



# Wild Lands Advocate

BY ALBERTA WILDERNESS ASSOCIATION  
SUMMER 2024

Where the wild  
things were:  
A look back on  
privatizing  
the wild,  
and how we  
can undo it.

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## ALBERTA WILDERNESS ASSOCIATION

*Defending Wild Alberta through awareness and action*

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

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**Cover Photo:** "The face of a bison in Elk Island National Park, August 2023. It was a scorching summer afternoon as we entered the park, greeted by a bison herd. They meandered through the tall grass, their serene demeanour punctuated by deep grunts. Respecting their role in the park's ecosystem and their impressive size, we kept our distance. Overhead, vultures circled gracefully on thermals, patiently awaiting their next meal."



- Jennifer Hogan, amateur naturalist and nature photographer from Calgary, AB.

**Editorial Note:** Dear readers, this edition is all about what happened before — long before — any of us had a say in the matter, and how the consequences of those decisions are still deeply felt. Such is the case for North America's keynote species, the bison. In our lead article, Ruiping Luo, our in-house grasslands conservation specialist, writes about how bisons' presence and absence — due to colonial settlers — impacts the landscape. Other highlight articles includes Kennedy Halvorson's writeup on how the province, basing its decisions on incomplete historical data, set up an industry ill-suited for its surroundings. We have two articles on forests, one by guest writer Lorne Fitch, who explains how trees can in fact talk, if we know how to listen, and that what they can tell us can help us plan for the future. The other, by Devon Earl, gives us a primer on forestry practices which has led our province's forests to be divided and sold off en masse. Finally, Phillip Meintzer discusses how privatizing the land feels like our "normal" but it's not how it's always been, and in doing so, it leaves nature in the hands (and mercy) of the few. Keep reading for more thoughtfully researched articles along with the announcement of our photo contest winners. Thanks for picking up the magazine!

— Amy Tucker, Outreach + Communications Specialist, and Wild Lands Advocate Editor.





# The Missing Megafauna: A Story of the American Bison

BY RUIPING LUO

Bison pictured in Lamar  
Valley. Photo © C. Olson

When you imagine the Great Plains of North America, what comes to mind? Is it the rolling grasslands, endlessly stretching to the distant horizon under a clear blue sky? Is it the spring blooms, brilliant pinks and purples and reds that dot vivid green meadows? Or the calls and flutters of songbirds, the meandering herds of deer and pronghorn, foxes and ferrets tracking through fresh-fallen snow?

There's one thing that's been missing from this picture for some time, and is finally starting to return: American bison. Tens of millions of bison once roamed much of the Great Plains and beyond, shaping the grasslands and forests. To this day, the bones of these great beasts can be found scattered across the land, their wallows and hoofprints entrenched deep into the soil.

## HISTORY

American bison (*Bison bison*) or buffalo are the largest land animal in North America. Once, they ranged from above the Arctic Circle, in the current regions of Yukon and Alaska, to the warm grasslands of northern Mexico, and from the Rocky Mountains to the East Coast of the United States. These large herbivores, with bulls capable of growing to nearly 1,000 kilograms (or about 2,205 pounds), were a dominant grazer and a keystone species that changed the landscape.

In Canada, bison are classified into two distinct subspecies: wood bison (*Bison bison athabasca*) and plains bison (*Bison bison bison*). Wood bison are the larger subspecies, occupying the northern boreal forests, and can be distinguished by their taller hump and darker fur. Plains bison, found across the southern prairies, have more defined shaggy capes across their shoulders, and a stockier build. At their peak, there were an estimated 30 to 60 million plains bison across the Great Plains, and over 150,000 wood bison as late as the 1800s.

After European settlement, bison numbers declined rapidly. A combination of overhunting and targeted extermination — for the stated purpose of clearing land for settlers, and subjugating Indigenous populations — left only an estimated 1,000 bison by the 1900s. In Canada, plains bison were extirpated, except for the occasional wandering herd, in the 1880s, and only an estimated 200 wood bison remained.

In 1970, Alberta enacted the province's first *Wildlife Act*. Policy was transitioning to broader wildlife management, and though initially the *Wildlife Act* still focused on hunting and game management, it set the basis for later endangered species conservation. Bison, which were nearly extinct at the time, were considered extirpated. While wood bison in northern Alberta were officially recognized as wildlife in 2021, plains bison remain

listed as extirpated under Alberta's *Wildlife Act*.

## ECOLOGY

Bison are a keystone species. Their presence changes the landscape, creating habitat and encouraging biodiversity. For millennia, bison grazing was one of the main disturbances on grasslands and meadows. Many of the plants and animals on these lands evolved with large, migrant bison herds, and are well-adapted to the disturbance.

Bison are graminivores and prefer to feed on grasses. This helps to reduce grass density and competitiveness, so more forbs and wildflowers can grow. These forbs, in turn, provide habitat and food for many other species. For instance, many bees and other pollinators rely on wildflower blooms for nectar and pollen. Bison grazing patterns produce a patchwork of habitat, with shorter grasses in some areas, and longer grasses in others. This diversity in habitat encourages a diversity of species.

Grazing was not the only way bison shaped the land. Their behaviour also left traces on the landscape. For instance, as bison herds migrated in search of new pastures or in response to predation, their hooves dug into the earth, helping to loosen and aerate soil. Seeds, caught on hair or swallowed, were carried and trampled into the ground across great distances. Bison also aided in nutrient cycling, their droppings acting as important sources of nitrogen, phosphorous and other minerals. Many insects, such as dung beetles and flies, will use bison dung, with one pat suggested to support up to 1,000 insects, which in turn are important prey for many birds, bats, turtles, frogs and lizards.

To protect themselves from insect bites and stings, bison would lie down and roll on the ground, an action known as wallowing. Bison often use the same places to wallow, creating bare depressions in the ground where some rare or pioneer species can establish. These depressions, with their tightly packed soils, could collect and hold water, creating temporary pools after rainfall that act as habitat for invertebrates, amphibians and birds. Bison also rub against trees, shrubs and rocks, stunting woody growth and leaving behind

fur. Often, this fur will end up lining bird nests, or in ground squirrel burrows, providing warmth.

Bison are one of the few animals capable of shifting snow. Their massive shoulder and neck muscles allow them to shovel aside several tons of snow in one winter day, revealing the forage buried beneath. Other ungulates, such as deer, elk and pronghorn, benefit by following the bison tracks and taking advantage of uncovered grasses. And for some predators, such as wolves, bison are a vital food source through the frozen winter. Bison grazing, behaviour, and residue all contribute to the ecosystem and support many species in the prairies and open forest habitats.

## INDIGENOUS CULTURE

For many Indigenous nations, bison are important for more than the health of the land — they are crucial to the health of the people.

“The buffalo are at the centre of all that,” said Katira Crow Shoe, director of education with the International Buffalo Relations Institute and a member of the Kainai Nation. “Buffalo are a keystone species, at the centre of multiple ecologies, and our culture. But they are also a keystone to our wellness.”

Known as *iinnii* to the Blackfoot or *Tatâga* to the Stoney Nakoda nations, bison are revered by First Nations across North America. Before colonization, bison served as a major source for food, clothing, tools and shelter. They feature heavily in ceremonies, stories and teachings from Elders, and as a symbol.

“They empower our people,” Crow Shoe added. “The symbolism of buffalo, and their practice of facing towards the storm, and overcoming challenges head-on is a message of strength and resilience.”

The loss and return of bison had a noticeable impact on Indigenous Peoples, as individuals and as collective communities. As bison are brought back to the lands they vanished from, they are healing not only the ecosystems, but also the culture and the people on these lands. Reintroducing bison is a vital part of recovery and reconciliation, for Indigenous nations, and for all people.

## CONSERVING THE SPECIES

As bison declined across North America, some efforts were made to conserve the species. In 1877, the Council of the North-West Territories passed *An Ordinance for the Protection of Buffalo*, which imposed limits on hunting in Canada. The ordinance was passed without consulting First Nations or Métis and was widely opposed. It also proved impossible to enforce using the limited resources of the North-West Mounted Police, and soon after, the ordinance was repealed. Another attempt was made in 1883, when the *Ordinance for the Protection of Game* was passed, although it too was largely ineffective. Over the next century, regulations would develop that helped to establish wildlife sanctuaries, parks and conservation regulations, though they also interfered with Indigenous hunting and fishing rights. None of these regulations were able to stop the bison population from collapsing.

In the early 1900s, the Canadian government purchased the Pablo-Allard herd. This herd was considered the largest and finest herd of plains bison remaining in North America, containing genetically-diverse bison captured from all over the continent, and kept free from interbreeding with cattle. Over nearly five years, these wild bison were rounded up from where they had been allowed to roam freely in the Flathead Reservation of Montana, and brought first to Elk Park — later renamed Elk Island National Park — then to Buffalo National Park near Wainwright. In the 1920s, due to overpopulation, disease and management challenges, 6,000 plains bison were shipped to Wood Buffalo National Park, and Buffalo National Park closed in 1939. Luckily, healthy plains bison remained in Elk Island National Park.

Wood bison, unlike plains bison, were never entirely lost from the north of Canada, although their populations had also greatly declined. Wood Buffalo National Park was created in 1922 to protect the few remaining wood bison. This conservation effort was jeopardized by the arrival of plains bison from Buffalo National Park, which resulted in hybridization and the spread of disease, and wood bison were thought to have been lost until a small herd was discovered in the Nyarling River region

that appeared to be pure wood bison. A few individuals from this herd were brought to Elk Island National Park, eventually establishing a healthy herd. Today, Elk Island National Park's plains and wood bison have helped to re-establish bison on many lands.

## WHERE ARE BISON NOW?

Since then, bison herds have been reintroduced in several areas. In Alberta, plains bison herds now thrive in Banff National Park, Waterton Lakes National Park and on the lands of many Indigenous nations. Plains and wood bison populations persist at Elk Island National Park, and additional wood bison subpopulations can be found at Wood Buffalo National Park, Ronald Lake, Wentzel/Wabasca, Hay Zama and Etthithun. An estimated 10,000 wood bison and 2,200 plains bison currently roam Canada, according to a 2023 Statistics Canada summary, and the World Wildlife Fund (WWF) estimates a population of 20,000 plains bison across North America. Where bison have been restored, they bring benefits.

“They graze differently ... They will just keep moving around,” Michael Burak, Nature Conservancy of Canada (NCC) program director for Southwest Saskatchewan, said. “They cover huge distances in the course of a day or a week, so they don't tend to just stand in one place and just eat everything around them, they will move and graze as they go and pass over different areas within the same pasture unit multiple times in a season or in a week or a month. They just graze differently so we don't need to push them into different parts of the pasture.”

These characteristics mean that, even with minimal management, bison are unlikely to overgraze an area, and their movement helps to maintain the grassland for other species.

“It's a fairly long list of things they do on the landscape, to provide ecological services,” stated Keith Aune, who served as the bison program director at Wildlife Conservation Society (WCS) and chair of the IUCN SSC Bison Specialist Group.

Ecologically, the return of bison has been documented to improve plant, bird and ecosystem diversity, especially in tallgrass prairie, one of the most endangered habitats in the world. Through

their wallowing, grazing and other behaviour, bison also improve the water retention capabilities of the landscape, promote soil structure and encourage belowground carbon sequestration. In grasslands where bison are present, plant communities were shown to be more drought resilient, and more capable of mitigating floods.

