

A WILDLANDS ADVOCATE



THE ALBERTA WILDERNESS ASSOCIATION JOURNAL

OCTOBER 2015



Be The River
Close the Borders!
Promise in the Little Smoky?
Two Fish, One Fish, No Fish
Grassy Mountain

C O N T E N T S

OCTOBER 2015 • VOL. 23, NO. 5

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Early October in the
Crowsnest
PHOTO: © I. URQUHART



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Our featured artist will return in the December 2015 issue.

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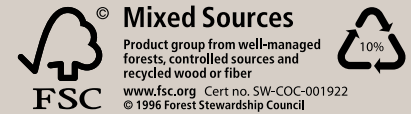
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Letting the Fox Guard the Henhouse

I wish it was just a Halloween prank. This October the Alberta Off-Highway Vehicle Association posted a proposal to the provincial government on the Association's website. The AOHVA is offering to take over much of what we expect the Government of Alberta's public servants to do: manage and develop trails in the backcountry in a fashion that balances recreational use with maintaining ecosystem health. The off-roaders preferred vehicle for assuming managerial and decision-making power in Alberta's backcountry is called a Delegated Administrative Organization (DAO). This institution emerged in Alberta, as elsewhere, as a way to reduce the size of government. The operation of elevators and amusement rides here, for example, has been privatized.

There isn't anything amusing about the AOHVA proposal. The proposed DAO, without any representation from conservation organizations, would have impressive authority to develop and manage off-highway vehicle trails and staging/random camping areas in the backcountry. It would take the registration fees from OHV users that currently go into general provincial revenues – the same place where your automobile registration fees end up – and

redirect them into a fund for the exclusive use of the off-highway Delegated Administrative Organization. So, instead of being used for funding health care or education or hiring officers to enforce existing backcountry OHV closures, these millions would go instead to the off-highway vehicle community and its preferred regulatory vehicle, a DAO.

I don't think there's a conservation group in Alberta better placed and informed than AWA to make the reasoned case against this proposal. We have worked for years in the Bighorn documenting how some members of the OHV community abuse seasonal and area closures there. The solution to abuses and lawbreaking in Bighorn Country isn't a DAO; it's active stewardship of the land by public servants.

There's a reason why places outside Alberta where AOHVA members might like to run their machines – state lands in Colorado, Utah, and Oregon for example or US federal lands throughout the American west – don't have DAOs to manage off-highway vehicle use. It further fragments authority; it doesn't make sense as a way of managing the many interests and objectives that good policy should consider.

AWA sees absolutely nothing positive in

this proposal. We expect the government to reject it in its entirety. But we also expected the government to prohibit, not permit, OHV use in the Castle Parks. So we may have our work cut out for us in the months ahead to ensure that such a mistake isn't made. We expect a better path to the larger issue of recreational use of public lands will be outlined soon when the Environmental Law Centre releases its report on this issue. We look forward to what their research will say on how others are addressing the challenges of managing recreation on public lands.

Coincidentally, the features of this issue of the Advocate focus generally on water and fisheries – subjects irresponsible OHV use have muddied and sullied. I expect they are not articles that will sit well with the AOHVA. For, when writing about a backcountry land-use framework, the AOHVA says the goal should be “to protect the environment and wilderness for the people of Alberta not to keep it from the people.” This issue's features and AWA's larger mission believe firmly that there are occasions when protecting wilderness for the people demands putting restrictions on what people can do in it.

-Ian Urquhart, Editor



Thinking About Rivers



By David W. Mayhood

Man's engineering capabilities are nearly limitless. Our economic views are too insensitive to be the only criteria for judging the health of the river organism. What is needed is a gentler basis for perceiving the effects of our engineering capabilities. This more humble view of our relation to the hydrologic system requires a modicum of reverence for rivers.

— Luna Leopold, *A Reverence for Rivers*. *Geology* 5:429-430 (1977)

Not Just Plumbing

There is something deeply troubling about the way we think about rivers.

