed the field and went on her way.

In June, Bear 148 moved from Banff to Canmore to take advantage of buffaloberries which ripen earlier there than the ones in the National Park. Unfortunately, this area is also very popular with hikers; as a result, Bear 148 had a number of run-ins with humans. In early July, after charging someone with a stroller and a dog in Quarry Lake, she

was relocated to a remote area in Banff. The province stated that she would be killed if she had one more aggressive encounter outside of the National Park.

The public cried out against the province's ultimatum and rallied to try to save Bear 148. A petition started by a local Banff resident shortly after her relocation quickly garnered widespread support. It read in part:

"We know of so many people that have had so many positive encounters with Bear 148 and understand how important she is to Banff National Park and Alberta. She belongs here and on our landscape, the only home she knows and should not be executed for simply being a bear. She is surrounded by millions of people yearly and does a pretty good job of avoiding them. [...] our government needs to stand up to its commitment of conservation over euthanasia or relocation."

Inevitably, Bear 148 returned to Canmore shortly after her relocation and had yet another string of encounters with people. Likely thanks to the level of public outpouring of support for her, Bear 148 was not killed but instead was relocated to Kakwa Provincial

Park, west of Grande Cache along the BC/Alberta border.

The decision to move her was probably the best of a bad list of options: clearly wildlife managers don't want to see someone harmed and encounters with Bear 148 were only continuing to escalate. Unfortunately, the decision to relocate a bear is too often akin to a death sentence – according to the province, the mortality rate for relocated bears is estimated to be around 50 percent. Bears rely on their knowledge of an area to survive; as a result, relocated bears tend to travel more and expend more calories searching for food, which means that they cannot build up enough fat reserves before hibernation. Additionally, problem bears often do not stop being problem bears after they have been moved – they often are killed after continuing to get into conflict with humans.

The decision to relocate Bear 148 also reflected clearly the fact that we are currently not managing our wild spaces in the best

"She represents the fine balance between keeping grizzly bears alive on this landscape amid millions of tourists and residents alike in a valley that is quickly teetering towards the cliff's edge and the point of no return in terms of development, visitation and human usage"

John Marriott



PHOTO: © D. OLSON

interest of our wildlife. Bear 148 had been in many ways a model bear, living (perhaps overly) comfortably with people without, perhaps miraculously, ever developing a taste for human sourced food. This might be attributed in large part to her mother, Bear 64, who had managed to live successfully in Banff for 24 years. She taught Bear 148 the day-to-day complexities of living in a developed mountain valley, where navigating wildlife corridors, popular hiking trails and scarce sources of food are all essential to surviving in and around Banff National Park.

Six years old in the summer of 2017, Bear 148 may have been the ideal bear to pass on those very same skills onto the next generation of Banff bears. In fact, some speculated that she may have become pregnant this past summer and, if so, her increased nutritional requirements may have spurred on her increasingly risky behaviour.

But, regardless of whether she would have delivered cubs this winter, people played an important, unhelpful, role in her aggressive encounters. For example, Bear 148 clearly exhibited defensive reactions when it came to dogs. This is a common response for many bears. Wildlife managers speculate this is because they may equate dogs with their wild and competitive cousins, wolves. There should have been stricter enforcement of keeping dogs on leashes in areas where bears are; dog closures should be in place in areas where bears are known to respond aggressively when provoked.

There is also a responsibility on our part as locals to set a good example and to carry bear spray, respect closures, and to keep

our wild spaces clean. While Bear 148 was neither aggressive nor a garbage bear, there have been instances where wildlife have been killed for those very reasons. Most notably, the recent decimation of the wolf pack in Banff was largely due to people refusing to clean up their campsites or at times even feeding the pack.

Provincial response to wildlife encounters also has room for improvement. The current guide for grizzly bear encounters states that after just one aggressive encounter with people, provincial wildlife managers can either relocate or euthanize a bear. After more than one encounter with people, a bear is killed. The province makes no distinction in its response between developed areas – where human safety takes priority – and protected areas, where arguably grizzly recovery should take priority and humans are visitors.

Parks Canada appears to take a more measured approach, recognizing that bears need room to roam and are challenged by the number of visitors to our mountain national parks. Their standard approach is to assess a bear's rationale for behaving a certain way and to decide what role humans may have had in provoking the encounter. The Rocky Mountain Outlook highlighted what a marked difference the two approaches make in a story published in late July:

“Figures provided to the Outlook by the province show 56 black bears and two grizzly bears have been shot and killed in the Cochrane-Canmore district over the past 10 years. Officials were not able to break down the numbers solely for Canmore. In addition, 101 black bears and 30 grizzly

bears have been relocated over the same time frame in the same district.

In Banff National Park, by comparison, one grizzly bear and three black bears have been killed in the past decade. Parks Canada has not relocated a bear outside of its home range over that same time.”

Finally, it's clear that the trends of increasing development and commercialization in our National Parks and gateway communities such as Canmore are spelling disaster for wildlife. If we don't provide them with secure habitat and spaces to go, more human-bear conflicts seem inevitable.

While you can move a problem bear, you have not removed the root of the problem. If we don't address the issues that created this situation in the first place, bears will continue to get killed. If Bear 148, a bear essentially raised to live with people can't make it in and around our National Parks, then what bear can?

Bear 148 was in the news again, likely for the last time, in late September. Less than 70 days before B.C. will end all grizzly bear trophy hunting in the province, Bear 148 was shot and killed by a non-resident hunter in the McBride area. Information from her tracking collar suggested that Bear 148 had adapted well to her new territory. As an Alberta government wildlife biologist said, Bear 148 “was kind of being the perfect bear doing bear things away from people. To my knowledge, there had been no reports of any conflicts.”

Tragic, isn't it? Bear 148's reward for good behaviour is to hang on someone's wall. ▲



The pace of development in the Bow valley around Canmore leaves less and less room for wildlife to move. PHOTO: © N. DOUGLAS

Canada's Environmental Laws:

Time for Some Progressive Change

By Joanna Skrajny, *AWA Conservation Specialist*



Canada's environmental laws and regulations are no stranger to change. Too often, as Professor Arlene Kwasniak argued in the October 2011 issue of *WLA*, the seriousness with which the federal government takes its environmental assessment responsibilities has been in retreat. In 2012 the Harper government made further changes to Canada's environmental assessment regime that affirmed, if not accelerated, that retreat (see April 2012 *WLA*, 26). Change is again on the horizon for Canada's environmental laws and regulations. The question that remains is whether the federal Liberal government will be making good ones that improve the quality of the environmental assessment process.

In 2015, the federal government promised to restore Canada's environmental protections. To its credit it established panels of experts and committees to evaluate Canada's environmental assessment processes, the *Fisheries Act*, the *Navigation Protection Act*, and the National Energy Board. These expert panels held extensive public consultations and presented their recommendations to the government in reports which were open to public review.

Now the government has released how they intend to proceed. They have outlined the changes they are considering in a discussion paper released this past summer. Implementation of these changes is expected to happen later this fall.

It has been challenging to review this discussion paper in a meaningful manner, mainly due to the fact that it is so short: it's only 24 pages long. In contrast, the

Expert Panel report on recommended changes to Canada's environmental assessment processes was 100 pages longer – and that was only one of the four reviews! The discussion paper simply lacks depth. Its superficiality makes it very difficult to determine whether the proposed changes will move Canada in the right direction. Furthermore, and this is a genuine cause for serious concern, it made no mention of how (or whether) the Expert Panel reports and public consultations were considered.

In the June issue of *WLA*, AWA outlined our thoughts on the Expert Panel's recommended changes to Canada's environmental assessment processes. Essentially, while it wasn't perfect, we thought it was an important step in the right direction. The Expert Panel's report had some significant, forward-thinking recommendations which focused on what is actually needed to carry us through the 21st Century.

A pivotal Expert Panel recommendation was to move towards sustainability based assessments; the general concept is that projects and activities will be approved after the positive and negative consequences of doing the project are weighed and measured against a clear list of criteria such as:

- Is this good for the environment?
- Does this benefit future generations?
- Does this help us meet international agreements?
- Does this contribute to anthropogenic climate change?

These criteria would guide decision makers and if trade-offs were made then they would be clearly listed.

Disappointingly, the federal govern-

ment omitted consideration of this proposal in the discussion paper. It doesn't go beyond stating that a broader set of impacts will be considered. To better assess whether an activity is sustainable requires the identification of a clear set of sustainability-linked decision making criteria. Without those criteria and the establishment of a clear "test" of when those criteria are met economic considerations alone may creep back to supplant the sustainability objective.

Another disappointment in the discussion paper is the intention to continue to allow the substitution of provincial environmental assessment processes for federal ones "where there is alignment with federal standards." Unfortunately, outside of this statement there is no more information on what this means substantively and procedurally. In the past, substitution meant a province might undertake an assessment themselves and the federal government would use these results to make their decision. This abdication of responsibility is problematic in principle. The federal government's clear constitutional responsibilities over subjects such as fisheries, navigable waters, First Nations, and migratory birds, should not be delegated effectively to the provincial level of government. AWA is concerned that the paper's interest in intergovernmental cooperation may come at the expense of ensuring that environmental assessments are robust.