“Bison are our best allies facing drought, climate change, food security, reconciliation,” said Marie-Eve Marchand, a member of the World Commission on Protected Areas (WCPA), International Union for Conservation of Nature (IUCN), and Species Survival Commission (SSC). “Sometimes solutions are simple, and we need to say it simply.”

Marchand has been extensively involved in returning plains bison across the Northern Great Plains, working with Indigenous communities on the Buffalo Treaty and coordinating the initiatives which triggered the return of bison to Banff National Park. She has seen how the landscape changed after bison returned, and how many species depend on and interact with bison.

And the change is not only ecological. Marchand describes a “mentality change,” in both Indigenous and non-Indigenous communities. “It speaks to the soul, as when family members are back.”

Katira Crow Shoe agreed. “The buffalo’s connection to our language, our stories, our songs, and ceremonies becomes a part of your identity,” she said. “When you have a strong identity, you are holistically stronger.” For many communities, bison also represent a highly practical necessity: food. Returning bison to the lands provides a source of nutrient-dense, healthy meat for communities, at a time when health issues across the country are increasing due in part to unhealthy diets. For many First Nations and Métis peoples, it also offers a measure of food sovereignty and control over their nutrition.

#### **CHALLENGES TO THE RETURN OF BISON**

Despite all the benefits bison can provide, there remain barriers to reintroduction. In Alberta, one unnecessary complexity is the classification of bison in the province as livestock. Wood bison’s designation as wildlife in 2021 only counts within designated wildlife management units in the

provinces’ north. Apart from a few protected regions, plains bison are generally not managed as wildlife, and are not protected. Instead, plains bison in Alberta (and Manitoba) are considered livestock.

“The confusing status of bison is hindering recovery,” Keith Aune said. “Whenever you shift from wildlife to livestock, you have certain requirements under the statutes and rules. It might mean you have to tag them, or capture and handle them every year.”

Michael Burak concurred. “If you’re managing them as livestock, there’s certain rules around tagging and identification that you have to follow.”

This creates confusion in how conservation herds are managed or handled, impedes the efficiency of protection measures and limits re-establishment of the species. It also restricts movement of the animal, a point Katira Crow Shoe was quick to make. “That is the biggest barrier, them not being classified as wildlife, and having that ability to ...freely move.”

The exclusion of free-ranging bison from the *Wildlife Act* fails to acknowledge the important role bison play in the ecosystem, and their culture and history in North America.

“When the *Wildlife Act* was established, they took it as bison didn’t exist anymore,” Marie-Eve Marchand explained, as they were nearly extirpated at the time. She continued that it is time the existence of bison was acknowledged, and their role in history honoured.

Alberta Wilderness Association believes that designating free-ranging bison as wildlife is long overdue. Earlier this year, AWA and six other environmental groups signed a joint letter to the Alberta Minister of Environment and Protected Areas and the Minister of Indigenous Affairs, requesting bison be listed as wildlife under the *Alberta Wildlife Act*. This designation is vital for effective management, conservation and recognition of bison on the Alberta landscape, and for future efforts to recover bison.

“It’s the right thing to do,” Marchand summarized, “It’s time to give the buffalo the position they should be on the land, our Western culture and our history.”

# Droughts, Dams and Destruction

BY KENNEDY HALVORSON

**I**t was controversial from the start, and a name change sought to hide it.

When the Old Man reservoir was initially proposed, it was called Three Rivers, as it sits at the confluence of three major waterways. It was well known that disrupting the natural structure and flows of the Castle, Crowsnest, and Old Man Rivers with a dam would result in severe biodiversity loss and displace local livelihoods. Other potential sites had even been identified as suitable alternatives. But the ultimate location of the Old Man Dam, and its existence in general, is owed largely to the influence of irrigation.

Today, Southern Alberta is in a water crisis. Persistent, multi-year droughts have dried up watersheds and drained reservoirs. Wildfire season has become a synonym for summer. Reduced snowpack and early spring melts are symptomatic of increasingly warm, short winters, which are insufficient to recharge water stores. Despite this reality, other pressures and threats have not lessened and water demand continues. How did we get here? And how do we find our way out?

Let's go back to the start of our troubles; it always comes back to colonialism. Enter John Palliser, a British geographer in the 19th century who characterized the prairie region as an arid desert, largely inhospitable to human settlement. Decades later, Irish settler and botanist James Macoun came to an entirely different conclusion; these lush plains were full of untapped farming potential, prime for the ploughing. A young, expansionist-minded Canadian government ran with the latter's assertion. Eager to settle the west, native grasslands were doled out one-quarter parcel at a time.

So, who got it right? Someone kinder may say both, but does history give out half-marks when the knowledge was known, but the right people weren't asked?

The long-standing histories of the Indigenous Nations populating the prairies present a pretty good argument against Palliser's judgement, as do his own accounts. His expedition diaries call the region sterile in one breath then immediately recount game species and "wild fowl in great

abundance," bison "in great numbers," and "bands of wolves" in another. These large and diverse wildlife populations would not be present if the landscape were truly barren, something well recognized by the *Íyā́hē Nakón mą́kóce* (Stoney Nakoda), *Ktunaxa ʔamakʔis* (Kootenay), *Očhéthi Šakówiŋ* (Sioux), *Néhiyaw-Askiy* (Plains Cree), *Niitsítpiis-stahkoi* (Blackfoot), *Tsuut'ina*, and other Indigenous peoples living within the region.

Later, Macoun would challenge the "valuelessness" ascribed to the prairies, providing misleading representations from the opposite end of the spectrum. Having visited in a time of above-average summer precipitation, his autobiography details land blessed with an "abounding fertility" and exceptional climate for agricultural productivity, potentially "unsurpassed in any other part of the world." He argued that the "apparent aridity" of the region was caused by a lack of tillage, and that "the first efforts of husbandry" would allow the "abundance of rain ... to penetrate the ground" and bear "excellent crops of all kinds." His observations reflect significant misunderstandings of how grassland ecosystem's function and foreshadow the critical errors that led to the infamous 1930's dustbowl.

In a push to expand and establish Canada's dominion in North America, the prairies were continually branded as the ideal place for aspiring agriculturists, despite a growing awareness of the region's frequent droughts. Ground fertilized by centuries of native grass growth was ploughed extensively by subsequent settlers. Their husbandry practices disrupted and degraded the structure of soil that had previously been fortified by the region's deep-rooted plants. Unlike the cultivated crops that would go on to replace much of the region's prairies, native grasses are acutely adapted to a climate with limited precipitation and extreme temperatures, storing much of their biomass deep underground in the form of roots where moisture and temperatures are more stable. This mechanism also allows the plants to rebound quickly from natural disturbances. Through consuming the vegetative litter and residues above ground, bison herds and fires freed up room for energy dense roots to push out new growth, starting the cycle anew. In the absence of native grasses like blue grama (*Bouteloua gracilis*), hairy wild rye (*Elymus innovatus*), and Foothills rough

fescue (*Festuca campestris*), strong winds turned soil to dust, creating an environmental and economic disaster that plagued the prairies for almost a decade.

Palliser and Macoun pegged the prairies wrong because they couldn't understand the landscape outside their colonial lens. Since time immemorial, these grasslands sustained innumerable wildlife populations (over 30 million bison alone!) and all the Indigenous peoples who depended on them. Prairie ecosystems are powerhouses. They are habitable, ecologically productive, AND water scarce; these concepts are not mutually exclusive, and the continuous failure to understand that has led to Southern Alberta's current predicament. By the time the extent of the water scarcity in the prairies was recognized (surprisingly, rain did not follow the plough), agricultural settlements were well established. And those farmers demanded water.

Cue irrigation.

### **TIME REALLY DOES FEEL LIKE A FLAT CIRCLE**

Here's a scenario: Imagine parts of Alberta, let's say the south eastern corner, are going on year three or four of drought conditions. And let's say, economically, politically, socially, environmentally, just *generally*, times are tough. They're particularly hard for farmers growing crops and ranchers raising livestock. Imagine now, there are calls for government action, calls to support producers, calls to protect agricultural livelihoods and communities. The calls are underlined with the assertion that if they'd been better prepared, invested in better water management and infrastructure, built more reservoirs, dams, and canals, built more irrigation, this whole situation could have been avoided. Now imagine it's 1890. Or 1921. 1937, 1984, 2002. It's 2024 and the grooves of this scenario are well worn, Alberta has been here before and will be here again. The outcome is almost predetermined too. Over a century of experience seemingly offers but a single solution; stop the rivers and flood the valleys.

Now we've found our way to the Old Man again. Exemplifying Alberta's response to environmental emergencies, the reservoir was forced through in the late 1980s to early 1990s following the latest multi-year drought, against the best available science and the government's internal

recommendations. High-quality cottonwood ecosystems and native trout habitat were destroyed. Those living where the three rivers converged were displaced. The Piikani lost access and use of culturally important lands beneath the reservoir's depths — to say Indigenous consultation was wholly insufficient is a laughable understatement. But no need to rehash the exact details of the sordid tale. Longtime AWA members know the story, and for those interested, Jack Glenn's *Once Upon an Oldman* and Robert Girvan's *Who Speaks for the River?* are well worth the read. The key takeaway is that the dam was supposedly the answer to making water availability more reliable for irrigation.

It may be surprising to learn that only 5.8 percent of cultivated land in the province is irrigated. Many are under the impression that all agriculture in Alberta relies on the practice, considering 45 percent of all water allocated in the province is for irrigation. The majority of irrigated hectares are concentrated within the 11 Irrigation Districts (IDs), which are located in the South Saskatchewan River Basin. This watershed has been closed to new water licences and allocations since 2007, when it was recognized that its rivers and streams had been well overallocated and instream flow needs were regularly not being met. Despite this recognition, existing allocations have not been meaningfully reduced.

In 2022, the IDs diverted 2.5 billion cubic metres out of Alberta's southern watersheds. Of this, over 1.8 billion cubic metres were used for irrigation. The irrigation infrastructure in the region is extensive; 8,000 kilometres of pipelines and canals transverse the landscape, connecting 56 reservoirs (with a total live storage capacity of 2.9 billion cubic metres) to the rivers and croplands. 236 million cubic metres, or 2.5 percent of Alberta's total annual allocated volume, was lost through evaporation and seepage from ID infrastructure alone.

One-fifth of all water available for use in the province watered less than five percent of Alberta's cultivated area. Considering water is precious, essential, and increasingly threatened, how do we justify using so much of it on such a small proportion of our agriculture? Given that irrigation increases crop yield per hectare, maybe this seemingly disproportionate input would be justified if ID's produced a large proportion of Alberta's crops



or ones that fill gaps in the province's food security. Economic justifications are less compelling; even if IDs contributed significantly to overall agricultural GDP, that would need to be balanced against the maintenance of irrigation infrastructure and the hidden costs associated with removing water from the river systems, as well as the value lost through the river basin's reduced capacity to provide ecosystems services.

Consider the downstream impacts of these massive diversions — how much do water

atmosphere, filter water, or support plants that produce oxygen, store carbon, and enrich the soil? These realities quickly complicate the cost-benefit analysis of irrigation.

### CROP PRODUCTION IN THE IRRIGATION DISTRICTS

In 2022, Alberta's largest crops by area were wheat, canola, tame hay, barley, and dry peas, of which a small proportion were located within the IDs. This is understandable as these are crop types that are productive on dryland operations. Crops found predominately on ID lands included dry beans (96 percent), sugar beets (89 percent), potatoes (85 percent), and corn for grain (100 percent) and silage (51 percent), which are all crops that require greater volumes of water than average precipitation affords in southern Alberta. The input of additional water allows irrigators to grow more than 60 different varieties of crops on their lands, compared to the 29 types that grow on dryland farms.