Several years ago I gave evidence at a



Dense stream networks with their drainage basin boundaries making 90 small watershed ecosystems in the Highwood, Willow, Oldman, Livingstone, and Crownsnest drainages. Used with permission. GIS analysis by Ecology Center, Bozeman, MT, published in M. D. Sawyer et al, Southern East Slopes Cumulative Effects Assessment, 1997.

public hearing. A power company was seeking approval for a dam on the Peace River. This was the second go-around for the proposal: a previous panel had rejected the same project some years earlier, requesting more studies.

The new hearing considered extensive evidence from the proponent relating to the economic need for the project; dam design; hydrology; ice; sediment transport and deposition; fish populations, habitat, distribution, and passage; and more. It was good work, but I was interested in something else. At least part of my evidence centred, in one way or another, on the *value* of fishes and the larger ecosystem of the Peace River. The proponent seemed to be minimizing this aspect.

I recall in my testimony talking about a sucker species unusual in Alberta, but often common where it occurs. This species had been found in the proposed dam area in the past, but now was absent from collections despite the proponent's extensive sampling. Was it already extirpated, perhaps by dam operations upstream in B.C.? If so, this represented an already-realized loss to the Peace system, and to Alberta, before any dam is placed on the Peace within the province.

I also argued, based on available data, that just one of the common fishes, another sucker, was likely to number at least in the low hundreds of thousands — a sizeable population. The proponent had felt that, based on catch rates, they were not especially abundant. I described why these species are ecologically important, even though we do not know their full role in this ecosystem. I clearly remember quoting Aldo Leopold's famous dictum: "To keep every cog and wheel is the first precaution of intelligent tinkering" to make the point.

I had had very limited time to prepare my case but, when done, I thought I had explained the "ecosystem value" issue clearly enough. Nope. At the end of my testimony, the panel allowed a local gentleman to ask me a question. To paraphrase him from memory:

"Nobody fishes for suckers, or anything else in the river, for that matter. What good are they? Can you tell me? Let's just build the dam and be done with it."

My answer, I confess, did me no credit with this fellow.

The dam was approved, but never built for economic reasons. Now a new proponent wants to build a much larger dam near the same place. Much of the same data and



Kananaskis River circa 1970 exhibits a complex riparian zone and floodplain, with many lateral tributaries. This watershed ecosystem has been heavily impacted by hydroelectric dams and associated exotic fish introductions. PHOTO: © D. MAYHOOD

arguments will be trotted out to support that proposal. And again, I strongly suspect, the value of the Peace River as a functioning ecosystem will be ignored.

The Peace River dams are just two of dozens that are likely to be proposed on all of Alberta's major rivers in the next few decades to deal with water supply, flood control, and hydroelectric power. These projects look at rivers as plumbing. According to this view, rivers carry water, and that is all they are good for. Or, they are seen as plumbing that threatens to burst, destroying homes and infrastructure. Rivers are seen merely as flowing water to be controlled by physical infrastructure.

Here I describe another way to think about rivers. This way of thinking acknowledges their complexity, and the many other values of rivers that are simply ignored in the "river as plumbing" view. What I hope I can give you is a way of thinking about rivers that helps you judge the many proposals for dams and other control works that will be coming our way in the near future. For simplicity, I will consider only dams, but my comments apply to any river control structure, and more broadly, to any human effect on rivers.

Balancing Accounts

First, though, let me dispense with an argument that is advanced whenever a dam is proposed. These plans are always accompanied by some estimate of the economic value of the dam and that figure is commonly in the hundreds of millions of dollars annually or, often in the low billions, in terms of the one-time replacement value of property saved from flooding. The economic value of the river, *left as a free-flowing river*, is never mentioned. In effect, it is assigned a value of zero. The economic cost of losing the natural river is simply ignored.

This is clearly ludicrous. It is like totting up only the deposits in your bank account, ignoring all the payments you make against it, and declaring yourself in the black.

There are many services provided by free-flowing rivers, often called ecosystem services. Ecosystem services are those provided by ecosystems from their normal functioning, such as water purification, nutrient cycling, waste decomposition, and water supply. Robert Costanza and his colleagues have calculated the global value of freshwater ecosystem services. They estimate that lakes and rivers globally are worth US\$2.3-2.5 trillion annually for the ecosystem services they provide.