One positive recommendation from the federal discussion paper concerns cumulative effects. Such effects should

be addressed by conducting regional assessments. Assessing a region for cumulative effects is a critical way to determine whether many small projects are having a big, unacceptable, impact on our ecosystems. Ideally, this would help to plan activities on our landscapes in a comprehensive and holistic way and would guide decision making *before* we reached a tipping point of no return. Cumulative assessments would also provide benefits outside of approving projects – they could help guide recovery of species at risk and fisheries.

However, in order for these assessments to *mean anything* they need to move beyond big, complex reports that sit on a shelf and be applied and implemented in the real-world, on the ground. Proponents of activities must be governed by legislated and regulated compliance requirements; there need to be incentives for proponents to co-operate together to meet their objectives and strict penalties for those who don't. There also needs to be meaningful

development limits – if cumulative effects thresholds are exceeded on a landscape, then future disturbances there should be prohibited. The focus should then shift to recovery on those lands.

One of the most important questions in assessment processes revolves around *what will actually be assessed?* The two methods that Canada has used historically are quite different from one another. Initially, all projects touching on areas of federal responsibility were assessed and this led to thousands of assessments a year. After the sweeping rollback of environmental protections in 2012, Canada moved to a system where only those projects on a list would be assessed. The number of projects assessed every year plummeted; only dozens of projects were subject to assessment. However, as Professor Sharon Mascher (University of Calgary Faculty of Law) points out in her analysis of the two systems, a high number of assessments does not necessarily mean that the process itself is working and legitimate. The

federal government is suggesting that it would like to stay with the current system (where projects on a list are assessed) but it would also provide regular opportunities to revise this list and a clear set of criteria which would allow additional projects and activities to be assessed. But, without any explanation of what these criteria would be, it's hard to estimate what the actual numbers (and quality) of assessments will be. The recommended approach would likely mean that we would have more than dozens of assessments a year (too little) and less than thousands (arguably too many).

Professor Mascher suggests that the additional set of criteria should encapsulate projects which are likely to have consequential impacts for present and future generations. She defines in detail what should be considered consequential impacts. They are: impacts that affect multiple matters of federal interest, will last several generations, will have impacts beyond where the project is located (such as

Featured Artist Dallas LaRose



Clive, 30 x 30", acrylic © D. LAROSE



Roy, 30 x 40", acrylic © D. LAROSE

releasing greenhouse gases), will substantially deprive future generations of Aboriginal title holders of the benefit of the land, will release toxic substances or live organisms (biotechnology), will contribute to cumulative effects, and will affect an ecologically or culturally sensitive area (National Parks, World Heritage Sites). These criteria seem reasonable according to a sustainability framework and AWA hopes Ottawa will incorporate them into its project assessment rubric.

As noted above the *Fisheries Act* was also reviewed. The proposed changes seem to strengthen fisheries protection and are largely positive. They reincarnate the importance of protecting fish habitat, lost in the sweeping 2012 changes. They also propose to incorporate cumulative effects into fisheries management, to identify key areas in restoration, and to identify areas of important habitat and what areas need to be protected. However, we need to see more details about how these proposals are going to be implemented. Ot-

tawa must commit to do more than just identify important areas of habitat and areas for restoration: it needs to ensure it adopts mechanisms and processes to fast track these areas for protection. If cumulative effects are exceeded, management of these fisheries needs to shift to restoring them.

Many of the holes in Canada's environmental protection network lie in the fact that while something can be good in principle, there is little to no follow up to see what works on the ground. For example, under the *Fisheries Act*, habitat destruction can be "authorized" if a proponent offsets the habitat that was destroyed. Unfortunately, there is little to no monitoring to see whether these offsets worked in any way. Reviews conducted by the Department of Fisheries and Oceans showed that often these habitat replacements did not work and companies often weren't charged for failing to adhere to the rules. The same basic concern applies to mitigation measures

used in the federal assessment process: while they may look good on paper, there was little follow up to see whether they were actually biologically relevant. On a positive note the federal government has broadly committed to strengthened enforcement and monitoring in all aspects of Canada's environmental protections; how this is implemented should be a good indicator of the successes of these changes moving forward.

Finally, it is clear that there are many proposals that appear to have been ignored. There also are many more which lack the detail needed for us to do more than just speculate about their impact.

AWA hopes the government truly takes this once-in-a-generation opportunity seriously and makes reforms which will carry us through the 21st Century, protecting and restoring damaged landscapes and comprehensively ensuring resilience for the next generation. 🐾

Featured Artist Dallas LaRose



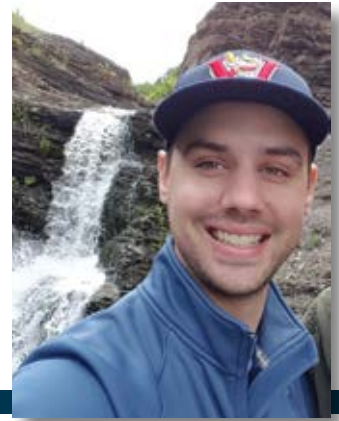
Sheila, 30 x 30", acrylic © D. LAROSE



Jax, 48 x 48", acrylic © D. LAROSE

Big Whoop

By Nick Pink, AWA Conservation Specialist



The whooping crane is a large bird that migrates to Alberta's Wood Buffalo National Park each summer to breed. While not yet out of danger, multi-generational recovery efforts have resuscitated this iconic species from the brink of extinction and made the crane a symbol of successful conservation. The Calgary Zoo has been a part of these recovery efforts, establishing a captive breeding and research program in 1992 that continues today. The work is far from over; currently the whooping crane is listed as Endangered in Alberta under the *Wildlife Act*, under Schedule 1 of the *Canadian Species at Risk Registry*, and under the International Union for Conservation of Nature (IUCN) *Red List of Threatened Species*. To learn more about current recovery efforts, I spoke to Kelly Swan, a conservation research population ecologist and a (now former) part of the whooping crane recovery research team with the Calgary Zoo.

Nick Pink: How did you come to work in conservation research at the Calgary Zoo?

Kelly Swan: After completing an undergraduate degree at the University of Toronto, I took field technician jobs around the world. My first job was in the Galapagos Islands and from there I did amphibian and reptile work and a fair amount of bird work here in Alberta. Upon completing a Masters degree at the University of Victoria, I accepted an opportunity with the Calgary Zoo fellowship program and I've been here about five years.

My fellowship ended in 2013 and I was offered a position overseeing a new whooping

crane research project, with our collaborators in the United States. We have been looking at the incubation conditions that are best to maximize hatch success of whooping cranes in captivity, and becoming more involved with whooping crane recovery planning efforts.

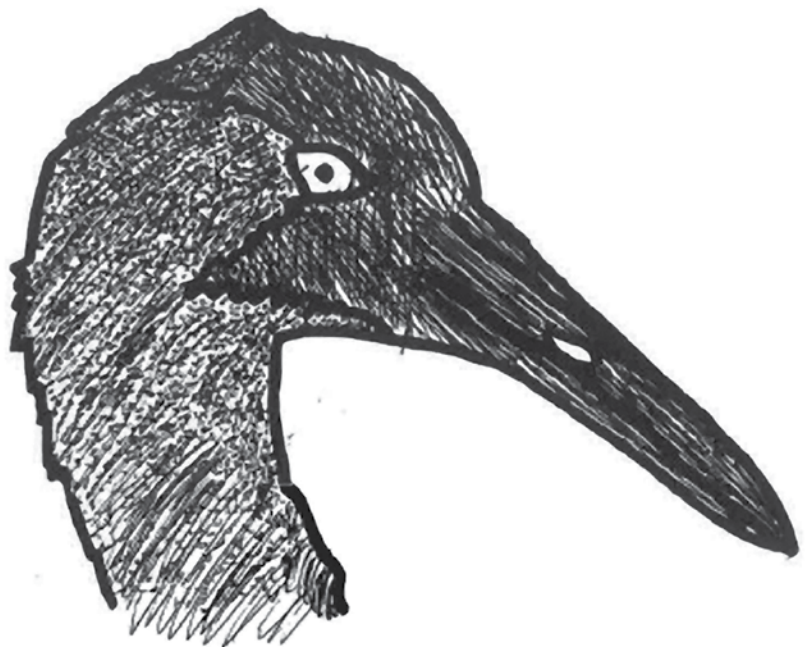
NP: How would you describe the whooping crane to someone who may not be very familiar with the bird?

KS: As adults, whooping cranes stand about five feet tall with up to a 7.5 foot wingspan, beautiful white feathers, black wing tips, and a red head. They're quite striking and people have long been enamored with them. They're fairly long

lived, up to about 25 years or so in the wild. The earliest breeding would be at three or four years though some may not breed until they are a few years older than four. They tend to be monogamous, they form pairs and stay together as long as both partners are alive. And of course they're named for their distinctive call – a whoop – which is worth looking up if you haven't heard it before.

NP: Where do they live?

KS: The only remaining natural flock breeds in, and a little bit outside of, Wood Buffalo National Park, in Alberta and the Northwest Territories. They migrate to Texas every fall to the Aransas National



In the 1940's, there were only 21 whooping cranes in the wild. Thanks to international recovery efforts, there are over 450 whooping cranes in the wild today. Image drawn by students at Lochearn Elementary School in Rocky Mountain House.