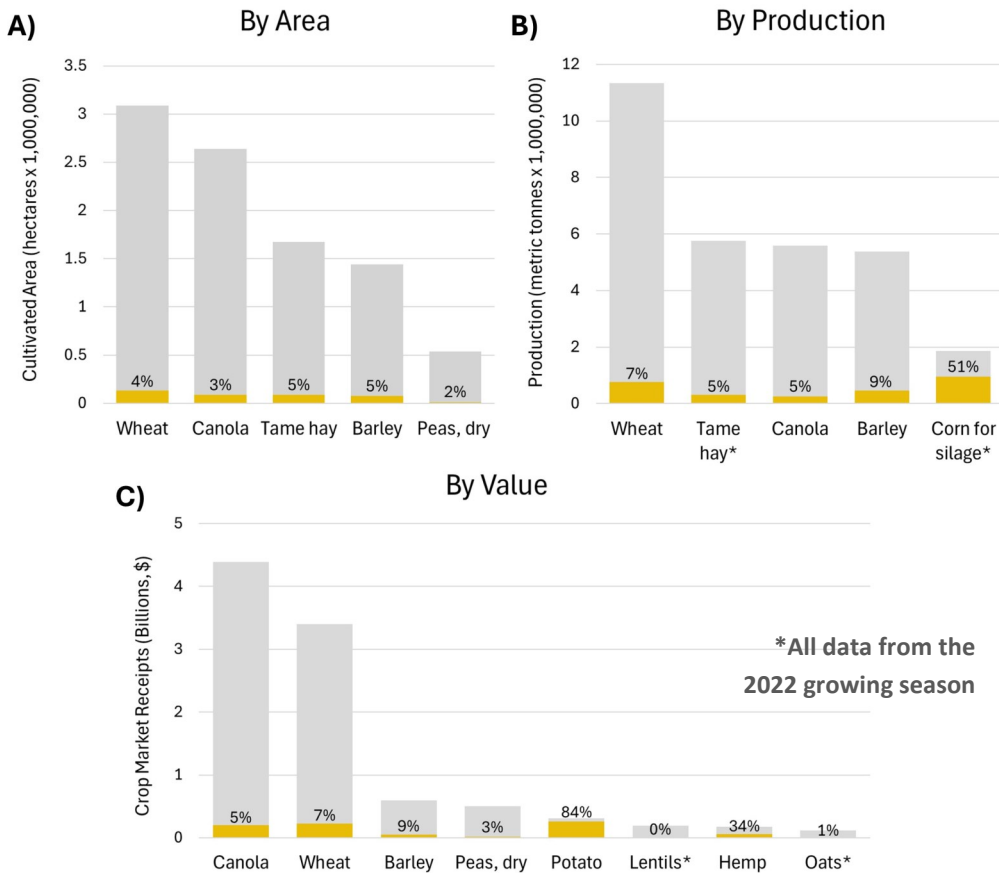
Another benefit of irrigation is increased yields, so understanding its impact on Alberta's agriculture requires a comparison of crop production totals. Of Alberta's largest crops, comparisons of IDs area and production percentages demonstrate IDs did produce more on less land, but still made up relatively small proportions of the total crop production, except for corn silage. Looking at some

treatment facility costs increase without sufficient volumes to dilute pollutants? What about the costs of fish stocking programs, which release hatchery-reared species into the watersheds to reduce angling pressures on wild fish populations, who may otherwise be robust under natural flow conditions? Or the costs of erosion control and riparian habitat restoration? What does it cost when low river volumes force communities to reroute their intake pipes or truck in water over great distances? What about the value lost when weakened river systems cannot effectively cool the

of Alberta's smaller crops, IDs contributed significantly to the province's potato yields, producing 84 percent of potatoes, or more than 1 million tonnes, as well as 87 percent of sugar beets, equivalent to almost 880,000 tonnes. They would be responsible for the same percentage of total crop market receipts, and of the crops with market receipts reported, IDs had large proportions of potatoes and hemp sales, estimated to be \$260 million and \$60 million respectively. Otherwise, dryland operations produced most of Alberta's crops and crop value, including over \$7 billion worth

### Top Crops in Alberta

■ Irrigation Districts ■ All Other Producers



\*All data from the 2022 growing season

of canola and wheat. This is the economy of scales; while irrigated cropland is technically more productive, Alberta has far more dryland operations that grow the majority of the province's crops, and well beyond what is needed to feed the province (while Alberta is a surplus producer of many crops and livestock there are some major deficiencies; the province only produces five percent of the fruits and vegetables we consume). One strategy uses a massive amount of land, while the other relies on enormous inputs of water. Neither of which are sustainable — a deep dive into the environmental issues associated with agricultural intensification will have to wait for another article — but ultimately, the most pressing issue is that there is an extremely limited amount of water in Alberta, of which a massive amount is controlled by a small sector demanding more.

### **THE OLD MAN'S LESSONS**

At the start of spring, the Old Man Reservoir sat at 30 percent of its capacity, the lowest volumes recorded since it began operating in 1992. Upstream, diminished flows carve through landscapes devoid of riparian habitat and decades of accumulated silt and sediment; evidence of bank erosion laid bare.

## **“Alberta needs to drastically reconsider how and where water is used.”**

Years of consecutive drought and over-allocating water have emptied the reserves, revealing that fatal flaw; reservoirs don't make more water. Eight more reservoirs are proposed as the solution; proponents insist if we could just store more water, use every last drop, drought would not be an issue. But considering the amount of storage capacity already dedicated to irrigation, how much more can the industry need? And if more reservoirs and dams were the solution, why haven't existing ones been enough? The ID's excessive demand and use of water jeopardizes entire river basins for the production of cash crops, while their endless push for expansion threatens to gobble up the few tracts of native grasslands that remain.

The unfortunate reality is that we are living well beyond our ecological means. Farming water-intensive crops in the arid prairies should be

recognized as an inappropriate land- use for the region — Palliser was right about that. The amount of water removed from these rivers is not sustainable. To continue to do so is to our own detriment, and what's most frustrating is that we were well-warned. Alberta's foremost water experts, the late Dr. David Schindler and Dr. Bill Donahue outlined Alberta's impending water crisis back in 2006, noting that:

“The cumulative effects of climate warming, drought, and human activity have seldom, if ever, been considered by land managers and policy makers. There is little integrated catchment planning in the Western Prairie Provinces, and science is poorly represented in the planning process. Generally, decisions to expand cities, clear forested land, fill in wetlands, place and construct feedlots, approve major industrial projects and expansions, apply fertilizer, apportion water supplies, and expand cottage developments are made on a project-specific basis... Ecological instream flow needs and lake levels are often ignored or underestimated... As problems arise, reactionary solutions are derived piecemeal, usually by different departments and levels of government, and too late for easy, inexpensive, or timely remediation.”

If we want to continue to have the climate resilience and ecosystem services healthy river basins afford, Alberta needs to drastically reconsider how and where water is used. Integrated watershed management that prioritizes the environment first is integral. While Schindler and Donahue's warning wasn't taken seriously back then, there is still the opportunity to use their advice now. Watershed integrity must be rapidly repaired and protected through the restoration and conservation of headwater forests, wetlands, and riparian areas. Limiting the rate of glacial wastage and snowpack disappearance requires Alberta to seriously reduce greenhouse gas emissions, of which oil and gas is by far the largest contributor. Agricultural activities that require substantial water volumes, like irrigation expansion, should not be pursued, particularly during times of water scarcity.

Most of all, we need to learn from past mistakes and right old wrongs. The Old Man Dam should be evidence enough; Alberta cannot keep bending the environment to its own will, or it will break.

# How Privatization Enables Environmental Harm

BY PHILLIP MEINTZER

**H**uman society in the twenty-first century faces a growing number of worsening and interconnected environmental crises. All require urgent, collective action to maintain the health and function of the ecosystems we depend on for our own survival. These crises are numerous and interconnected, from climate change and biodiversity loss to ocean acidification, mass deforestation, and the disruption of nutrient cycles. But where do these crises come from? The answer can be found in our history.

We are often too quick to place the blame for worsening planetary conditions solely at the feet of specific bad actors such as politicians, political parties, corporations, and CEOs who have been corrupted by greed and self-interest. And while I acknowledge that bad actors certainly do exist, and that corruption is likely a factor, I feel that by focusing too heavily on individual failings, we risk misdirecting our attention away from the systems which allow these bad actors to have such an outsized impact on our environment in the first place.

Trust me, as someone who works on these issues daily, I understand the allure of blaming oil sands companies for the ongoing destruction of northern Alberta, or coal mining companies for polluting our headwaters along the Eastern Slopes. However, I also recognize that certain conditions need to be in place before these harms become a realistic possibility. To understand those conditions, we need to interrogate why individuals and companies have been given permission to “own” and exploit the natural resources that we rely on to meet our needs.

As a broad generalization, many of our environmental issues have their roots in Europe beginning in the 1600s and are a product of private property law, the enclosure of the commons, and settler colonialism which exported this suite of ideologies across the globe. These historical developments took place concurrently between 1600 to 1900 and we are still living through their very real impacts today.

Enclosure was the process by which public (or common) land was divided up, enclosed, and privatized to increase productivity, particularly in agriculture. Enclosure is often associated with Great Britain starting in the 1600s when thousands of enclosure acts were passed in parliament over 300 years, privatizing nearly 30,000 square kilometres of previously common land. Prior to enclosure, commoners were permitted to use common land for pasture, fishing, fuel,

mineral extraction, and to take wood for household uses. Enclosure changed everything. It meant that commoners were denied access to the resources they had previously relied upon to meet their needs (e.g., food, shelter, heat etc.). At the same time, enclosure gave exclusive domain over those same resources to a newly created class of landowners. Enclosure resulted in an exclusionary power imbalance between two groups, the haves (i.e., owners of property), and the have-nots (i.e., the landless class).

Although enclosure was meant to increase agricultural efficiency, it had the unintended consequence of kickstarting the economic system that we now refer to as capitalism. By privatizing land (and the resources produced from that land), it meant that certain individuals (i.e., land or property owners) could now restrict access to those resources and demand compensation for them in return. That meant commoners no longer had access to the resources they needed to survive, and people had to accept jobs provided by the landowner class in return for a wage so that they could afford to purchase necessities.

This process of dispossessing and excluding people from land or resources which were formerly held in common is also known as proletarianization. It can be a violent process that often leads to the destruction of traditional livelihoods and cultural practices because it severs the connection between communities and the environment that sustains us.

Human communities have always worked with the land to meet our needs throughout our history, but enclosure turned our natural resources into commodities that are meant only to be bought and sold on the market. Treating nature as property can only lead to inequitable outcomes because not everyone can afford property. Just as landlords can exploit tenants today via rent; they own the house, so they get to do with it as they please. Some people benefit, while others, including nature, are exploited.

As enclosure was underway in Great Britain it was simultaneously exported and imposed on Indigenous cultures around the world by European colonizers, including here on Turtle Island (commonly referred to as North America). The process of European settlement in the so-called “New World” occurred through the genocide, dispossession, and displacement of Indigenous Peoples across Turtle Island. The imposition of colonial laws and ideas of private property — now upheld by the settler-state of Canada — created the conditions for capitalism to flourish as land was carved up and privatized at the expense of Indigenous lives and their traditions.