Using their unit values with Alberta Government data on river and lake area, I recently estimated the total economic value of ecosystem services from Alberta's waters (not including wetlands) at US\$24.4 billion annually. The Peace River system alone, which carries something more than 40 percent of the flowing water in Alberta, is likely worth billions of dollars in ecosystem services annually. It is pretty clear that the value of ecosystem services of any of our major river systems will be at least in the hundreds of millions of dollars *every year*.

These estimates for Alberta are no more than back-of-an-envelope calculations, but they do make the point that the economic value of ecosystem services from an Alberta free-flowing river is likely to be

comparable to that of any dam that might be built on it. This value cannot simply be ignored when evaluating dam proposals.

But it's done all the time.

Rivers and Watersheds

Rivers do not stand alone: they are integral parts of drainage networks connecting entire watersheds. Watersheds with their drainage networks form ideal unit ecosystems conceptually. They are hierarchically arranged over large areas, one within another, tightly adjoined but distinctly separated by heights of land except at their outlets, where the watercourses that drain them meet.

Watershed ecosystems are four-dimensional. Within watersheds, terrestrial areas are tightly tied together by the dense network of watercourses that drain them, and all of these change over time. The aquatic and terrestrial realms are integrated parts of the whole ecosystem, not separate elements.

A riparian zone flanks the watercourses. It becomes the zone of interaction between land and water. This zone is typically the most productive, biologically-active part of the ecosystem, important far out of proportion to the relatively small area it occupies. The riparian-riverine-tributary network so formed connects the watershed from headwaters to mouth, forming critical habitats and corridors for movement of fish, insects, wildlife, and birds. Disturbances, especially floods, distributed over time, and of various magnitudes, create a patchwork of physical habitats in this zone. These become a template on which plant communities of different ages develop, creating a mosaic of habitats for wildlife, birds and invertebrates. Many plants disperse upstream and down along this corridor, which typically offers many disturbed surfaces for their establishment.

Leaf litter and woody debris washing into watercourses from hillslopes and uplands powers aquatic food chains through decomposition. Birds, wildlife, invertebrates and their foods move in both directions between riparian zone and terrestrial sys-



A mosaic of productive habitats dominates the riparian zone of the Bow River near Carseland. PHOTO: © D. MAYHOOD

tem. Those moving inland die or their feces are deposited, becoming incorporated into upland forests or grasslands. These effects are often measurable far from the watercourses where they originate. Bears, wolves, bats, and many birds carry stream-derived nutrients far inland. On some alluvial river systems, surface water fauna have been found in abundance in groundwater more than a kilometre from the open channels where they must complete their life cycles. They are connected to those channels by a hyporheic zone underlying channels and the riparian margin (the hyporheic zone is the groundwater beneath a stream or river bed which supports bacteria, fungi, and invertebrate animals that are important in nutrient cycling).

Ecologists work under the strong suspicion that, in an ecosystem, everything is connected to everything else. We think that if we change something in the system here, something will happen over there. This is an oversimplification, but decades of research broadly support the view.

“We may conclude then that in every re-

spect the valley rules the stream,” wrote stream ecologist Noel Hynes. By this he meant that watershed source rock determines ion availability, soil, and slope; soil and climate determine the vegetation; and the vegetation determines the supply of organic matter, which drives nutrient delivery and ultimately the productivity of the stream. And on and on.

Because of these connections, landscape change in the uplands of a watershed affects watercourses draining them. Cultivation, clear-cutting, roads and grazing affect the physical and biotic stability of the terrestrial and aquatic realms, significantly altering the distribution and abundance of aquatic organisms from bacteria and fungi to fish. These tight downhill-uphill linkages between the land and the water in the watershed ecosystem mean also that changes wrought by humans on the system can have large effects. We know that these effects can be expressed both upstream and downstream, downhill and uphill, and sometimes even outside the watershed.