Wildlife Refuge and overwinter there. Whooping cranes cover a huge tract of land over their migration route and have a number of stopover sites. There have been a few reintroduction efforts and you can currently find reintroduced whooping cranes in Louisiana, in a non-migratory population. That's a relatively new reintroduction effort that started in 2011. There's also a migratory reintroduced flock that breeds in Wisconsin and overwinters in Florida. That effort is still ongoing but we're into the 17th year of releasing birds into that flock.

NP: Were non-migrating populations of whooping cranes something that occurred naturally or is that something that's happened since they've been reintroduced?

KS: Yes, there were migratory and non-migratory populations so that Louisiana reintroduction is meant to try and restore a population that actually existed there until the 1940s. It was around that time – the early 1940's – that the wild population of whooping cranes dwindled to just 21. A few of those individuals were in Louisiana as part of a non-migratory population. The others were in the flock that ranges from Wood Buffalo to Aransas.

NP: So there were about 21 individuals in the 40s, how many are there today?

KS: The Wood Buffalo flock that migrates to Texas has roughly 300 individuals – so it's been a really positive and great improvement – and they're still increasing. There's been no reintroduction or reinforcement of that population. We've increased conservation, awareness, protection throughout their range and they've been steadily increasing. Aside from that population, there's roughly 150 or so in the reintroduced flocks, so the total number of whooping cranes that exist in the wild is 450-500. They're doing a little better but there aren't the thousands that existed before they were really in trouble.

NP: So the whooping crane wasn't always a rare bird then?

KS: There were probably tens of thousands, which is not a really high number compared to other species of birds.

NP: From a population genetics point of view, 21 individuals would seem like a very small number of individuals to successfully bring a species back from the edge of extinction. Were there problems caused by a lack of genetic diversity in the species?

KS: Definitely, whenever there are only a few individuals left in a population, we need to be concerned about genetic diversity. All of the whooping cranes that exist today are thought to be derived from only six to eight individuals – this can be a detriment to productivity, disease resistance, and adaptation to global change at the population level. When pairing birds in captivity, setting recovery goals, or deciding where to release birds to the wild, maximizing genetic diversity is always at the forefront of people's minds. We can't do anything about that initial genetic bottleneck, but we can try to maximize the genetic diversity that we now have, and our goal is to increase wild whooping crane numbers quickly, so natural genetic variation will also increase.

When conservation efforts began, they pulled eggs from the Wood Buffalo flock, one egg per nest, and brought them into captivity in order to establish the captive breeding population that we have now. Narrow genetic diversity has been a challenge in captivity as well. In captivity sometimes you'll have questions about "is this harder because of the particular genetics that we're dealing with?" and it's not always easy to answer. But we've definitely been successful in establishing captive breeding flocks and those in turn have produced offspring released to the wild. The sooner there are more individuals the more likely there isn't a notable consequence in the wild natural flock. As far as I'm aware there haven't been any discernible prob-

lems that have been attributed to a particular overrepresentation of a negative inherited trait.

NP: How did the cranes decline from tens of thousands to so few?

KS: Largely habitat alteration for agricultural development and hunting.

NP: What kind of challenges do the cranes face today?

KS: Unfortunately, there is still the risk of poaching in their southern range, as well as powerline collisions during migration, and predation of chicks. Water management is also an issue; there have been challenges in the south with diversion of water for different uses that can affect food availability and roosting sites. Climate change, of course, is another big concern.

NP: Something we've been monitoring at AWA is the UNESCO mission report for Wood Buffalo National Park where the Mikisew Cree petitioned the World Heritage Committee to have the status of Wood Buffalo to be added to the List of World Heritage in Danger, as they are concerned about water supply to the area. Is water usage affecting the whooping crane in the Park?

KS: I think it's a concern for the future, as far as I know now it's not impacting populations at this time.

NP: What does the Calgary Zoo do for whooping crane conservation?

KS: The Zoo is the only Canadian breeding facility for whooping cranes. We hold the third largest captive-breeding population, after Patuxent Wildlife Research Center in Laurel, Maryland, and the International Crane Foundation in Wisconsin. There are also two other zoos involved: the San Antonio Zoo and the Audubon Nature Institute. We've been involved since 1992, which is when we started breeding whooping cranes for reintroduction. In the early days, we

were doing a lot of the captive rearing as well. Part of the issue with raising whooping cranes in captivity is that they can imprint [when young animals become attached to and learn the behaviour of their caregivers] on humans. That's something we work to mitigate because we obviously don't want them to be attracted to humans upon release.

NP: I understand there was an issue when they used sandhill cranes as surrogates; the whooping cranes had trouble mating with each other.

KS: In the first reintroduction attempt in the 1970s the idea was, "what if we just put whooping crane eggs in sandhill crane nests?" They use a lot of the same habitats, and have a similar life-history; it could solve the problem of teaching the cranes how to survive and where to migrate, because they could learn from experienced birds. That effort failed, because the whooping cranes didn't differentiate between sandhill cranes and their own species.

We still have to worry about "imprinting" when breeding whooping cranes in captivity, so one method that has

been used is costume rearing, where a caretaker puts on a white sheet with a puppet head. With this method, a caretaker is in a white sheet 24/7 around the birds, never saying a word, not letting them hear human sounds, and teaching them how to exercise, find food, and feed using the puppet head. It's been effective at preventing imprinting on humans, but we now are trying to allow for more natural parent-rearing by captive cranes. Early on at the zoo we were doing costume rearing and sending chicks to the US to the reintroduction efforts there.

More recently, we are doing a mixture of sending eggs to the US and hatching some eggs at our Devonian Wildlife Conservation Centre for parent rearing. We send eggs or chicks to the American facilities: Patuxent Wildlife Research Center or ICF, and they coordinate their eventual release to the wild. Since 1992, we've sent nearly 100 eggs and chicks to the reintroduction program and are still actively involved in that. Ultimately they are released in the Louisiana non-migratory population or the Wisconsin migratory flock.

NP: I understand the Zoo is also doing research with a type of data logging egg that records nest conditions, can you tell me about that research?

KS: One of the early research projects that we did with whooping cranes was to develop data logging eggs that record temperature, humidity, rotation, light levels. We put those under whooping cranes to observe the natural conditions under the bird. One of the ways that managers maximize the production of whooping cranes in captivity is by pulling the first set of eggs that the whooping cranes will lay. Just like in the wild when a bird's nest is predated, if there's enough time in the breeding season, the bird will re-clutch and lay more eggs. Conservation managers utilize this behaviour in order to get the bird to keep laying eggs, because the more eggs we have, the faster the captive population will grow. But then we are faced with the problem of where do you put those eggs after you've pulled them? We do use foster incubators like sandhill cranes in captivity and artificial incubators which are less expensive and easier than having other species of cranes around simply to in-



Whooping cranes form pairs and stay together as long as both partners are alive. PHOTO: © D. KNAPIK



Alberta's Wood Buffalo population of whooping cranes migrates to Texas when winter comes to Alberta.
PHOTO: © CALGARY ZOO

cubate eggs. But what we've seen is that the hatch success is higher with natural incubation than artificial incubation. So the question we have is, what's the difference? How can we make our artificial incubators better? How can they better mimic natural conditions? We're trying to determine this by pairing a data logging egg with a real egg and putting them under a bird or in an artificial incubator, so when that real egg fails or hatches, we know what kind of conditions it experienced.

NP: Are there any other initiatives for whooping crane recovery that the Zoo is a part of?

KS: We are working closely with the international whooping crane recovery team (IRT), which includes our Head Veterinarian, Dr. Sandie Black. The team is quite remarkable because you don't often see a single international team for one species, but there are Canadian and American co-chairs, both from the government, and then other representatives from various stakeholder groups. We've been working with the IRT in holding international IUCN-facilitated recovery planning workshops. We essentially bring international leaders in whooping crane science and recovery together to generate population models based on the most recent data for whooping cranes

and use those models to make plans for the future. The most recent recovery plan for whooping cranes was published in 2007, which is quite old by this point, and the recovery team is looking at what our goals for recovery should be. What are our goals for downlisting? How can we reach downlisting goals faster? How are we doing now? What other management techniques may be effective?

Bringing all these people together is meant to inform a lot of those questions. So the Zoo has been involved in wider whooping crane recovery planning. And we are looking to expand our whooping crane research in general.

NP: With the whooping crane increasing in numbers and seemingly on track to recovery, what work is left to be done? Are there still significant hurdles that need to be solved?

KS: Across the board, there are a lot of things we have yet to learn. Even as the population grows in Wood Buffalo, where are they expanding to? What sorts of habitats should we expect that they will require over the next several decades? The whooping crane has become this icon of successful conservation efforts in North America, because a lot of people, like my mom, remember hearing about the reintroductions in school.

But we're also still learning because neither of the reintroduced flocks are self-sustaining; they still rely on releases of new individuals.

NP: So despite the success, it's not in the bag yet.