British archaeologist David Wengrow and the late

American anthropologist David Graeber, in their 2021 book *The Dawn of Everything: A New History of Humanity*, describe the colonial process of dispossession as follows: “Colonial appropriation of Indigenous lands often began with some blanket assertion that foraging peoples really were living in a State of Nature — which meant that they were deemed to be part of the land but had no legal claims to own it. The entire basis for dispossession, in turn, was premised on the idea that the current inhabitants of those lands weren't really working ... James Tully, an authority on Indigenous rights, spells out the historical implications: land used for hunting and gathering was considered vacant...”

The destructive force of colonization allowed for a massive accumulation of wealth, property, and resources in the hands

of the European nation states and their businesses, like the

## **“Colonial governments continue to allow private companies to profit from the destruction of Alberta’s ecosystems.”**

Hudson’s Bay Company in British-controlled North America. As traditional livelihoods were disrupted, Indigenous communities were forced to increasingly rely on settler institutions for work so that they could earn money to meet their needs (via the purchase of commodities). This is a similar process to what happened in Great Britain following the enclosure of the commons.

We still see remnants of this system today where the harmful impacts of industrial development — such as the oilsands — have pushed many Indigenous Peoples to rely on extractive industry jobs because there are few other options available. Some people even consider these companies to be benevolent for providing jobs without recognizing that we are only reliant on industry jobs because colonization has already destroyed other possible ways of living.

In the 2017 publication *Whose Land Is It Anyway? A Manual for Decolonization*, Mohawk philosopher Taiaiake Alfred from Kahnawake writes, “The essential harm of colonization is that the living relationship between our people and our land has been severed. By fraud, abuse, violence and sheer force of numbers, white society has forced us into the situation of being refugees and trespassers in our own homelands and we are prevented from maintaining the physical, spiritual and cultural relationships necessary for our continuation as nations.”

As you can hopefully see by now, enclosure allows a small group of people to exploit both the land (i.e., natural resources) and human labour for private gain. Contemporary capitalist society is enclosure taken to its logical conclusion, with property rights granted to corporations for almost any natural resource you can imagine (e.g., land, water, trees, fossil fuels, minerals etc.). As a result, productivity and profit growth have become the primary goal of human society rather than satisfying human needs sustainably or equitably.

In Alberta, we can still see enclosure at work today as the Government of Alberta continues to sell off our publicly held land and resources for private gain. Under Alberta’s *Forests Act*, forest tenures give the right to harvest “Crown” timber to private companies. In southern Alberta, corporate entities known as irrigation districts own licences for nearly 70 percent of all the water allocated in the South Saskatchewan River Basin. The McClelland Lake Wetland Complex in northeast Alberta was off limits to oilsands mining in 1996, but lobbying led to the sale of leases for bitumen reserves beneath McClelland to an American company in 1998, despite the existing protections. Privatization has played a key role in all the environmental crises we currently face from deforestation (via forest tenures), drought (via water licences), and global warming (via fossil fuel leases). These are just a few examples of how colonial governments continue to allow private companies to profit from the destruction of Alberta’s ecosystems, while the rest of us suffer the consequences.

As I mentioned before this isn’t just a case of greedy businessmen. Our ancestors may not have considered the long-term consequences of enclosure, but by permitting the private ownership of natural resources they created an exclusionary system that allows certain groups to profit at the expense of others including the nonhuman world. As a result of enclosure, profit growth is now the dominant driver of human activities. The pursuit of wealth leads to a forest valued for profit as timber, rather than as an ecosystem of living organisms that sustains us.

Putting profits first prevents us from recognizing that our ecosystems have real limits that we need to adhere to if we want to have a sustainable future. If we are going to begin addressing these environmental crises, we will need to restore the commons and work towards repairing damage that enclosure has caused. Only by restoring the commons can we begin thinking about how to meet our needs sustainably and equitably, rather than being at the mercy of private interests and the ceaseless pursuit of profits. Our future depends on the commons!



# Of Tree Rings and Tea Leaves: What the Trees Have Told Us

BY LORNE FITCH

An old Douglas Fir shows its deep roots. Photo © N. Douglas

**T**owering above a windswept ridge in the Porcupine Hills of southern Alberta is an ancient, gnarled Douglas fir. Its circumference is measured with multiple tree huggers. A lightning scar runs down the thick trunk to protruding roots, some bigger than your thigh. Some of its branches are larger than the trunks of lodgepole pine trees further down the slope.

If you think the tree has been there forever, you are mostly right.

It might not be common knowledge in today's world, but these old trees can talk. In each layer of their trunk, they hold ancient wisdom acquired with centuries of life experience. Dr. David Sauchyn has been tuning in.

David, who is the director of the Prairie Adaptation Research Collaborative at the University of Regina, alongside his colleagues and students, has scoured the ridges of southwestern Alberta for the past couple of decades looking for these old trees to see what's inside.

A tree grows in diameter with cell divisions in the cambium layer of the bark. Annual growth increments show up as concentric rings, with the earliest at the centre of the trunk and the newest additions just under the bark. A cross-sectional profile of a tree shows not just its age, but how it prospered and faltered during its life.

Using specialized tools known as increment borers, David's team extracted sections of wood from the trunks. The tools allow researchers to count and assess the growth rings in the core sample. Use of the tool is heavy work. Augering through a metre or more of tree trunk and hitting the centre is a job for patient people. Slowly, the team uncovered pieces of history, as told by the trees. The

older the tree, the longer the snapshot in time.

What the growth rings from many old trees provide, is a very large, long snapshot of time. The growth increments are a measure of the year they were laid down, especially what moisture was available. Mark Twain famously said, "Climate is what we expect, weather is what we get." A tree ring is a measure of the conditions for that year while the growth increments over time tell us about climate and how it changed.

Using the growth ring data from 196 trees of two long-lived species, limber pine and Douglas fir, researchers from the University of Regina have been able to extrapolate the changing conditions of moisture and construct 900 years of streamflow information. The practice — known as dendrohydrology — can help predict future conditions and how to prepare for climate extremes, like drought and flood, perhaps occurring simultaneously.

## READING BETWEEN THE RINGS

There are many nuggets in the dozens of research reports on what old trees told us. Although couched in the turgid language of research, interpretation of the science should make us pause and reflect.

Foremost is the reminder we live in a land of recurring drought, which introduces substantial risk. This is immediately so for the South Saskatchewan River Basin, one of Canada's most threatened watersheds, with water supplies in most subbasins overallocated.

Results from David's team indicate that the drought characteristics over the past millennium have differed substantially from those over the past century. The infamous drought of the 1930s looks like a minor wet

period in comparison to the recurring drought of the 1500s.

Yet, we're planning our future endeavours in Alberta based on limited information. It's as fraught with risk as our recent history. John Palliser's expedition in the mid-1850s found the prairies were very dry, leading to the slightly ill-defined "Palliser's Triangle" and the sense this was a landscape not suitable for settlement. Less than two decades later, John Macoun reported on abundant moisture conditions and championed the farming capability of the prairies, leading to the settlement patterns of today.

Each had seen only one part of the climate elephant. For the federal government and the Canadian Pacific Railway Palliser's observations were viewed as an aberration and ignored. Generations of farmers would subsequently live with the enduring frustration of recurring drought.

Using historical data from the last 100 years alone to define how to respond to drought could seriously underestimate its potential severity. We could be led down a path of building more storage reservoirs, without enough water to fill them. The results from analyzing tree rings indicate that the severity and duration of hydrological droughts with the same recurrence interval is substantially larger and longer than those observed in 100 years of settler historical records.

An octogenarian human would be viewed by an ancient tree as a stripling, without enough experience to warrant any attention. In that vein, researchers commented that "it is irrational to assume stationary climate in determining the frequency of severe droughts." This is where the paleo record provides such valuable insights. Rapid population growth, economic development (especially irrigation agriculture and food processing) and climate change have exposed this region to increasing vulnerability to drought. This is especially so since longer periods of low flows have occurred in our paleo-past than have been recorded in historical records.

### **AN OLD TREE'S ADVICE**

Diminishing streamflow from the Eastern Slopes, coupled with drought risk and high demand for surface water means there will not be enough to sustain our expectations for economic growth. Given those expectations, we are set to sacrifice aquatic health, riparian areas and biodiversity.

Old trees have given us a gift of insight into climate and extreme variability, especially on the drought side. It's a cautionary tale about our future. Those ancient ones survived and might help us recognize the limits applied to



The trunk of a Douglas Fir in Alberta's Porcupine Hills is measured in June 2006.  
Photo © C. Olson



a landscape of variable precipitation. “Adapt,” they might say, if we could listen, “and don’t think tomorrow is just a continuation of today.”

Without looking back, way back, we can be fooled badly, lulled into complacency about the future. A rancher friend, with tongue in cheek, reminded me, “It always rains right after a drought.” Some actually cling to that, but hope isn’t a strategy, it’s a capitulation to inaction and sometimes the wrong actions in the face of evidence.

The story of old trees gives us better goal posts than hope does. We have additional issues to confront. A pervasive one is the rate that our actions, especially the liberation of greenhouse gases from the burning of fossil fuels, is exacerbating change in the climate.

Do we have the tenacity to weather years of drought combined with wicked storms and floods, all driven by climate change? Can we afford the insurance premiums for crops and our property in the face of drought, flood and wildfire? Will banks continue to provide operating loans? Can we continue to push the envelope for irrigation, for urban expansion, for other water-thirsty economic endeavours and for logging the headwaters’ source of our water?

All these encroach on and exceed ecological lines in the sand. Viewing tomorrow as just across another line in the sand doesn’t strike me as a survival strategy. It seems self-destructive.

Old trees have imparted some wisdom, some reflection, maybe some advice to consider about our future. We should listen, reflect on the tea leaves provided and reconcile that we can, we must do better and be smarter to prepare for the changes our climate will deliver.

Clinging to ridges with roots deep into cracks and crevices in the bedrock, ancient trees are the personification of patience and persistence. Their survival adaptations have been ones of hunkering down, not competing for scarce resources, enduring the bad times, when water was mostly unavailable and not expanding much when conditions were favourable. It would have been uncharacteristic of old trees to push down hard on the accelerator of growth at their own expense. Old trees recognized limits and lived within them. That strategy has allowed them to survive for centuries.



*Lorne Fitch is a professional biologist, a retired Fish and Wildlife biologist and a past adjunct professor with the University of Calgary.*



# What's in the Water?

BY RADHIKA THEKKE KURUVATH

The beautiful Sheep River Falls in Kananaskis Country, Alberta, taken in September 2023 . Photo © J. Early



**M**any of you have heard about PFAS (Perfluoroalkyl substances), man-made chemicals that are considered hazardous to people, especially at higher exposure levels. Perfluorooctanoic acid (PFOA), a major member of the PFAS family, is considered carcinogenic by the International Agency for Research on Cancer at high levels of exposure, but non-cancerous at lower levels.

Alberta's drinking water is not free of these. While there don't seem to be high levels in our waterways now, very little research has been conducted in Alberta's watersheds to measure PFAS concentrations.

### **EXPOSURE PATHWAYS**

PFAS are present in a wide variety of environments globally including soil, air, drinking water, rivers, lakes, wastewater effluents, and groundwater. Alberta is no exception. These chemicals are highly persistent and can bioaccumulate which makes them more harmful. Their water- and oil-repelling properties make them useful in manufacturing non-stick cookware, raincoats, food packaging, industrial surfactants, aqueous fire-fighting foams, drilling fluids and more, according to research by Bolan et.al, 2007. In other words, they are abundant in our society.