One remarkable example makes these

points. Working in Yellowstone National Park, Arthur Middleton and his colleagues recently documented how lake trout illegally introduced into Yellowstone Lake contributed to a decline in the growth of an elk population. The lake trout preyed on native cutthroat trout, reducing their population, thereby shrinking spawning runs of cutthroats into tributary streams. Grizzlies that formerly relied on these runs for part of their spring food supply were forced to look elsewhere. They successfully redirected their attention to elk calves, causing a significant drop in elk recruitment, and reduced growth in the population of elk. Because the elk are migratory, the effect would be felt upstream, downstream, and even outside of the Yellowstone Lake watershed ecosystem.

It is important to understand that any perturbations that reduced the size of cutthroat trout spawning aggregations, such as overfishing or habitat destruction, would have had similar effects. The Yellowstone example is very unlikely to be unique.



The Lynx Creek watershed (Carbondale River drainage) has been extensively logged, burned, and roaded. This has increased water temperatures and the loading of sediment, including some heavy metals and nutrients. Overall water quality in the stream has decreased. PHOTO: © D. MAYHOOD

A Greater Reverence for Rivers

When Luna Leopold, a hydrologist and fluvial geomorphologist, called so eloquently for a modicum of reverence for rivers, he was speaking about rivers explicitly as plumbing systems. He wanted authorities to recognize that rivers are self-adjusting, but only within limits, and that serious problems result when the limits are not respected.

Here I urge Albertans toward a more comprehensive understanding of rivers. Rivers are not just plumbing. River networks are integral parts of much larger watershed ecosystems. Perturbations in watersheds can have surprising, often profound effects, and not just in a downstream or downhill direction. Perturbations in rivers will be reflected upstream, downstream and into the hyporheic/groundwater zones in the drainage network, downhill from the active channel through the groundwater and riparian zone, uphill from the riparian zone and floodplain over hillslopes

to uplands via mobile bird, wildlife and insect populations.

For these reasons we need a more inclusive paradigm. We need a reverence, not just for rivers, but for where rivers come from — watershed ecosystems. 🌲

Dave Mayhood is principal of FWR Freshwater Research Limited, in Calgary. He specializes in the ecology of inland waters, especially the effects of watershed development on Alberta's southern Rocky Mountain East Slopes, and on the conservation biology of the native fishes that live there.



Coleman 1923: Why people don't belong on floodplains PHOTO: © GLENBOW MUSEUM

Close Alberta's Borders!

(to aquatic invasive species)

By Kate Wilson, Aquatic Invasive Species Specialist (Alberta Environment & Parks)

What is the issue?

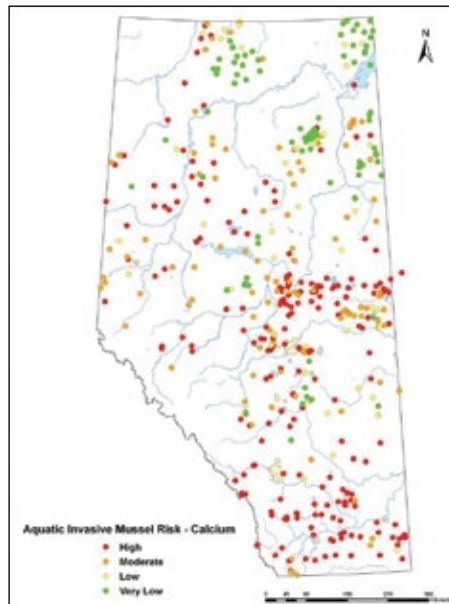
Aquatic invasive species (AIS) pose one of the greatest threats to freshwater resources and are one of the leading causes of biodiversity loss in the world. As many of us have experienced, Alberta can be a tough place to thrive in those brutal, long winter months – but, despite this, many invasive species think otherwise and could actually do very well in our climate. Let me first introduce you to a few of these critters that pose high threats to Alberta...