KS: No. But there are some promising developments recently. In Louisiana, where the newest reintroduction attempt began in 2011, they've actually already had successful breeding. Actually, just last year, one of the birds that we sent laid the first eggs in the wild in Louisiana since the 30s. They've seen some successful breeding but there's still predation and some eggs not hatching successfully. These kinds of things certainly happen naturally in the Wood Buffalo flock, but it's hard to say with such a small population what the trend will be for this reintroduced flock. There's still much more to learn and that's what really interesting about this species and these efforts. Whooping crane efforts inform other projects as well; some of the challenges such as the failed idea to put whooping crane eggs in sandhill crane nests in the wild, inform us where you can go right and where you can go wrong. There's always some element of trial and error with a new reintroduction program but the whooping cranes program has brought about a lot of information for other avian reintroduction programs. It's pretty neat that way.

NP: I noticed that the zoo received an award in 2016 for the whooping crane recovery program.

KS: We did, that was from the Association of Zoos and Aquariums (AZA). They annually award conservation programs from AZA accredited institutions. We won the 2016 North American Conservation Award, jointly with the ICF, San Antonio Zoo, and Audubon Nature Institute. It's recognition from our peers for a job well done. 🐦

Thanks to Kelly and the Calgary Zoo for their participation.

AWA's Wild West Saloon

By Christyann Olson, AWA Executive Director



What do you get?

What do you get when you mix great food, honky tonk piano, cowboy hats, shiny boots, “pigs” of delicious beer, fine wine, even finer volunteers, sunflowers, and red check gingham? A delicious concoction known as AWA's Annual Wild West Saloon – of course!

What a great time was had by all of our friends and supporters who came out to join us on September 14th. The evening had highlights aplenty: Nathan the Bear, Karina admiring the proud tiger, fists full of play money, auction tension, prize draw fun, the cozy back yard fire pit, and great story telling. While we made a bit of money its greatest success came in the new friends we made that night and the old friends we saw again. If you missed the event this year (or missed winning one of our fabulous auction items) be sure to join the fun in 2018. Come out and see AWA's Cottage School transformed into a saloon filled with fun and friends. Thanks to all of our supporters of this year's saloon – not least to Shell Canada for being the event's corporate sponsor.



PHOTOS: © K. MIHALCHEON

Conservation Corner:

Returning a Lost Species to Waterton Lakes National Park: The Northern Leopard Frog

By Niki Wilson



The call of a northern leopard frog sounds like the opening of a creaky door, followed by what you might hear if you rub two balloons together. But to Kimberly Pearson and Barb Johnston, Ecosystem Scientists with Parks Canada in Waterton Lakes National Park (WLNP), hearing the male frogs call for the females this spring was the welcome sound of a lost species returning home.

This year marks the first time northern leopard frogs have bred in WLNP in decades. Historically, they were found in many habitats across the province—grasslands, parkland natural regions, and foothills. However, numbers sharply declined in the 1970s and 80s. The exact reasons are not clear, but may have

involved a perfect storm of drought, disease, habitat loss, road mortality, harvest (for labs and experimenting), and the introduction of predatory non-native fish to waterbodies they didn't belong in.

This landed the northern leopard frogs as a *Threatened* species under *Alberta's Wildlife Act*, and as a federally listed species of *Special Concern* under the *Species at Risk Act*.

A couple of decades later, enough had changed to suggest it might be possible to return northern leopard frogs to the landscape. Crushing drought had abated, and there was more awareness about the importance of protecting amphibians from roads and other barriers during spring and fall migrations. WLNP officials had investigated translocation methods to

minimize the risk of transmitting diseases. Provincial and federal legislation protected them from harvest, and WLNP was (and is) moving toward an aquatic restoration plan that included removal of non-native fishes.

To even begin considering a reintroduction, "it required a lot of homework," says Johnston. That, and patience. This latest round was the second try at a return of northern leopard frogs for the team at WLNP. In the first attempt, eggs were relocated from sites elsewhere in southern Alberta between 2007 and 2010. Though some of the eggs grew into tadpoles and froglets, they never grew old enough to breed.

They were stumped. Around the same time Johnston had worked on a success-



The northern leopard frog – the object of Waterton Lakes National Park's breeding program PHOTO: © PARKS CANADA



Kim Pearson and Leopard Frog Tadpoles.
PHOTO: © PARKS CANADA

ful reintroduction to a site approximately 50 km away at Beauvais Lake Provincial Park. There, the reintroductions had gone relatively well, with populations established ever since. Why not in WLNP? The team dove back into the research to look for clues.

One came when Pearson stumbled upon a comment on an article about another northern leopard frog reintroduction project. A frog ecologist from eastern Canada suggested the frogs have a genetic imprint that tells them which direction they need to go to get to their wintering grounds from their natal ponds. She and Johnston tucked this information away as they planned their next attempt.

This time, the eggs would come from Grasslands National Park, Saskatchewan. These eggs were a good genetic match, and would leave closer populations alone to strengthen their still tenuous numbers. In the springs of 2015 and 2016, armed with coolers, Johnston and Pearson travelled over 600 kilometres to Grasslands National Park to pick them up.

While there, the team paid careful attention to orientation of the overwintering habitat—a river—to the breeding ponds from which they harvested the eggs. Only a small percentage of the large groups of egg masses were removed. After the team traded off driving duties to minimize travel time home as much as possible, then deposited the eggs in carefully selected sites with similar orientation to overwintering habitat.

“Genetic orientation is a consideration you don’t hear much about in leopard

frog reintroductions, but it really makes sense when you consider that there have been thousands of generations of frogs moving in specific directions between a breeding pond and an overwintering site,” says Pearson.

It’s hard to know if that was the magic ingredient. The team had also gotten creative with predator protection strategies. They designed a “predator exclosure”—a plastic bucket with meshing on the bottom and the top, held afloat by a foam pool noodle—to protect the eggs and young tadpoles from critters like fish, birds, and raccoons that would try to catch them from above and below. The exclosures were removed once the tadpoles showed a predator avoidance response.

Whatever the team did, it appears to be working. “The 2015 frogs reached reproductive age this spring, and appear to be taking quite nicely to Waterton,” says Pearson. It’s an important step towards WLNP developing self-sustaining populations of northern leopard frogs.

With enough work, and collaboration with landowners, the Province of Alberta, and groups like the Waterton Biosphere Reserve Association, Pearson hopes that one day populations will be connected between WLNP, Beauvais Lake Provincial Park, and beyond. ▲



Barb Johnston Collecting Leopard Frog Eggs in Grasslands National Park. PHOTO: © PARKS CANADA

Alberta Wilderness Association's 2017 Wilderness Defenders

Wilderness Defenders, Ranching Pioneers: Colleen and Dylan Biggs

By Andrea Johancsik (with Ian Urquhart)

Alberta made quite the impression when it participated in the 40th annual Smithsonian Festival in Washington D.C. in 2006. That was the year the Alberta government thought festival attendees would be impressed favourably if they could see first-hand the gigantic trucks used to mine the tar sands. Tourists were indeed impressed, but not in the way Alberta hoped.

In the shadow of the trucks and the controversy Dylan Biggs was showing the public another side of Alberta, one AWA always has supported and encouraged. Dylan, who runs TK Ranch near Hanna with his wife Colleen, was in the U.S. capital as part of the province's effort to showcase sustainable approaches to ranching and farming. The Biggs' TK Ranch was one of the family ranches featured at the Smithsonian Festival because of their commitment, as the Smithsonian put it, to "(o)rganic and low-stress methods of raising livestock, as well as the preservation and stewardship of Alberta's fertile but fragile rough fescue grasslands."

Dylan is renowned for his dedication and enthusiasm for low-stress livestock handling. When he's not in Hanna you're likely to find him somewhere in Canada or the U.S. offering a course on low stress livestock handling. As he explained to the Voice of America in Washington, this approach is important to consumers who care about how their food is raised. Biggs' approach certainly impressed... positively... the tourists who attended the Alberta exhibits and saw him in action.

Holistic management is another term used to capture the sustainable ethic the Biggs inject into their cattle and land management



2017 AWA Wilderness Defenders Dylan and Colleen Biggs

operations. In Wendy Dudley's *Alberta Views* article on sustainable ranching Dylan credited the cattle rotation demanded by holistic management as increasing the biodiversity of his land. He believed it was a real benefit to the health of native rough fescue on the Ranch.

The pioneering approach the Biggs' bring to land and cattle management extends to the processing and marketing of their products. TK Ranch boasts meat and dairy products using no GMO feed, no antibiotics or drugs, no added hormones, no animal by-products, and no chemical insecticides. The Ranch owns and controls everything from pasture to plate including the animals, land, facilities, and brand. This commitment to think outside of the traditional ranching mindset also makes TK Ranch so unique.

The ranch itself is in the Special Areas of Alberta, a region in the prairie that has a tragic history. In the early 1910s, the federal government encouraged Canadians to settle the

west and gave them cheap land so long as they farmed it. Although the first few years of harvest were good, bad years soon followed. People faced starvation; some resorted to eating grasshoppers, rodents, and anything they could find to survive. When people couldn't pay the taxes they owed, the government gave these desperate homesteaders a way out. It would waive their taxes if the homesteaders returned the land to the Crown. This is called tax recovery land, and much of it formed the Special Areas, a region roughly north of Medicine Hat and east of Red Deer and Calgary.