These chemicals not only affect the immediate area of exposure but also can be carried longer distances through surface runoff, into rivers, lakes, and the sea. Their percolation and infiltration into subsoil can reach the water table and affect groundwater. Chemicals that belong to the family of PFAS are capable of long-range transport as they are not susceptible to environmental degradation, affecting soil, water, and air along their route (Benott and Christine, 2022). PFOAs with longer carbon chains tend to bioaccumulate more and have a greater toxicity effect.

### **IMPACT ON HUMAN HEALTH AND AQUATIC SPECIES**

The spectrum of carcinogenicity is a factor when considering the maximum allowable concentration in drinking water. The type of PFAS also impacts permitted concentrations; for example, the maximum allowable concentration of Perfluorooctanoic acid (according to the federal government's

standard) is 200 ng/L while Perfluorooctane sulfonate (PFOS) is 600 ng/L (Health Canada, 2018).

Humans often detected with high levels of PFAS are those working with PFAS manufacturing facilities and firefighters. Notably high levels of PFAS in the blood and serum of these people have been confirmed by human bio-monitoring studies. The short carbon chain PFAS are often excreted through urine while the long carbon chain PFAS show a steady state concentration in the human body, according to Health Canada. PFAS present in breastfeeding mothers can be transferred through milk to infants, which may lead to decreased immunity in infants. A study conducted by Michelle et al., 2010 on 252 pregnant women in Edmonton found that 91 percent of the samples were above the detection limit. In addition to cancer, PFAS may negatively affect the liver, kidney, central nervous system, thyroid, and reproductive system.

Recent studies by Wenqian et al. (2023) show the bioaccumulation of these substances in marine algae affects their photosynthesis and ultimately their growth. These algae play a major role in the marine food web and can affect species in higher trophic levels. Biomagnification is also noticed as these chemicals tend to be present more in the species higher up in the food chain. The growth and reproduction of aquatic invertebrates are also affected by PFAS exposure, according to Health Canada. Moreover, the water solubility of PFAS depends on the length of the carbon chain which in turn affects its accumulation rate in the species.

### **PFAS IN ALBERTA**

PFOA and PFOS are major groups that belong to the family of PFAS. Elevated concentrations of PFOS are found downstream near airports due to the greater usage of aqueous film-forming foams (AFFFs). Several Albertan airports and military bases were confirmed or suspected to have PFAS contamination present, according to the Canadian Environmental Law Association, 2023. Confirmed sites include the airports in Fort McMurray and Calgary along with the military bases of 4 Wing Cold Lake (site-wide), Wainwright (site-wide) and CFB Edmonton (site-wide). The Edmonton Airport, meantime, is suspected to have PFAS.

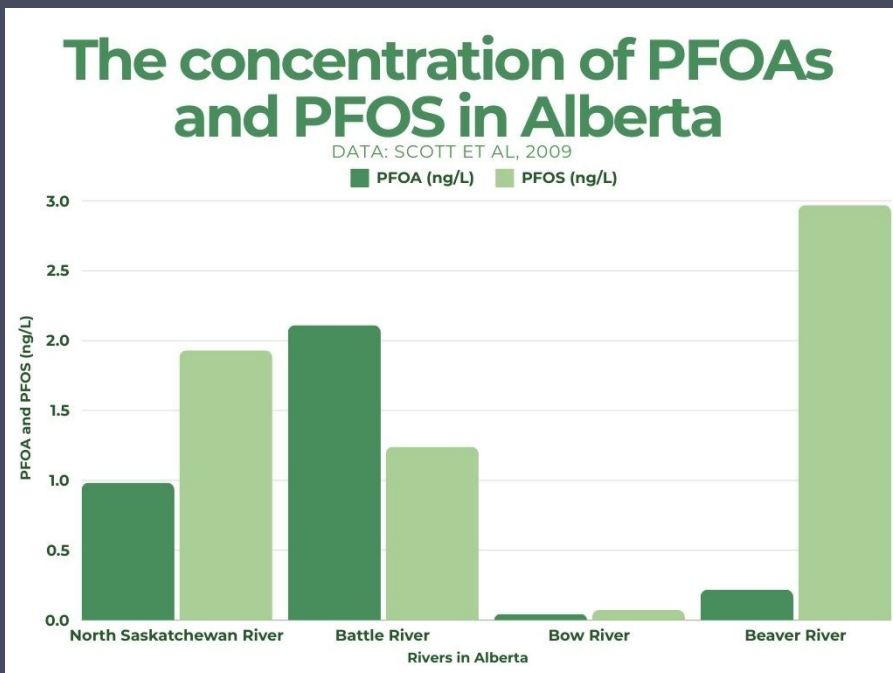
In one study by Brian Scott et al., published in 2009 in the *Water Quality Research Journal*, the

concentration of PFAS in the upstream portion of the North Saskatchewan River was less than in the downstream portion. Among these, the samples from Wascana Creek, Saskatchewan, which at the time received wastewater treatment effluent from Regina, had the highest PFOS concentration. PFOA was detected in effluent wastewater treatment facilities at concentrations ranging from 0.007 to 0.055 µg/L in Canada, according to 2012 federal government data.

While the levels of PFOA and PFOS in these Albertan rivers were below the maximum acceptable concentration in 2009, continued monitoring is required to avoid negative consequences from high concentrations. Moreover, PFAS are not regularly monitored at drinking water treatment plants in Alberta and changes in concentrations may have occurred since 2009.

### PFAS REGULATION IN ALBERTA

PFAS are included in a class of Toxic Substances under the *Canadian Environmental Protection Act* (1999). This legislation is meant to control the manufacturing, research and development, transport and disposal of these substances, as well as to minimize their use in firefighting foams. Soil and groundwater quality guidelines were released by Health Canada in 2019. The guidelines set the maximum allowable concentrations of PFOA in drinking water at 0.0002mg/L, for PFOS it is 0.0006mg/L. Alberta also released *Tier 1 Soil and Groundwater Remediation Guidelines* on how to remediate the site contaminated with these chemicals.



In May 2023, the *Draft State of Per- and Polyfluoroalkyl Substances (PFAS) Report* was released by Health Canada where they are planning to include the PFAS as a class rather than as individual substances. The report gives the sources, fate, and potential impacts of PFAS on the environment and human health to inform decision-making on PFAS in Canada. Federal regulations on PFAS as a class are yet to come. Alberta issued soil guidelines in January 2023 for PFOS and groundwater guidelines for PFOS and PFOA.

Above all, these deleterious chemicals need to be regularly monitored and removed (not done by conventional water treatment plants) from the water to avoid negative impacts on ecosystems and human health.

*Radhika Thekke Kuruvath was an intern with Alberta Wilderness Association in April 2024. She recently completed a diploma in Environmental Technology from SAIT's School of Energy. She also has a master's degree in Geology from the Cochin University of Science and Technology in Kerala, India.*



A moose swims in the Castle area of Alberta . Photo © N. Douglas

# Forestry in Alberta: Then and Now

BY DEVON EARL

When folks hear about the logging plans slated for Alberta's Eastern Slopes in the coming years, they often raise an eyebrow. "How is that even allowed? Aren't there any rules for logging?" they ask me. It's a fair question, especially considering that logging companies are eyeing up forests near popular trails and critical habitat for at-risk species. Unfortunately, these occurrences are not anomalies but rather the norm. To understand why forestry seems to operate without regard for the public or the environment, let's take a look back at the history of the industry in Alberta.

When delving into the history of forestry, we can't overlook the Indigenous communities who cared for Alberta's wilderness long before colonial interests took hold. For millennia, Alberta's expansive forests were not just resources, but lifelines — providing food, medicine, wisdom, and opportunities for spiritual connection. As you may already know, Indigenous peoples have a rich tradition of using controlled fires to manage forests and nurture wildlife habitats. However, the arrival of European settlers ushered in a stark shift in perspective, viewing trees merely as fuel, lumber, or even pests.

## THE BEGINNINGS OF FORESTRY IN ALBERTA

In the early 1800s, timber was primarily reserved for Britain's Royal Navy, but modifications in 1826 allowed for the public sale of lumber deemed unsuitable for shipbuilding. In 1846, new legislation set the framework for the model of forestry that still prevails today, where harvesting rights are leased out to companies while the lands remain public. Settlers in Alberta built the first commercial sawmills around 1880, and the construction of railways in the following years bolstered Alberta's nascent forestry industry. When the railway came to Calgary in 1883, there was a high demand for timber from the Eastern Slopes to be used as building materials. Timber was floated down rivers to be processed by sawmills in Calgary and Lethbridge. However, the arrival of railways also ignited many forest fires, prompting concerns about timber

preservation and forest conservation.

The concept of forest reserves emerged in part from these concerns, including the establishment of the Rocky Mountain Forest Reserve, which aimed to preserve timber and protect water by preserving forests in the upper headwaters of the Eastern Slopes. Established in 1910, the Rocky Mountain Forest Reserve recognized that these landscapes supplied water to the river systems upon which settlement and development relied, highlighting the need for thoughtful and responsible management. Since then, protected areas and other forms of land-use management have been established in these areas, with differing levels of protection, industrial development, and acknowledgement of the importance of headwaters forests.

Shortly after Canadian provinces gained control over natural resources in 1930, the Alberta Forest Service was established. The *Alberta Forests Act* was written in 1949, and still governs forestry today, though with amendments. The key feature of the *Forests Act* is that it required forestry to operate under a "sustained yield" model. Although the wording has since been modified slightly, the *Forests Act* gave rights to the responsible minister to enter into a forest management agreement (FMA) "to enable that person to enter on forest land for the purpose of establishing, growing and harvesting timber in a manner designed to provide a perpetual sustained yield." In a nutshell, this meant that the rate of forest harvest should be sustainable in the sense that timber harvesting should be able to continue at the same rate in perpetuity. This required reforestation of harvested areas, but it did not require forest harvesting to be sustainable in the sense that the forests would continue to provide ecological services (such as watershed integrity, carbon storage, biodiversity etc.) in perpetuity.

There are several avenues for forestry companies to acquire tenure on public lands, including timber quotas, timber permits, and forest management agreements (FMAs). FMAs are long-term, area-based tenure systems. The agreements last for 20 years before they are up for renewal, and give the FMA-holder the rights to establish, grow, and harvest a specified volume of timber in their area per year. The FMA-holder is also responsible for forest management planning in their FMA area.

Cut lumber photographed during a tour of the AI-Pac mill in 2017. Photo © C. Campbell



There is no public input required in the allocation of FMAs.

The inaugural FMA in Alberta was awarded to North Western Pulp and Power Ltd. in 1954. The company would build a pulp mill in Hinton, and gain a large tenure area in west-central Alberta, northeast of Jasper and east of what is now Willmore Wilderness Park. In the following decades, the solid wood sector would also expand, largely through the quota system rather than FMAs. It was only after the second FMA was signed in 1968 (by Proctor and Gamble Cellulose Limited, to build a kraft pulp mill in Grande Prairie) that environmental concerns with the forestry industry gained prominence.

In 1971, an environmental group called STOP took photographs in North Western Pulp and Power's forest management area, which they published to show the lack of forest regeneration and the ecological destruction after harvesting. This prompted the government to hire a consultant to evaluate and report on the environmental impacts of forestry in Alberta. Their 1973 report kicked off the process that resulted in the 1977 *Policy for Resource Management of the Eastern Slopes* (hereafter the Eastern Slopes policy). The Eastern Slopes policy established zones with differing industrial and recreational land uses allowed to address competing land uses and protect watersheds. In recent decades, the management priority of watershed integrity in the Eastern Slopes has arguably been superseded to ensure a sustained supply of timber for the forestry industry.