1. Zebra and Quagga mussels



Quagga mussels on boat propeller
PHOTO: US NATIONAL PARK SERVICE,
LAKE MEAD NATIONAL PARK

These freshwater mussels are filter feeders that can drastically change the entire food web in aquatic ecosystems, posing great threats to native species. While they remove the vital “good nutrients” we need for our native fish to thrive, they have now been linked to causing toxic blue-green algae blooms in the shallow waters as well. They pose very real threats to infrastructure, recreation, and native species



Risk Map for Alberta Waterbodies Based on Calcium Data. CREDIT: ALBERTA ENVIRONMENT & PARKS, 2013.

with their ability to attach themselves to everything from docks to dams to native mussels and crayfish.

Evidence from jurisdictions across the U.S. and Canada show the cost of managing invasive mussels to be significant. Although these mussels have not been detected in Alberta to date, \$75 million is a conservative estimate of the damage they would do to infrastructure, fishing, property values, etc. if they established themselves in Alberta's waterbodies.

Two risk studies, one conducted by the Department of Fisheries and Oceans Canada (2012) and one conducted by Alberta Environment and Parks (2013), demonstrate that, based on calcium data and habitat suitability, most waterbodies in Alberta could support zebra and quagga mussel populations.

2. Eurasian watermilfoil



Eurasian watermilfoil tangled on a boat propeller.
CREDIT: T. WOOLF, IDAHO DEPT. OF AGRICULTURE.

This aggressive rooted aquatic invasive plant is found throughout the west but has not been detected in Alberta at this time. It spreads by fragmentation, so any tiny leaflet that breaks off from the parent plant is capable of starting a whole new colony. It has been found as deep as 30 feet and is known for its rapid expansion and ability to reach the surface of the water in one growing season. It prevents recreational boating, decreases property values, and impacts fish habitat by creating a dense monoculture of plants where many native plants previously thrived. It is believed to have been introduced as a result of the aquarium trade where its robustness makes it a popular aquarium plant. Eurasian watermilfoil is a prohibited species in Alberta – illegal to import, possess, and transport.

3. Flowering Rush – Present in Alberta



Flowering rush on the shoreline.
CREDIT: T. RUSHCALL, ALBERTA ENVIRONMENT & PARKS

This invader has been introduced through the horticulture industry. It is both an emergent plant along shorelines and a submersed plant in lakes and rivers. It is an incredibly aggressive plant whose dense stands can interfere with recreational use, water access, native plants as well as fish and wildlife habitat. There are few known successful control options at this time.

Unfortunately, flowering rush has been detected in Alberta – in Lake Isle, Chestermere Lake/Western Irrigation District canals, in a creek near Innisfail, in the Sturgeon River, and in the Bow River. Flowering rush is a prohibited noxious weed in Alberta – illegal to import, possess and transport.

4. Asian Carp



Bighead carp
CREDIT: A. BENSON, US GEOLOGICAL SURVEY

Four species of Asian carp are considered to be highly invasive across North America – the silver, black, bighead, and grass carp. They are filter feeding fish that consume plant and animal plankton, which impacts the available food for native spe-

cies. They are a long-lived, fast-growing species that can reach 100 lbs, making it hard for any predator fish to eat them.

They are voracious eaters, consuming 5 to 20 percent of their body weight each day! Their threat to Alberta's waters is growing as the (jumping) silver carp have made their way up the Mississippi and Illinois Rivers and threaten to infest the Great Lakes. Silver carp can jump up to 10 feet in the air, scared by the sound of boat motors. Small wonder they are nicknamed "the flying fish." Some of these fish weigh more than twenty pounds. They land in boats, damage property, and injure people. Silver, black and bighead carp are a prohibited species in Alberta – illegal to import, possess and transport.

5. Bullheads



Three classes of Black Bullheads.
CREDIT: R. BALDWIN, ALBERTA ENVIRONMENT & PARKS.

Bullheads are closely related to catfish; they eat a variety of aquatic invertebrates such as crayfish, freshwater mussels, snails, and insects. They will also eat other fish, fish eggs, and plants. They will eat almost anything that can fit into their mouths. They are able to tolerate turbid or murky/muddy water that many fish cannot. Bullheads are able to survive in water with low oxygen content and often occur in large numbers in lakes where winter kill eliminates other fish. In short, bullheads can live in just about any aquatic habitat.