A Special Area requires special stewardship so the land doesn't return to the "Dust Bowl" state of the early 1930s. The Biggs' love and stewardship for Alberta prairies comes honestly, as both their families came from a long line of pioneers. Dylan's mother was dedicated to the conservation of native prairie and thought it should never be farmed, a belief that was unheard of at the time. "Dylan," Col-

leen says, “lives and breathes cattle ranching.”

The TK Ranch describes its location as “truly in the middle of ‘everywhere’” as it is located roughly equal distance from Calgary, Red Deer, Edmonton, Saskatoon, Medicine Hat and Lethbridge. The ranch is on rare native northern fescue grasslands – only four percent of the historical range of these grasslands across the planet remain today. “It’s been so lovely living there for the past twenty-seven years,” Colleen said, “because I have the luxury of looking out my front window and seeing species-at-risk.” As she was telling me this a text message interrupted her in mid-sentence. It inquired about the ranch’s wildlife rehabilitation program. “Isn’t that funny!” she laughed. “I just had the Medicine River Wildlife Rehab Centre asking me if we have thirteen-lined ground squirrels, because she wants to release one.”

While a visitor will definitely find cows, chickens, and pigs on the farm, it’s also a haven for wildlife. It is possible to encounter cougars, rare or threatened amphibians, and plains garter snakes. Signs of human and natural history, as seen in teepee rings and ancient bison trails, are also plentiful. Even wolves passed through the ranch just four years ago only to be killed by a nearby resident. Colleen and Dylan manage predators with livestock guard dogs instead of bullets. Coyotes have learned to respect the dogs. This type of predator management, featured in the June 2015 *Wild Lands Advocate*, is not a usual ranching practice. Colleen believes some people feel threatened by what the ranch is doing. “We have been shunned. Shunned is a good word,” Colleen said of some of the reaction to the fact the TK Ranch operates differently from conventional agriculture. But Colleen isn’t afraid to set an example and pioneer a new path. “I learned very quickly, when you believe in what you do, you have to be strong enough to deal with the people that don’t like you,” she said. “We are now setting an example in the livestock industry and sector that works.”

Despite different approaches, TK Ranch shares the concerns of traditional operators about the bottom line. The view Dylan

shared with tourists in Washington in 2006 made ecological and economic sense then and makes even more sense today. It animates a business model that believes that more and more of food consumers look for assurances that the land and animals are treated well. While Colleen knows many ranchers who share her conservation ethic, she knows just as many who want to farm the prairie after over-grazing has drained the life out of the land. The TK Ranch production model may not be popular yet, but it is an important step forward towards a new agriculture model that takes seriously both the economic and environmental demands of sustainability. Its success depends in part on the growth of consumer belief in the importance of the welfare of animals and the land.

“Really, they should be happy,” Colleen said about naysayers. “We’re marketing to a sector of society that wouldn’t eat meat otherwise.” Indeed, some vegetarians have made the switch to eat meats from TK Ranch because of its Animal Welfare Approved certification. When some vegans based in the United States recently attacked TK Ranch online, loyal customers weighed in and defended them. Colleen eventually responded to the trolls’ attack. She tried to bring a holistic perspective into the conversation by emphasizing that monoculture farming to support a vegan soy diet destroys habitat and wildlife even if the animal deaths were unintentional. “Every time you eat, you are part of killing something, that’s just bottom line,” she tried telling them. “That to me is the big message, the most important one, maybe, is being a part of the ecosystem, understanding that as humans, we are a part of everything, and every choice we make affects our place in that ecosystem. So many people are separate... they’re very disconnected from the life cycle and understanding their connection to the land.”

That’s not to say it has been easy for the Biggs family to change the status quo; challenges in agriculture have hit the Biggs family too. When the cattle market crashed, the Biggs had three little girls and their equity went down 50 percent in one week. Dylan was managing his father’s ranch fifteen hours a day, seven days a week, so he couldn’t get

an off-ranch job in the oil patch like other ranchers did. Colleen’s only choice was to split up the family and move to a city to find a job with her university degree, but “it wasn’t really an option.” The family decided to go into direct marketing instead, and although she made sure I understood the ongoing challenges of that kind of business model, TK Ranch remains committed to making a go of its pioneering perspective.

Making a profit isn’t easy either when an animal takes twice as long to go to market as conventional ranching. This is one of the costs of the ranch’s more sustainable approach. In return for the ranch’s greater expenses in feeding livestock, the customer gets more nutrient-dense food that benefits grasslands, wildlife, and livestock. Because of the ranch’s additional expenses, it can be frustrating for the ranch to see greenwashing by producers when they sell a product that uses misleading terms like “grass-fed” rather than “grass-finished,” or meaningless terms like “pasture-raised pork” and “organic.” Colleen believes this greenwashing happens because consumers don’t know the right questions to ask, rather than it due to a failing regulatory system. Her solution? Voting with your dollar. “Everybody eats three times a day or more. They’re making a choice, and every choice they make contributes to one way or the other.”

When thinking about the future of agriculture, Colleen admits she’s concerned. An aging demographic of ranchers whose children don’t want to take over the ranch means more opportunity for multinationals and foreign investors to turn native prairie into monoculture farms. Such a future is a very troubling one. But her practical, environmental, and solution-focused ethic has her already thinking of a way to fix this problem. Colleen’s next project is to start a sort of “food trust, for lack of another word,” where Albertans are actively involved with the future of agriculture by purchasing a plot of native prairie. With TK Ranch’s success so far, I wouldn’t be surprised if the Biggs are instrumental in making that dream a reality.

To see TK Ranch products and learn more about the ranch, visit www.tkranch.com. ▲

A Defender of Native Plant Communities: Reg Ernst

By Nick Pink, *AWA Conservation Specialist*



For Reg Ernst, newly minted 2017 recipient of AWA's Wilderness Defender Award, the second time was the charm. A few short decades ago, Reg Ernst was working as an air traffic controller at the Calgary International Airport. From where we are walking at Nose Hill Park this beautiful August morning, we can easily make out the airport control tower through the smoggy forest fire haze that has filled the air for most of the summer. Of course, Reg isn't receiving this award for exemplary air traffic control; after working for more than 20 years at the airport, Reg started down the runway to a new career.

"I really enjoyed the job," says Reg, as we talk beside a group of quarried sandstone boulders, on a hill overlooking eastern Calgary, "but it was time for a change."

At the time, Reg thought he would retire. He had a small farm and figured he could get by raising horses, and so he enrolled in the agriculture program at Olds College. Yet he soon discovered that, his love of horses and country aside, agriculture was not where his passion lay. Instead, he became interested in ecology, particularly land reclamation. Near the end of the Olds program, his advisor suggested that he go to Montana State University to complete his undergraduate degree in ecology.

"I said, 'no I don't think so'," Reg recalls, "but then I thought about and, why not? I really enjoyed that, it was an interesting place. I did some interesting field work. For example, on the Beartooth Plateau we studied alpine ecology and camped at something like eight or ten thousand feet [above sea level]."

Following his undergraduate degree, Reg

completed a Master of Science degree in Ecology and Wildlife Management from New Mexico State University.

I ask him whether his interest in the environment was something he discovered when he went back to school. "I've always had an interest in animals and plants. I think that goes back to childhood," he says, "but it didn't really mature until I started at Olds College and Montana State. I did a lot of traveling in the backcountry before that, so of course I was interested in what was going on out there, but I didn't have the knowledge to really recognize many things."

Reg applied his growing knowledge to better understand native plant communities in Alberta's alpine. His backcountry trips included hiking to remote alpine locations to study whitebark and limber pine – species identified as endangered both provincially and nationally (although limber pine doesn't have any status under the *Species at Risk Act* the Committee on the Status of Endangered Wildlife in Canada assessed the species as endangered in 2014). His work included observing disease prevalence, such as blister rust, and counting the number of successful seedlings. This project, he tells me, is one he recalls as being particularly fulfilling, as much of the information he collected has been useful to colleagues.

"The alpine was always the most interesting area to work, in my opinion. It still has intact native plant communities, they haven't been disturbed very much, and just the natural beauty of it as well," says Reg.

But studying endangered species may expose some harsh realities too. While it's encouraging that we may still be able to recover

these species it's also disappointing that more isn't being done. Reg tells me that there are areas that could be cleared of competing sub-alpine firs, spruce, and lodgepole pine. Such clearing would allow whitebark pine to flourish. He also has an eye towards restoration and mentions that, by reclaiming disturbed areas with endangered species, such as these endangered species of pine, we could be doing two important jobs for the price of one.

"If it wasn't for Christyann, we wouldn't have done those projects." Reg points out that AWA's Christyann Olson was instrumental in helping to identify projects and secure funding for them.

For Reg, we need to be more of this work. "Especially in areas like the Castle," he says, "where there's a lot of roaded areas and well-sites. I visited one site last year that they were in the process of reclaiming. They planted native vegetation there but I was disappointed to not see limber pine, it would have been a good site."