## FINANCIAL AND ENVIRONMENTAL FAILURES IN THE BOREAL

An astounding expansion of forestry in Alberta was realized in the 1980s under Premier Don Getty. Due to crashing oil prices in 1986, and higher-than-normal unemployment rates, the government acted aggressively on a plan to diversify Alberta's economy. This was a worthy goal, but came with many economic failures, and was at the expense of Alberta's boreal forests.

Aspen, which accounted for a large proportion of boreal forest trees, was viewed as a weed until North American and Japanese pulp companies learned that aspen could actually produce more pulp than the hardwood species that had traditionally been used (and that were running out in many areas). The provincial government led a program to convince Japanese, American, and Canadian companies to invest in pulp mills in Alberta, and ended up handing out over \$1 billion in assistance and loan guarantees over 18-months. This enabled Alberta to lease 221,000 km<sup>2</sup> of public forests — nearly one-third of the land area in the province — to several companies from 1987 to 1988. Over two years, seven new pulp mill projects were announced. The requirement for public input on forestry projects was waived by the forestry minister of the time to encourage investment.

In addition, timber royalties were set extremely low to be competitive, which resulted in practically giving away public forests for free. Timber royalties are a price the company pays to the government to harvest trees that belong to the public. In 1989, Alberta's timber royalties were said to be nearly the



lowest of any jurisdiction in North America. When timber prices were low, the royalties may not have even been high enough to cover the costs of managing the agreements. This had been a concern before the expansion of forestry in the 1980s. As early as 1973, a government forest economist noted that the revenues that were being generated from the first two existing FMAs were much too low.

Some of the loans given out by the government in the 1980s turned out to be poor investments. One loan was awarded to Millar Western Pulp Ltd. in 1987 to help them construct a pulp mill in Whitecourt. In the decade that followed, none of the \$120 million loan was repaid, and the government ended up writing off \$272 million in exchange for a payment of \$27.8 million. The Alberta Pacific Forest Industries (Al-Pac) pulp mill loan in 1991 was a similar failure. The three companies behind the project argued that they were unable to make interest payments on the loans they received, and in 1997 the government wrote off the \$155 million owed in interest payments in exchange for the return of their initial loan investment.

Al-Pac's pulp mill was extremely controversial from an environmental and public participation perspective. The proposed pulp mill would be built near the farming community of Prosperity, about a two-hour drive north of Edmonton, and would displace several families living there. Al-Pac's FMA came with a large tenure in northeastern Alberta, spanning north of Lac La Biche to Wood Buffalo National Park and east of Highway 88 to the

Saskatchewan border. Al-Pac's FMA area is the largest in the province.

Pulp mills have a reputation for polluting the air and causing adverse health impacts to community members and mill workers, such as respiratory illness. Regardless, people living in Prosperity were not consulted on the mill proposal. When a farmer living in Prosperity raised the question of possible long-term impacts of the mill and the forestry operations on the community, Premier Don Getty responded that he had "no time for complainers." The bleached kraft mill would release 900 litres of wastewater into the Athabasca river per second, chock full of harmful dioxins and furans. The test used by the company to determine whether their effluent would impact fish was to put fish in the wastewater and check if they were still alive four days later. Eighty percent of them lived, which apparently was good enough. Although many Indigenous communities rely on the Athabasca river for their livelihoods, they were nevertheless left out of plans for development of the mill.

The Al-Pac mill generated an unprecedented level of public opposition from residents of the area, Indigenous communities, academics, and people who were frightened by the rate at which forestry projects were moving forward in northern Alberta. Initially, the only opportunity for public input on the Al-Pac mill proposal came when an environmental impact assessment (EIA) for the mill was tabled, at which point folks living in Prosperity were given 16 days to comment on the 1,200-page report that was not written in accessible language. This brought to light serious problems with the EIA process, which

did not meaningfully engage the public (the Canadian Environmental Advisory Council judged Alberta's EIA process to be one of the weakest in Canada).

Public pressure relating to the Al-Pac mill proposal led the provincial and federal governments to launch a review board to assess the project and hold public hearings. The impacts of timber harvesting on public lands were considered out of scope of the review board, which would provide a recommendation to the Minister of the Environment because forestry operations were under the jurisdiction of the Minister of Forestry. The review board held public hearings in twelve locations, and ultimately recommended to the Minister of the Environment in March 1990 that the mill not be built until further studies could determine whether the project could proceed without serious impacts to aquatic life and downstream users. The review board also recommended that a thorough review of the FMA be carried out before the mill be approved. The minister initially accepted the recommendation not to approve the mill, until Al-Pac submitted a revised proposal that outlined mitigations to address concerns regarding chlorinated organic compounds. In December 1990, the government approved the project, even though the stipulated studies had not been completed (the government decided that studies could be done at the same time as the mill construction).

### **WHERE ARE WE NOW?**

The process of the provincial government signing away forests to private companies was rushed, secretive, and non-inclusive, which reflects the priority at the time of attracting investment. Forestry's regrettable history of prioritizing access to timber above all else still underpins the industry today, although some requirements for public participation and environmental mitigations have been added on as an afterthought. The most recent FMA, signed in 2021 between the provincial government and Crowsnest Forest Products (a subsidiary of West Fraser), was signed without input from the public. This forest management area falls in the southern Eastern Slopes region, an area important for wildlife, watershed integrity and recreation.

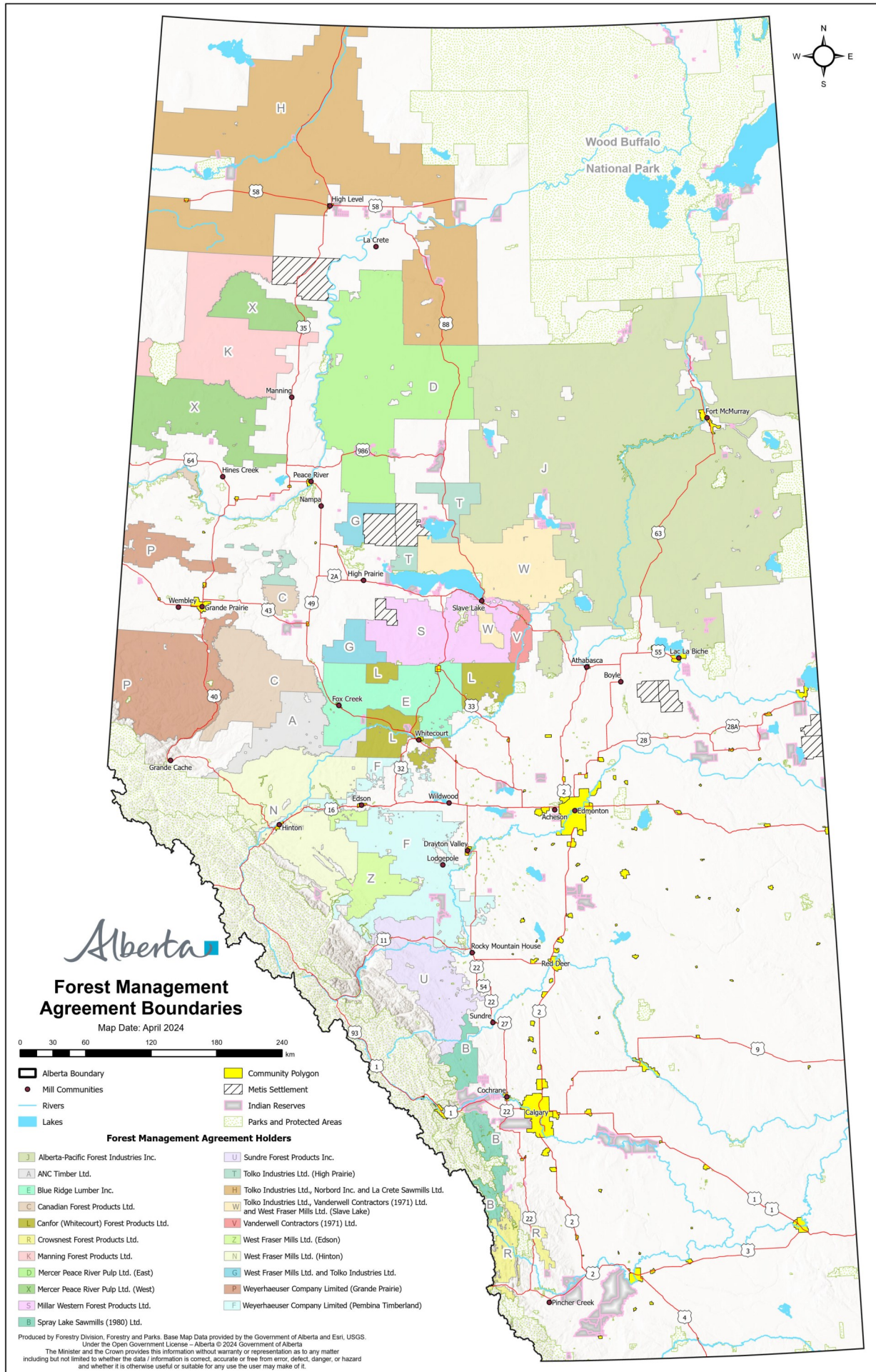
Today there is still no requirement for the public to be involved in the important decision of setting

annual allowable cut levels (the decision about how much timber should be harvested from an area annually) or in the decision to renew a 20-year-long FMA. This makes it extremely difficult, if not impossible, for the public to stop clearcut operations in certain areas (e.g. for recreation or species at risk) because management control of the forests has already been signed away to a private company to extract timber.

Additionally, there is still no requirement for environmental impact assessments for logging operations. As seen with the case of Al-Pac described above, forestry companies only require an EIA for the construction of mills, and clearcutting operations are not considered in these assessments. This differs greatly from other industries that operate on public lands. A 1990 report prepared by the government Expert Panel on Forest Management in Alberta noted that "any EIA that covers only the impact of the pulp mill is inadequate and [...] the impact of forest management practices must also be reviewed." However, the panel report notes that the EIA process wouldn't be able to adequately capture a "dynamic, evolving forest community," and recommends instead that inclusive forest management advisory boards and review panels be established to address the need for environmental assessment of forestry practices.

As it stands, almost all of Alberta's "Green Area" (forested area) that is commercially viable is under an FMA. Although these FMAs provide security to forestry tenure-holders, they don't provide security for watersheds, species, or people. To usher in a new era of sustainable forest management in Alberta, some of these FMAs need to be reconsidered — particularly those in the Eastern Slopes headwaters, at-risk caribou ranges, and areas where Indigenous ways of life are, or could be, impacted. Smaller-scale, community-based forestry operations could replace large FMAs in certain areas that are compatible with forestry. This would place the management priority on ecosystems, people, and watersheds, while allowing forestry at sustainable levels that would benefit communities. At a time when healthy Eastern Slopes headwaters and boreal forest carbon sinks are more important than ever, changes in forest management are desperately needed.