Bullheads have a single large, sharp spine at the leading edge of their dorsal and pectoral fins. When bothered, they lock these spines in a straight-out position making the fish very hard to swallow. They also produce a mild poison that runs down the spines and into the wound of a victim punctured by one of these spines. Black, brown, and yellow bullheads are a prohibited species in Alberta – illegal to import, possess and transport.

What are we doing about aquatic invasive species in Alberta?

The Alberta Aquatic Invasive Species Program is a provincial program focused on the prevention and management of aquatic invasive species (AIS). In 2012-2013, a prototype was launched that focused on the "Crown of the Continent Ecosystem" in the southwest portion of the province in order to address the risks of zebra/quagga mussels and Eurasian watermilfoil. It became increasingly evident there was a need to expand the program due to the large ecological and economic risks facing the entire province. The program now addresses all of Alberta. It includes:

- 1) Policy and legislation,
- 2) Monitoring,
- 3) Education and outreach,
- 4) Response, and
- 5) Watercraft inspections

The AIS Program is much more than a government program. An AIS Committee comprised of cross-ministry partners has worked very closely with national and international agencies, regional groups, local stakeholders, and the public to create a cohesive program able to capitalize on the experience of others while making efficient use of available resources. With the passing of robust legislation, the operation of 12 mandatory inspection stations this season, the monitoring of over 60 lakes and reservoirs annually, two high profile education campaigns, and prolific public and stakeholder support, Alberta has recently become a leader in the prevention of AIS in Canada.

Since the AIS Program was developed, there has been great progress, including:

- The monitoring of over 60 Alberta lakes and reservoirs for invasive mussels annually.
- Recent amendments to the *Fisheries (Alberta) Act* that provide for all watercraft inspections to be mandatory (which has improved compliance by

more than 20 percent already); the creation of a prohibited list of 52 aquatic invasive plants, invertebrates and fish; and enhanced authority to mitigate the risk of AIS and respond rapidly if these invasive species are detected in a waterbody.

- Implementation of province-wide mandatory watercraft inspections, the most likely source of introducing invasive mussels (among other species), targeting 12 of the highest risk locations (major entry points and highly trafficked recreational lakes) with seasonal watercraft inspections and now mussel sniffing dogs as well.
- Development of an Early Detection/Rapid Response plan for invasive mussels (in the event they are found in an Alberta waterbody) that is close to completion.
- The launch of two high-profile education campaigns targeting personal actions and behaviour responsible for the introduction of AIS: “Clean, Drain, Dry Your Boat” which targets boaters and anglers and “Don’t Let it Loose”

which targets all non-watercraft sources of introductions (aquarium dumping, intentional release, ceremonial release, etc.).

While it is often difficult for government to take a preventive approach, the momentum and support provided to this effort promises that progress should continue.

From the development of the prototype in 2013 until today the AIS Program has achieved great success that will only continue due to the commitment of the AIS Committee and the many supportive partners. This season, over 22,000 boats were inspected, resulting in 16 interceptions of mussel-fouled boats, and countless citizens were educated on the risks of AIS and the need to “Clean, Drain, Dry your boat.” We have also seen a rise in the number of public reports of AIS in waterbodies, including Prussian carp, flowering rush, goldfish (in urban stormwater ponds) and just recently, black bullhead, a species of catfish that is prohibited in Alberta. These reports demonstrate that the public is be-