Reg is very concerned about the threat invasive species pose to native plants. One has to look no further than the ground we're standing on in Nose Hill to see the impacts. While still home to native rough fescue, the park is covered in smooth brome, large patches of invasive thistles, and yellow

clematis growing over other vegetation. The clematis is literally choking other species to death. This is not the case yet in much of the alpine where Reg spent much of his career; the non-native plants haven't yet developed the tolerance or access to these high elevations. Unfortunately, with a changing climate, it appears the ground-work for an invasion is already being laid.

Cattle also are helping non-native plants invade the alpine. Cows facilitate migration of invasive species when they graze at lower elevations and drop plants from their bodies and in their dung when they climb to higher areas. Reg was surprised the first time he saw cows in the alpine. "I looked up, jeez those look like cattle up there. That can't be, they wouldn't be up there."

He went out to check the next week, and sure enough, the cows were there.

"Cattle do not belong in the alpine," Reg says (To see a photo of cattle in the Castle alpine see the cover of the June 2015 issue of the *Advocate*). "Whenever cows go into any natural system, they're going to change it. The areas down below have already been converted to non-native species, so with proper control grazing cattle are not going to cause any more harm."

Although he spent much of his second career in the alpine, Reg holds a similar passion for Alberta's native grasslands. Grasslands, one of the three least protected ecosystems in Alberta (the others are the Parkland and Foothills), provide the habitat to the majority of Alberta's endangered species.

"Grasslands have so much value for cattle grazing and there's lots of oil and gas activity," Reg replies, when I ask him why he thinks they remain so unprotected. "But they're so interesting in their own right and should be protected. Suffield is a prime example of an area that has really been hammered by oil and gas activity and animals like horses and now elk. Usually economics takes precedence over everything else and it's really difficult to protect anything."

Yet conservation needs not be only confined to the creation of protected areas. In Lethbridge, Reg led a rattlesnake awareness and education conservation program. At the time,

large numbers of snakes were being run over, so part of the program included putting up signs notifying people that rattlesnakes lived in the area. Another part of the program involved presenting to and educating the public to foster a positive attitude. The program was a success. Reg found that people were generally willing to accept that they were living in rattlesnake habitat and cooperated by phoning in the location of rattlesnakes, which Reg would then relocate back to their den.

Reg recounts an anecdote about misconceptions some may have about staying safe in rattlesnake habitat. A lady told him she made sure her kids made lots of noise when they were outside so they didn't have to worry about rattlesnakes. "Well of course, rattlesnakes can't hear," Reg chuckles, "so she was living under a false sense of security on that one."

He later said the program remains a fond memory. "I think we did benefit them. The rattlesnake program was really important because it drew attention to their plight and re-educated a lot of people."

Though he's had two successful careers, Reg still keeps busy in his second retirement. He

enjoys spending time in the valley that runs through Camrose, where he now resides. There he tries his best to influence the city to develop in an environmentally friendly manner. Reg also volunteers his time to teach Vietnamese students English, over Skype and during yearly visits to Vietnam. With such an accomplished career, it's hard to imagine that he has too many regrets but when I ask, one sticks out in his mind. "I wanted to do a PhD – a backcountry study in the national parks for horse grazing – but I put together a sloppy proposal." But missing that opportunity had a silver lining: "in hindsight I suppose it gave me the opportunity to do other things."

Though Reg is grateful to be recognized as a Wilderness Defender by his peers in conservation, he is quick to tell me that he certainly never did it for the recognition but instead was motivated by a sense of duty. His work was just something he felt he was obliged to do. But despite the accomplishments of Reg and other Wilderness Defenders for Alberta's wilderness and wildlife, the work never ends. Here's hoping Reg's story inspires more Albertans to carry the conservation cause into the future. ▲



Limber pine, one of Alberta's native plant species that has benefited from Reg Ernst's stewardship.
PHOTO: © N. DOUGLAS



Louise Guy Poetry Corner

Celebrating 150 Years of Canadian Wildlife!

Nova Scotia



Who Am I?

Chugga-chugga-chugga-chugga, swimming in the pond,
Head above the water to see what lies beyond.
Chugga-chugga-chugga-chug... stopping for a bite;
Nibbling on cattails, I'm hidden out of sight.

Tail up, tail down, steering while I swim,
Like a skinny rudder, my tail's long and thin.
Eyes up, eyes down, chugga-chugga, splash...
I dive below the water in an unexpected flash!



Beaver



Mink



Muskrat

Turn page upside-down for answer!

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Celebrating 150 Years of Canadian Wildlife!

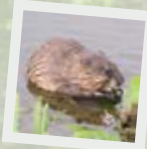
New Brunswick



Who Am I?

Nibble gnaw, nibble gnaw, my teeth are like a busy saw.
Chewing wood to make a dam,
I'm hard at work, I am, I am!
Push and pull, push and pull,
My working day is very full.
The family lodge is nearly done
Because I'm always on the run!

I've oily fur to keep me dry, a scaly tail for swimming by.
My coat's a handsome chestnut brown,
I waddle when I walk around.
Along the bank's a wooden dome,
That wooden dome's my river home.
I think you'd notice if you saw it,
It's not easy to ig-gnaw it!



Muskrat



Red Squirrel



Beaver

Turn page upside-down for answer!

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Celebrating 150 Years of Canadian Wildlife!

Prince Edward Island



Who Am I?



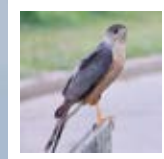
Bald Eagle

Wings spread wide, I soar, I glide; I watch with eager eyes.
Fish or game, I've yet to name which food will be my prize.
My head and tail-feathers are as white as winter snow;
My beak and feet are yellow, like a sunbeam's golden glow.

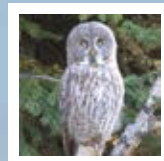
My voice is carried on the wind, a sharp and haunting cry.
Without a foe to fear, I'm free to glide across the sky.
A great and mighty predator, I keenly watch for food,
Soaring through the heavens in majestic solitude.



Osprey



Cooper's Hawk



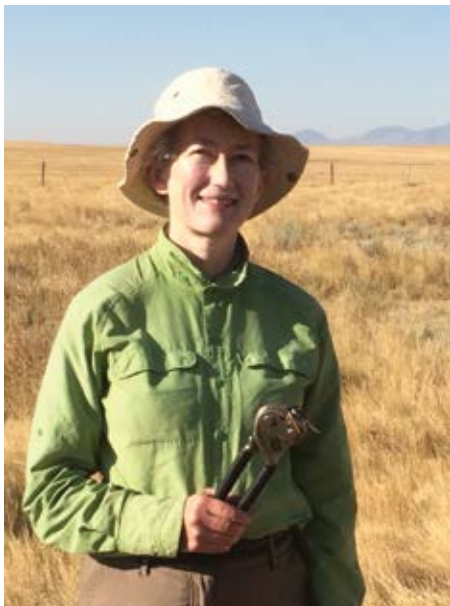
Great Gray Owl

Turn Page Upside-down for Answer

© Rosemary Gell, 2017

Updates

Pronghorn Antelope Friendly Fencing



My main job was removing fence staples, and here I'm holding my 'catch' with the gorgeous Sweetgrass Hills as my backdrop. CREDIT: AWA.

In the shimmering heat of a late August weekend, teams of volunteers moved steadily from fence post to fence post, within sight of Montana's Sweetgrass Hills in Alberta's beautiful southeastern grasslands. Alberta Fish and Game Association (AFGA) had put out the call and a dozen of us were there to work. Our job was to transform 16 kilometres of three and four strand barbed wire fence into "pronghorn antelope friendly" fencing. Specifically, the task was to replace the bottom barbed wire strand with smooth wire placed 18" from the ground, high enough for pronghorns to scoot under. We then re-stapled the remaining strands to space them out evenly, so the fence would perform well and look good.

Pronghorn are North America's fastest land mammals, but they don't jump. Traditional barbed wire fencing is a significant barrier and injury hazard for them, especially during their seasonal migrations. By working together, Albertans are making pronghorn migration routes safer.



Pronghorn antelope need our help to make their migration routes safer. PHOTO: © J. BARGMAN

This wonderful pronghorn fencing program is spearheaded by AFGA and supported by the Alberta Conservation Association (ACA). AFGA's Wildlife Projects Facilitator TJ Schwanky works with willing landowners to set up the work weekends, two or three weekends per season depending on conditions. TJ provides a warm welcome and all the tools and training to the new recruits. Dedicated returning volunteers help get the job done fast and keep it fun. Support trucks provide lots of water and snacks to keep morale high. They're also fitted out with fire-fighting equipment, an essential precaution in hot dry seasons like 2017.

The work weekend was very rewarding. The volunteers and AFGA and ACA staff are a great bunch. After Saturday's work was done, we visited the local rancher, who is a lifelong resident; we had a chance to hear about the community when he was growing up and the changes he had seen. We also visited a staggeringly beautiful nearby lookout point above the Milk River valley. And on our drives to and from Foremost, where most of us were staying, we passed scattered groups of pronghorn who would likely benefit from our day's work.

If you'd like to help out on a pronghorn friendly fencing weekend, please contact TJ Schwanky at tj-afga@shaw.ca. It's a great chance for Albertans who care about grasslands wildlife to do something simple, direct, and satisfying.