Photo © A. Tucker



Alberta

### Forest Management Agreement Boundaries

Map Date: April 2024



- Alberta Boundary
- Mill Communities
- Rivers
- Lakes
- Community Polygon
- Metis Settlement
- Indian Reserves
- Parks and Protected Areas

#### Forest Management Agreement Holders

- Alberta-Pacific Forest Industries Inc.
- ANC Timber Ltd.
- Blue Ridge Lumber Inc.
- Canadian Forest Products Ltd.
- Canfor (Whitecourt) Forest Products Ltd.
- Crowsnest Forest Products Ltd.
- Manning Forest Products Ltd.
- Mercer Peace River Pulp Ltd. (East)
- Mercer Peace River Pulp Ltd. (West)
- Millar Western Forest Products Ltd.
- Spray Lake Sawmills (1980) Ltd.
- Sundre Forest Products Inc.
- Tolko Industries Ltd. (High Prairie)
- Tolko Industries Ltd., Norbord Inc. and La Crete Sawmills Ltd.
- Tolko Industries Ltd., Vandervell Contractors (1971) Ltd. and West Fraser Mills Ltd. (Slave Lake)
- Vandervell Contractors (1971) Ltd.
- West Fraser Mills Ltd. (Edson)
- West Fraser Mills Ltd. (Hinton)
- West Fraser Mills Ltd. and Tolko Industries Ltd.
- Weyerhaeuser Company Limited (Grande Prairie)
- Weyerhaeuser Company Limited (Pembina Timberland)

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# On Human Health and Plant Diversity: The Value of a Prairie

BY RUIPING LUO

Sunrise is a wash of colour, reds and blues that creep across the open plains. The soil rouses beneath the radiance, rejuvenating roots that have been waiting for just this moment. Soon, new growth will unfurl, green shoots pushing through the dry stalks left from previous years, reaching for every photon of light they can catch. A few months more, and brilliant red-yellow blooms will be visible, standing defiant against sun, rain, and wind.

The plants of the Canadian prairies provide much more than beauty. They help to filter toxins from the air, water, and soil. They provide soil organic matter, cultivate microbes, store carbon, and improve soil fertility. They also mitigate floods, droughts, and fires by supporting water entry into soil, and provide habitat for many beneficial insects, birds, and other animals. These activities present a clean, healthy, and diverse environment, essential for human health and well-being.

## FROM TRADITIONAL MEDICINES TO MODERN CHEMISTRY

Prairie plants can also benefit human health more directly, as medicine. Native plants have been used by many Indigenous cultures to treat a variety of ailments. For example, the bright flowers of *Gaillardia aristata*, a plant common to flat areas under full sun, were used by the Blackfoot or Niitsitapi peoples to produce medicine for sunstroke or heatstroke, and roots were harvested to improve digestion.

“Globally, it’s been demonstrated a number of times that there is knowledge about our planet, and that is called traditional knowledge,” Dr. Roy Golsteyn, a professor at the University of Lethbridge, explained. His lab, the Natural Product Laboratory, specializes in investigating the biochemical properties of prairie plant

species and, in parallel, works with Indigenous communities to better understand these unique plants.

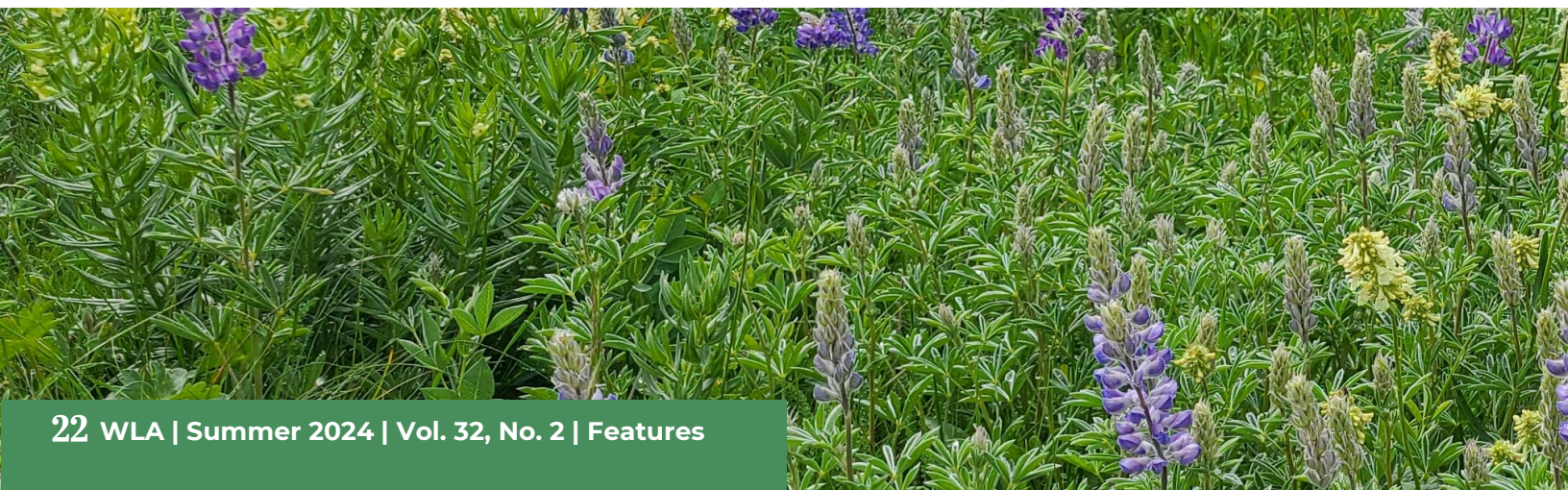
Until now, western science has largely neglected the prairies. Grasslands, also known as prairies or steppes, are found on every continent except Antarctica, covering an estimated 20 to 40 percent of land globally, yet are one of the least studied ecosystems for plant biochemistry. The Natural Product Laboratory intends to address this extensive knowledge gap by investigating native prairie plants, including *Gaillardia aristata*, and has built a unique database of prairie plant extracts.

Already, they are finding many new and interesting chemicals, some of which may lead to new treatments. For instance, they found that compounds extracted from *G. aristata* inhibit mitosis in human cancer cells and could lead to development of new ways to treat cancer. By examining prairie plants, Golsteyn and his lab are finding novel compounds that could vastly broaden our understanding of biochemistry.

## BIOCHEMISTRY IN THE FIGHT FOR SURVIVAL

Prairie plants need to survive some of the most extreme conditions in the world. Temperatures on the open plains in Canada have reached 40°C and dropped as low as -45°C. With few trees to provide shelter, wind speeds can exceed 140 kilometres per hour, and heavy rains alternate with weeks of blazing sun. Conditions here change rapidly; temperatures can rise or fall 20°C in only a few hours. With drought, floods, fires, and herbivores adding to the list of threats, survival is a constant battle.

Over generations, native plants have adapted. To thrive in these conditions, *Gaillardia aristata* has developed long, narrow leaves and deep taproots, which support the plant through drought and strong winds. Like other plants that must contend with the harsh environment, these flowers have also developed chemical traits, such as metabolites to discourage herbivores from consuming their leaves, or hormones that regulate flowering and growth. Given the exceptional range of stressors on the





prairies, it is hardly surprising that prairie plants develop an exceptional range of biochemical responses.

“These [temperate steppe] zones together,” Golsteyn said, referring to grasslands throughout the world, “just generate a tremendous amount of chemical diversity that gives them a resilience to abiotic diversity.”

From that diversity, we find a trove of chemicals, any of which might prove beneficial for people. And unlike synthetic chemistry, which is created in labs, using natural product chemistry from plants could involve fewer risks.

Natural products evolved as part of the environment. These products are mainly produced by proteins, such as enzymes, and are well-adapted to working inside of cells. Because they evolved with the ecosystem, the system can disassemble these chemicals, and they often do not linger in the environment. In contrast, synthetic chemicals are compounds the ecosystem may not have dealt with before, and it can be difficult to predict how these chemicals will react in a natural system. Synthetic chemicals are more likely to cause unexpected side effects and to build up in an ecosystem. As a result, natural products are often safer than synthetic chemicals, for both human and environmental health. Luckily, nature has already made a vast number of chemicals, many of which we have yet to explore. In particular, the prairies still hold countless intriguing mysteries. Asked about why he chose the grasslands, Golsteyn responded, “Other areas of the world of course are interesting, but you get this massive diversity in this simple ecological system, and we think that’s why the chemistry is turning out to be so interesting.”

### **A DISAPPEARING WORLD**

However, even as our understanding of the prairies improves, the landscape itself is declining. Temperate grasslands are the most endangered ecosystem worldwide, and over 80 percent of Canada’s grasslands have been lost. Each year, an estimated 60,000 hectares,

or 600 square kilometres, is converted for agriculture, urban expansion, or industrial development.

Alongside these landscapes, we are also losing the resident plants and the accumulated knowledge of this region. With so much about prairie plants still unknown, it can be challenging to assign a commercial value to these species. Still, some of the best medicines have come from natural products, and with the grasslands vanishing, we are depleting a repository of natural chemicals that formed over millions of years.

For some communities, it also means a loss of culture and well-being. Indigenous nations, which have lived on these lands since time immemorial, are seeing familiar plants disappear. With them, traditional knowledge, often intimately tied to the land, is also lost, along with the lifestyle and ceremonies these plants supported. The risk of knowledge loss is recognized by the United Nations and the Government of Canada, who, through the UN Convention of Biological Diversity are working to protect peoples who hold traditional knowledge and are connected to the land. More broadly, as native plants vanish, the services they provided end, threatening human health.

“Ecosystems are complex webs,” Golsteyn added. Missing even a few plants could have profound effects on the rest of the system. Especially in the prairies, where there remain many unknowns, we cannot predict all the effects that degradation of this crucial ecosystem will have.

The value of the prairies lies in more than colourful flowers and extreme weather. The value lies in ecosystem services that bolster human health and cultural traditions intricately associated with this land. It lies in a diversity of species and a range of chemical compounds we are only beginning to discover. We still have so much to learn from the prairies, though unless we work to protect this unique community, we could soon lose this irreplaceable ecosystem and all the surprises it contains.

*Author’s Note: Thank you to Jane Lancaster, plant biologist with Kestrel Research Inc. and coordinator of Grasslands Restoration Forum, for information on the growth, flowering, and adaptations of Gaillardia aristata. Thank you also to John McFaul, naturalist with Alpenglow Nature Hikes and Nature Calgary, for directing me to records of Indigenous medicinal use.*

A flower meadow in Milk River Ridge. Photo © L. Wallis

### We need our bats

The Germans were feeling a bit whimsical when they settled on this nocturnal animal's name: *fledermaus*, a mouse that flutters. The French were blunter, dubbing the only mammal capable of true flight *chauve-souris* or the bald mouse. But mouse is a misnomer; it is better to think of bats as tiny flying bears. Like bears, bats are long-lived. Records of Alberta's most common species, the little brown bat (*Myotis lucifugus*), document individuals over 30 years old. Reproductively, bats share small litter sizes with bears, typically giving birth to one pup each year. Bats and bears both raise their young and live communally in female-led family units — while these units are much smaller for bears, consisting of a mother and her growing cubs, female bats rear their pups in maternal colonies, alongside many generations of mothers, grandmothers, and great grandmothers.

#### **“Listing these species under SARA would be the first step in establishing protections.”**

Found across the globe, bats have adapted to a range of different environments. Canada has 18 species of bats, nine of which are found in Alberta. Six species overwinter in the province by hibernating like bears, accumulating fat stores over the warmer months and suppressing their metabolism and activity throughout winter. Over the last few decades, white-nose syndrome has devastated hibernating bats in Eastern Canada, with over 90 percent population declines. The disease causes bats to rouse from torpid states too often, which rapidly depletes their caloric reserves and ultimately leads to death as they no longer have the energy to make it through to spring. It is truly a devastating disease, which is particularly concerning considering the fungus responsible, *Pseudogymnoascus destructans* was detected for the first time in Alberta in 2022.