- Carolyn Campbell

Woodland Caribou Public Meetings

Woodland caribou are amazing creatures that are in real trouble in Alberta. For 40 years, Alberta governments have stated their support for caribou recovery and done the opposite. Their actions have allowed forestry and energy industry activity to degrade severely the home ranges of this boreal icon. In October 2017, provincial caribou range plans are finally due under the 2012 federal boreal woodland caribou recovery strategy. The plans must outline how Alberta will protect and restore its overly fragmented caribou ranges to attain at least 65 percent undisturbed habitat. This is the minimum our endangered caribou need to have a chance to recover. The Alberta government has indicated it will circulate draft range plans in late October 2017 for public comment. This will be a pivot-

al moment. Will Alberta reverse decades of delays and take the vital first step to protect and recover the habitat that Alberta's woodland caribou urgently need to survive?

In late August and early September 2017, I offered presentations at three public meetings organized by northwest and west central communities to discuss Alberta caribou range plans. In the town of High Level, Mackenzie County hosted an information session, and the next evening the County of Northern Lights hosted a similar gathering in Manning. Two weeks later, the Whitecourt Chamber of Commerce sponsored a panel discussion. All events were well attended with many questions and comments from community members.

Municipal officials and citizens have many questions about caribou; they also have questions and concerns about the economic impact of range plans that will protect the habitat critically important for caribou survival. These were very important occasions for AWA to listen to people's experiences and concerns. It was also a great chance to discuss why caribou belong in Alberta. I discussed why caribou need intact older forests and peat wetlands to avoid overlap with their natural predators, how the excessive industrial disturbance of recent decades has robbed them of the habitat they have relied upon for thousands of years.

These meetings were an important chance to discuss habitat solutions that recover caribou and are fair to communities. Alberta committed in June 2016 to establish three proposed protected areas in northwest Alberta, as recommended by mediator Eric Denhoff. There is a lot of unwarranted fear about the impacts of these protected areas. AWA stressed that these areas do not overlap with existing forestry tenures and that they will honour existing energy leases. As a result, they will achieve the most protection of three northwest caribou ranges for the least socio-economic cost to the communities.



Presenting on the topics of caribou recovery and caribou range plans in Manning in late August.

AWA encouraged Mackenzie County and County of Northern Lights to pursue the UN Biosphere Reserve concept. This idea was raised as a possible course of action in their commissioned report on caribou range plans. Biosphere Reserves are ecologically sustainable communities anchored by core protected areas. Municipalities in the Waterton and Beaver Hills regions have been active partners in Alberta's two existing Biosphere Reserves. AWA also cited Hay-Zama Wildland Park as a valuable regional example of a north-west protected area where energy companies, First Nations, and conservation groups collaborated to minimize energy industry surface impacts for the duration of the operators' leases.

I also pointed out that AWA has advocated for government to support the many sustainable jobs that could promote caribou recovery. For example, extensive forest habitat restoration work is needed across and adjacent to caribou ranges. We have also pointed out that unsustainable mountain pine beetle surge clearcuts, which are now prescribed in many western Alberta forest tenures, are due to fall off steeply in a decade. While caribou persist, we strongly believe that 'now' is the right time to reform regional timber supply allocations, to retain the maximum number of local jobs and to achieve truly sustainable regional forestry that is compatible with caribou habitat

protection and recovery.

These meetings were a great chance to support local involvement in collaborative stakeholder meetings for habitat-based range plans. AWA believes that provincial government leadership is urgently needed to convene meaningful discussions among indigenous peoples, local communities, industry and conservation groups. Together we can examine the best options and chart out a plan to manage caribou habitat to meet disturbance targets; together we can ensure that caribou can recover and local, sustainable economies can thrive.

Caribou need core protected areas, extensive habitat restoration, and clustered development in order to recover. Whether our generation chooses to recover caribou or lets them die off is a choice that goes right to the soul of Alberta. In the upcoming weeks and months AWA will be working hard to ensure Albertans learn about solutions for 'healthy forests, healthy caribou and healthy communities' and that they can participate in this important choice. We invite you to check out <http://caribou4ever.ca/> where you will find links to social media as well as opportunities to send postcards and letters.

- Carolyn Campbell

Kevin Van Tighem, *Our Place: Changing The Nature Of Alberta*, (Victoria: Rocky Mountain Books, 2017)

Reviewed by Heinz Unger

A Collection of Feelings and Passion and Some Hope

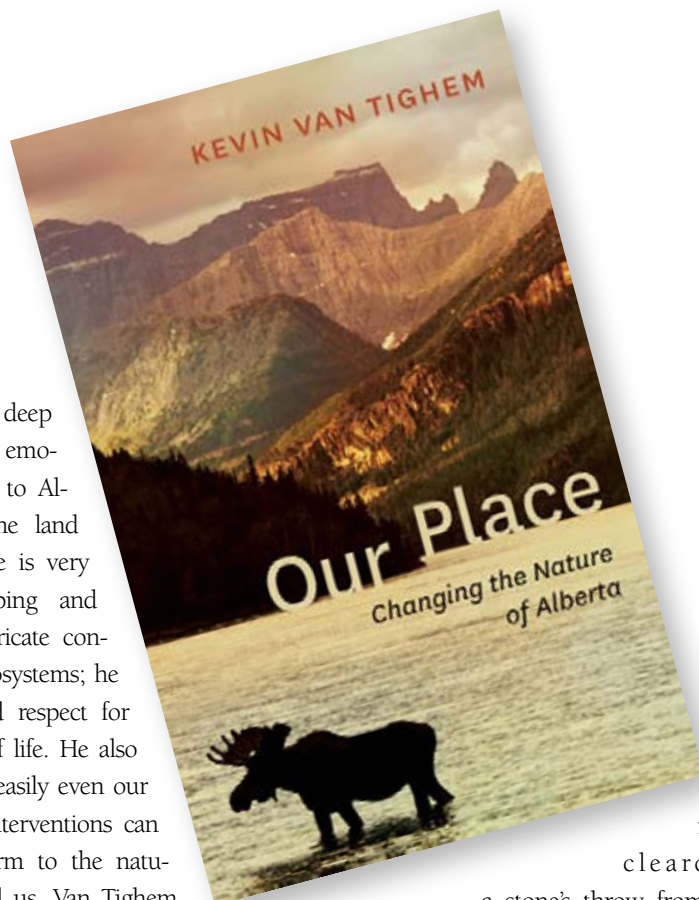
Readers of Van Tighem's regular column in *Alberta Views* will appreciate finding a large collection of his essays on nature, written over a period of about 30 years in one book. And AWA members and friends will feel pride reading several stories about AWA's determined – but not always successful – efforts to protect caribou or westslope cutthroat trout habitat, and oppose the construction of new dams. Not surprisingly, our own Vivian Pharis, Cliff Wallis, and Cheryl Bradley come through as heroes in these struggles. One feels frustrated that, despite all these efforts and the knowledge available even years ago, we're still facing the same, or worse, threats to some of Alberta's species, habitats and ecosystems. In the 1991 story *Grey Ghosts* Van Tighem quotes a prediction made in the *Wild Lands Advocate* that "Woodland Caribou may be extinct in Alberta within the lifetime of our children" and then goes on to describe how government and industry ignored the importance of protecting old growth forest as main caribou habitat. We all know that woodland caribou in Alberta are closer to that fate now than they were a generation ago.

Reading Van Tighem's beautiful, deeply felt descriptions of nature, whether in a forest, the prairie, along a stream or a wetland, or in the high mountains, one is left wondering how to develop and foster such deep knowledge, feeling and passion for all things natural in a child. How can we re-create his enthusiasm for nature developed, as it is, from a deep knowledge of natural systems and processes. Does it take a father, grandfather, uncle or friend to take a child out into the wild and show her the beauty of the living world around us the way Van Tighem experienced it as he grew up? Or, should we try to teach this love and reverence in the kindergarten and schools?

Van Tighem's deep feelings about and emotional connections to Alberta transform the land into his home. He is very skilled at describing and explaining the intricate connections in the ecosystems; he generates awe and respect for the complexities of life. He also warns about how easily even our well-intentioned interventions can do irreversible harm to the natural systems around us. Van Tighem gives some striking examples of this: the usefulness of dead leaves in rivers; the importance of flood flows for growing new poplars in the riparian fringes of the prairie rivers; how beavers are a natural alternative to dams for regulating flows and mitigating floods and droughts; and how forests clearly benefit much more from the mountain pine beetle than from industrial logging. Sadly, we often fail to see the connection between our behaviour and its effects.

Like many of his generation, Van Tighem praises the good management (for water resources) of the federal Eastern Rockies Forest Conservation Board between 1947 and 1971, and he recalls the old pioneer and stewardship values of the Stelfox and Cartwright families. In his earlier optimism, he could imagine how an intertwined natural and cultural history could have evolved towards a truly sustaining native culture. As an avid hunter and angler, the author tells how he pursues these activities with a strong sense of ethics, and how predator and prey are integral parts of the ecosystem.

A 2015 Facebook post about logging in the Ghost watershed touched me deeply. This impact wasn't just a result of talking about



new clearcuts a stone's throw from my own backyard. It came more from Van Tighem's skill in appealing to the emotional memories we have as we find ourselves "growing up orphaned from Nature." In his more recent writings such as *Santa's Pickup* (2014) Van Tighem's passion is supplemented by sarcasm, tinged with humour. What can we do we're asking, when facing *Terra Incognita* (2016), the author's most recent essay showing how we're changing the ecosystems around us without knowing where we're heading.