The remaining three bat species in the province are migratory; the hoary bat (*Lasiurus cinereus*), eastern red bat (*Lasiurus borealis*) and silver-haired bat (*Lasionycteris noctivagans*) fly south annually to escape the cold. Unfortunately, this tactic also presents their greatest threat. The development of renewable energies, specifically wind turbines, has created a major hazard along their migration routes. The turbines are a source of collisions, and even if the blade doesn't hit the bat, the drop in air pressure caused by the fast-moving blade can be fatal. As more wind turbines are built along migration

paths, the threat to migrating species increases. However, mitigation is possible. Research shows that locking the blades overnight during migratory seasons, particularly when wind speeds are low and the weather is clear, is extremely effective at reducing fatalities and results in almost negligible losses in power generation — the real challenge is getting industry to adopt this practice.

Pesticides and habitat loss also pose a challenge for Alberta's bat populations. Pesticides reduce the availability of insect prey, which can lead to nutritional deficits and starvation. More directly, bats can come into contact with pesticides by eating contaminated insects, potentially causing negative health impacts for bats, reduce growth and breeding success, and sometimes be lethal. Considering bats are vital to the health of forest, grassland and wetland ecosystems, loss of their populations could mean trouble for both ecological communities and agriculture.

As insectivores, bats regulate insect populations within ecosystems and croplands and are one of the most important animals for natural pest control. Weighing only seven to nine grams, little brown bats can catch over 1,000 insects in an hour alone. With these stats, an entire colony can considerably decrease agricultural pest populations and reduce the need for pesticides. In the United States, they are estimated to contribute between \$3.7 and \$53 billion per year to the agricultural industry. These benefits may be lost if bat populations continue to decline, necessitating increased protections.

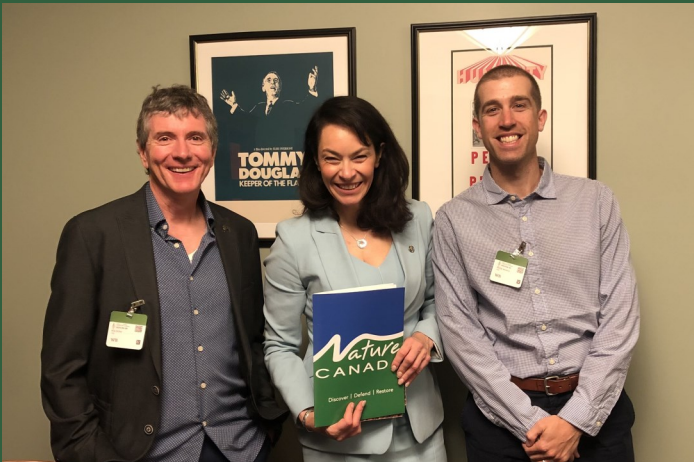
Environment and Climate Change Canada (ECCC) recently proposed listing the three migratory bat species as Endangered under the *Species at Risk Act* (SARA), a listing that AWA strongly agrees with and advocated for during the ministry's comment period. These bat populations have decreased significantly across Canada and are expected to suffer a further decline of 50 to 90 percent over the next 50 years without interventions.

To have any chance of protecting these species and the important ecological functions they provide, we need to ensure sufficient habitat is available throughout the entirety of their ranges, keep wind turbine development away from known migration routes, and implement operational mitigations at existing facilities. Listing these species under SARA would be the first step in establishing protections for Alberta's tiny flying bears.

-By Kennedy Halvorson and Ruiping Luo

# A trip to the capital and lobbying inequalities

I recently had the pleasure of attending Nature on the Hill in Ottawa on behalf of AWA. Nature on the Hill, held from April 29 to May 2 this year, is Nature Canada's flagship annual event that brings together environmental delegates from across Canada to present a unified voice



**Phillip Meintzer, right, meets with Rob Miller, left, and MP Heather McPherson. Photo © R. Woodward**

for nature in front of federal decision-makers in Ottawa. This was my first-time visiting Canada's capital, and my first experience engaging in deliberate lobbying.

Nature Canada hosted delegates representing all 10 provinces and Yukon and arranged more than 50 meetings with members of Parliament, senators, and cabinet ministers across two days of condensed lobbying.

This year's Nature on the Hill focused on the soon-to-be-released National Biodiversity Strategy and the accompanying *Nature Accountability Act*. At the 2022 United Nations Biodiversity Conference (COP15) in Montreal, Canada and 195 other countries signed the Kunming-Montreal Global Biodiversity Framework, which commits Canada to halt and reverse biodiversity loss by 2030 and protect 30 percent of Canada's land and ocean by 2030.

The National Biodiversity Strategy is already overdue, and part of our group lobbying effort was to emphasize to MPs across all parties that this strategy needs to be released and enshrined in law as quickly as possible, and ideally before an upcoming federal election (and potential change in leadership).

The other major aspect of this year's lobbying effort was to demand that Canada's biodiversity strategy be

implemented in an equitable way that honours Indigenous Rights, with adequate funding, and that it includes legislation that holds the government accountable to meeting its commitments with consequences for potential failure.

On accountability, we are concerned about instances where the federal government has failed to meet previous commitments (e.g., the Aichi Biodiversity Targets), or how loopholes in existing legislation can permit increasing harm to biodiversity from industrial activities so long as the economic benefits are considered justifiable — like we often see with the *Species at Risk Act* and the *Fisheries Act*.

This often means that the only realistic option for environmental non-government organizations (ENGOS) to hold the government accountable is through lawsuits in partnership with public interest law firms like Ecojustice. Unfortunately, ENGOS don't have the resources to take the Crown to court on every missed commitment, and legal processes can be so lengthy that biodiversity suffers in the interim. The Government of Canada needs to impose legally binding consequences on itself to ensure that this latest set of commitments are met.

I had four meetings scheduled on Parliament Hill; three with members of Parliament: NDP MP Heather McPherson (for Edmonton-Strathcona, AB), and CPC MPs Branden Leslie (Portage-Lisgar, MB) and Blaine Calkins (Red Deer-Lacombe, AB). I was also set to meet with a deputy policy director from the Prime Minister's Office (PMO). Unfortunately, the PMO cancelled our meeting at the last minute, but we rescheduled an online meeting in mid-May.

Heather McPherson was the first of my three meetings, and it was nice to finally meet her in person after she has previously supported AWA's work including our efforts to protect the McClelland Lake Wetland Complex, as well as our calls to reform the Alberta Energy Regulator. MP McPherson committed to presenting Nature Canada's demands for the National Biodiversity Strategy in front of the NDP caucus the following morning, and she also offered to send a letter to Prime Minister Justin Trudeau and the Minister of Environment and Climate Change Steven Guilbeault in support of our demands.

While it's certainly nice to meet with decision-makers who support our demands from the get-go, "preaching to the choir," as they say, is not always the best use of our time. The only way we can make real gains on any environmental issue is to get more and more people

inside with our struggle, and you can't do that by only engaging with your supporters. In my discussions with the two Conservative MPs — Leslie and Calkins — our perspectives weren't as diverged as some may expect. All of us shared concerns about the numerous broken promises and missed commitments made by the current government, as well as fears about how top-down policymaking can often have unintended (or unexpected) consequences for everyday working people and their livelihoods. This is partially why Nature Canada is advocating that the National Biodiversity Strategy needs to be structured equitably and considers diverse perspectives including Indigenous communities and even local grassroots stewardship groups. We emphasized how — as the opposition — the Conservative Party can review the National Biodiversity Strategy when it's eventually tabled and hold the government accountable to ensure that these policies include consideration for people from diverse perspectives. Instead of working to prevent much-needed biodiversity protections, they could use their position to strengthen what comes out.

While neither MP left our meetings willing to explicitly support Nature Canada's demands, I felt that they both seemingly came away from our discussions with a warmer perception of environmental groups than they had beforehand. I was also pleasantly surprised when MP Calkins asked for us (ENGOs) to come back and speak with him more often, or at least more than just once per year because he thinks that these sorts of discussions are valuable. While that would be great in theory,

unfortunately, ENGOs can't afford sustained lobbying that for-profit industries can take on. For example, Environmental Defence Canada has developed an oil and gas lobby "bot," which automatically tracks instances where oil and gas companies have lobbied politicians in the Government of Canada. According to this data, in 2023 alone, oil and gas lobbyists had at least 1,173 meetings with Canadian government officials. That's more than three meetings per day, every single day across 2023 for only a single industry. That doesn't include forestry, agriculture, fisheries, or any other extractive industry which puts biodiversity at risk. ENGOs just don't have the same resources or capacity available to compete at that level.

We will need to wait and see if our lobbying was successful, but I think Nature on the Hill is successful in other ways regardless. I think that one of the major benefits of this sort of event is the opportunity for environmentalists from across the country to build meaningful in-person relationships and to begin building solidarity across our organizations. Many of us are dealing with similar issues — albeit with regional differences — so it can be helpful to understand what people are trying in each of their regions to make meaningful conservation happen. We will need all the tools at our disposal if we are going to ensure that Canada meets its biodiversity commitments. None of us can do this alone.

*-By Phillip Meintzer*

## Featured Artist | Carnarvon Lake: An on-the-spot sketchbook drawing by children's book artist and author Carolyn Fisher.

Carnarvon Lake in south Highwood is a stone's throw away from Loomis Creek, where West Fraser Timber (with the permission of the Alberta government) plans to clearcut 1,100 hectares of territory in a watershed that is home to the endangered bull trout. Join Carolyn and AWA conservation specialist Devon Earl on June 22 for a daylong sketch hike at Loomis Creek to observe and document this wild space and its inhabitants. Register on AWA's website. See more of Carolyn's sketchbooks and children's books at [www.carolynfisher.com](http://www.carolynfisher.com).



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## **CALGARY FOSSIL DISCOVERY** August 3

Find 450 million year old fossils on the sides of Calgary buildings!

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**Register by donation at:**

[www.albertawilderness.ca/events](http://www.albertawilderness.ca/events)



MORE EVENTS!





We had over 70 incredible photo submissions in the photo contest, all of which will be filed away and likely used to help us speak out for Wild Alberta. We are so grateful for all the interest we received in this contest.

Kamala and Kyle  
Photography ©



## Photo Contest: Staff Pick Winner

Staff were overwhelmed by the incredible assortment of photos, and we were delighted by the variety. Though it was difficult to choose, the most votes went to Kyle Matthew's Swift Fox photograph.

Thanks for your submission, Kyle!

Here's what Kyle said about the image:

“An endangered swift fox sticks her tongue out, as if to taunt me, knowing very well she can swiftly escape if need be!”

It was a tight race  
with over 700  
votes.

## Photo Contest: People's Choice Winner

Bryce Horn's Coyote in the Snow photograph was crowned the winner of this category.

Bryce said he spotted the coyote as it sauntered through some fresh snowfall in central Alberta on Jan. 21, 2024. He said he had remained undetected for several minutes as he watched it while laying behind a snow bank, the sounds of his trusty DSLR must've alerted it of his location.

Bryce said the softer light brought upon by overcast conditions during the winter, on top of a snow covered landscape, made for a lovely time to try for this high key look.

Thanks for the submission!



# TREAD LIGHTLY

To reduce AWA's environmental footprint, we ask members to inform us if you would like to switch to the digital edition of the Wild Lands Advocate.

Photo P. Meintzer

Return undeliverable Canadian addresses to:

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