I would have liked to see illustrations of some kind or photographs – such as his son Brian's lovely photography that was included in the book *Heart Waters*. It might have made the messages conveyed in his excellent writing even more powerful. But, perhaps the author wants us to use our own imagination to see the places he describes, or better still, go out and experience them for ourselves.

If a man of Van Tighem's vision, knowledge, and passion cannot help to change policies and attitudes in Alberta, one wonders who or what could save this province from its mad drive to develop, exploit, cut down, tear up and destroy nature. I was

starting to feel despair that the wild nature of Alberta was doomed by all the recent changes, but then, towards the back of the book, a 1998 essay on *The Once and Future Wild* first tells the inspiring stories of some of Alberta's conservation heroes and then,

updating the essay with a footnote, Van Tighem tells of the 2015 announcement that the Castle wilderness would be fully protected. That announcement filled him with a renewed optimism that a growing conservation movement, by working to-

gether with government and industry, "can restore the wild to our native land." While we wait to see if that optimism is justified it's definitely worthwhile to make this trip with Kevin Van Tighem through Alberta's nature over recent time.

Bruce Masterman, *One Last Cast: Reflections of an Outdoor Life*, (Victoria: Rocky Mountain Books, 2017)

Reviewed by Chris Saunders

Bruce Masterman is an experienced journalist based in High River who writes on what might be called outdoor pursuits. Many readers will be familiar with his 21 years of work as a reporter and columnist at the *Calgary Herald*. He has also written many articles for magazines, notably *Outdoor Canada*. He has collected a selection of his newspaper and magazine articles as well as a number of unpublished essays into "One Last Cast." The collection offers readers Masterman's personal reflections on his lifelong experiences in the outdoors with particular focus on hunting, fishing, and observing nature.

The personal nature of the writing is the greatest strength of the book. It is why Masterman is so ardent in his pursuit of the outdoors and what he does to feed that passion. Several of the pieces include his family which adds to their interest. One particularly touching essay describes the author at 17 years of age, confused and angry at the world over his mother's prolonged death from cancer two years earlier. He knew he had to get away from his home and family. His response was to get a summer job, followed by a winter job two years later, at a remote rustic fishing lodge in northern Manitoba. Here, in return for many camp chores, he could experience living in true wilderness and was able to fish as much as he liked during the hours when he was not working. The beautifully spare description of this experience is spliced into Masterman's account of taking his 16-year old younger daughter back to the same fishing lodge 31 years later. Masterman is clearly grateful for that early experience and cites its importance in giving focus to his life.

For me, another highlight is an essay given the lovely title of "One Last Cast." It describes, in the third person, how the author introduced his elder daughter to fishing at age two and a half and follows her progress until she leaves home for university after one final fishing trip. He uses fishing as a metaphor for expressing the feelings of a parent watching his child grow into adulthood.

"A few years ago the father noticed his daughter was changing. A little girl no more, she started fishing apart from him, politely but firmly declining advice about fly selection, where to cast and just about everything else.

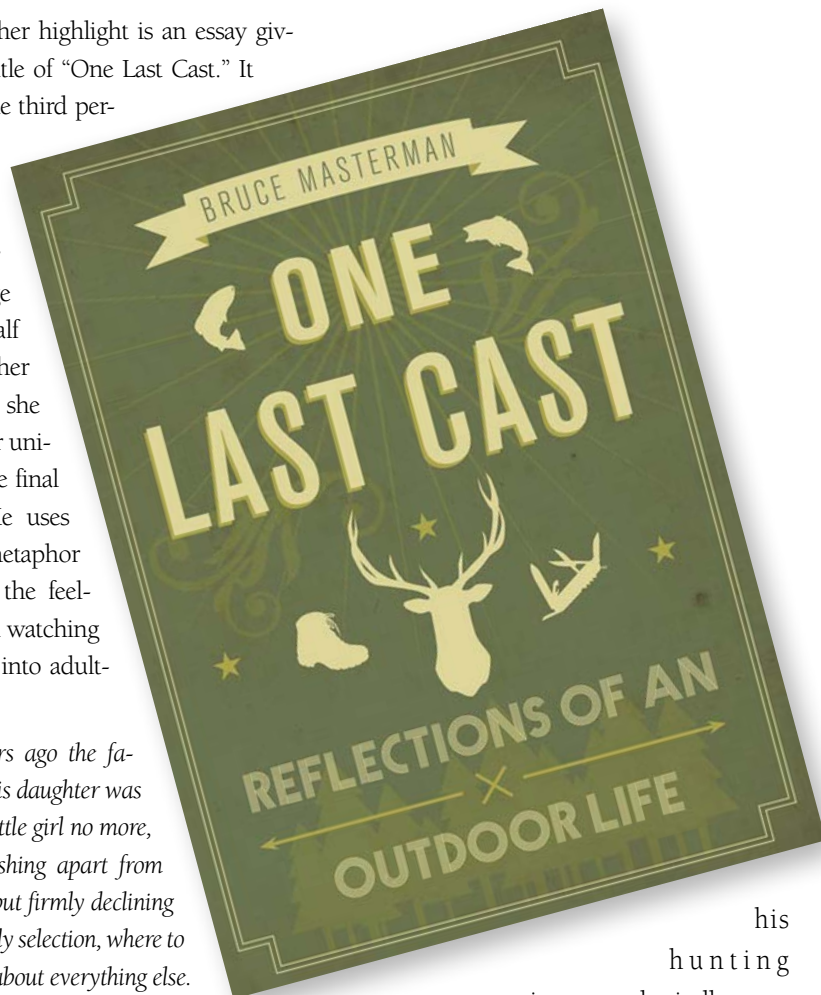
This sense of independence grew stronger in everything she did. A confident self-motivated young woman had emerged, seemingly overnight.

When darkness finally chased her off the river the night of that final outing, she insisted on driving her father home, the first time ever after a fishing trip. Silently, he wrestled with feelings of sadness, joy and pride."

There are several pieces devoted to Masterman's experiences in hunting. Without any affinity with or experience of hunting I found these stories particularly interesting. His detailed descriptions of what goes on in a hunt and the feelings of the hunter ring evocatively true to the uninitiated. He makes clear that

his hunting trips are physically very hard work and his account of the moral issues associated with wounding but not killing an animal show there is nothing easy about hunting for hunters with a conscience.

One Last Cast is a delightful book for those who like reading about wilderness and outdoor pursuits. It is very well written and compares very well with many other more famous titles on this subject from the past. I think you'll find it to be a very enjoyable read for the upcoming winter. It is also a reminder of the days when newspapers had columnists writing about the outdoors on a regular basis. Sadly, those days seem now to be gone.





Drake, 36 x 36", acrylic © D. LAROSE



Lochlan, 30 x 40", acrylic © D. LAROSE

In Memoriam

Herb Kariel, 1927-2017

Herb Kariel, our dear friend and Emeritus Board Member, passed away at 90 years of age on September 16, 2017. Herb's passion for wilderness began where he was born, along the banks of the Elbe River in his native Germany. When the family moved to Oregon in 1938, his connection with the Cascadian landscape led to a deep awareness of the human impact on the natural world. While Herb lived in the United States for many years, he resettled to Calgary and to the University of Calgary where he taught and researched as a professor of geography for 27 years. Herb's lifestyle and outspoken environmental advocacy flowed from his conviction that humans are not separate from their environment. Herb joined the Alberta Wilderness Association in 1988 and was a tireless advocate for wildlife and protected wild spaces. He mentored many of our staff and encouraged us to understand and produce maps that others could use to learn about Alberta's natural landscapes and vital ecosystems. The last few years were difficult ones for Herb. While his mind was as bright as ever he was challenged by growing physical limitations. This was especially hard for Herb given that he was once an avid mountain climber who many had a hard time to keep up with. Throughout Herb continued to work for what he knew was vital and important to the well-being of all of us. The spiritual well-being he knew from his days hiking and climbing was a passion in his heart that he never let go. Herb was named one of AWA's Wilderness Defenders in 2006. Herb's family hosted a Celebration of Life at our Cottage School on October 21st. We were very pleased to see friends come to meet Herb's family and to enjoy an afternoon remembering and celebrating a life well lived. We were honoured and so grateful that AWA was named to receive memorial tributes in lieu of floral tributes; we thank Herb's family for including us in this time of sorrow.



TREKKING ACROSS ALBERTA: FROM SASKATCHEWAN TO BC ALONG PARALLEL 49

GUS YAKI

In May-June of 2017 Gus Yaki - a life-long naturalist in his 85th year - led 39 individuals across Southern Alberta to observe the rich diversity of species that live in the area, meet local landowners and leaseholders, as well as to raise funds for conservation organizations including AWA. In this talk, Gus will show highlights from the first part of the walk, from the SK border to Writing-on-Stone Provincial Park.



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AWA COTTAGE SCHOOL
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OR CALL 403 283 2025

Dear Premier Notley,
Wild caribou belong in Alberta, not just on our quarters.



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