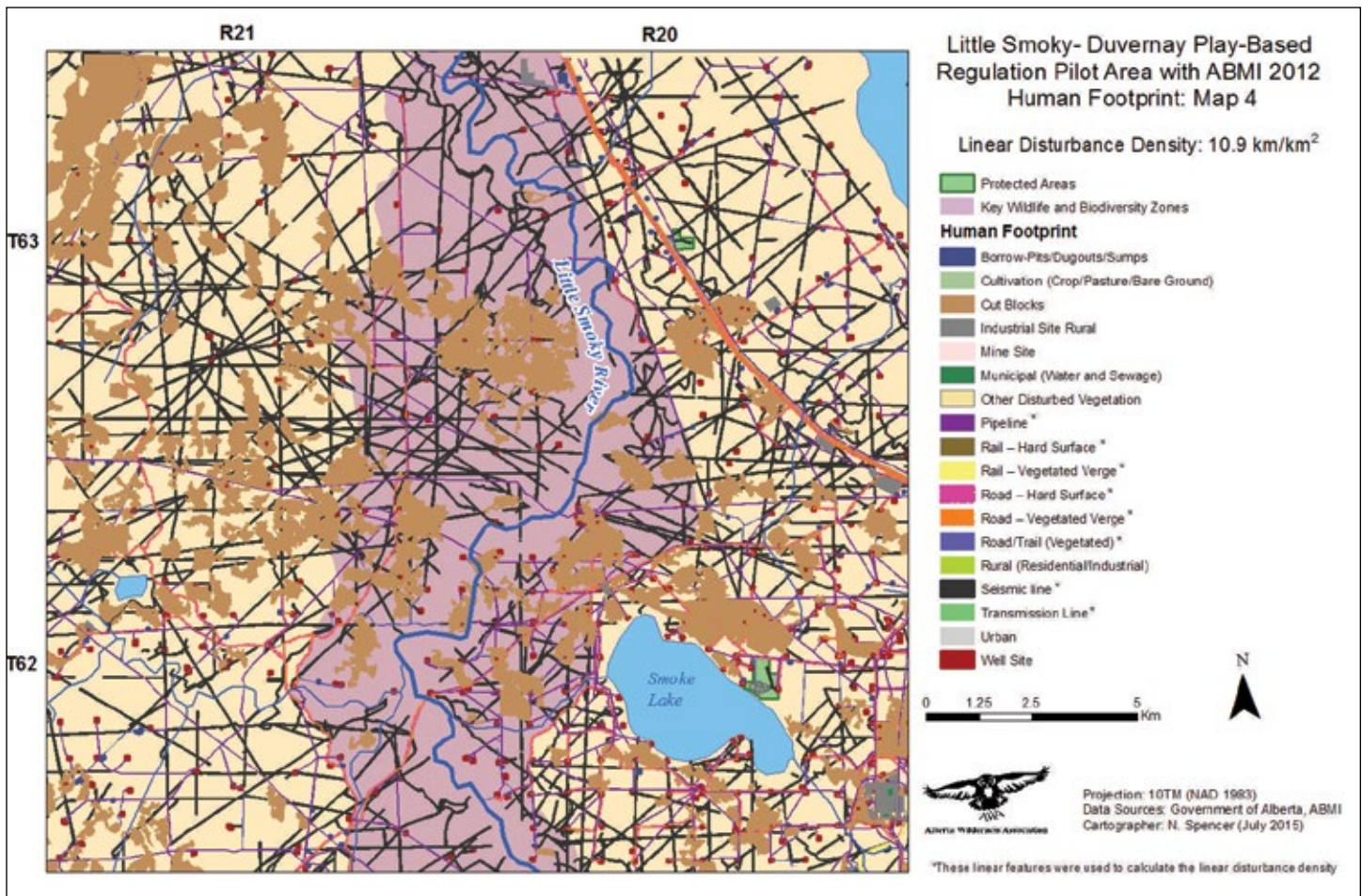
coming more knowledgeable about the issue and the harmful threats posed by AIS.

In 2012, if you had asked a Summer Village or Irrigation District what a zebra mussel was, most would have had likely shrugged their shoulders and brushed off the issue without much thought. Today, these same organizations are standing side-by-side with the Alberta government in a fight to prevent harmful AIS from becoming established. In 2014, several non-government stakeholder organizations even passed formal resolutions urging the government to continue efforts to prevent AIS. Together, we can protect Alberta’s freshwater resources from aquatic invaders!

What can you do?

Tell your friends. This is one of the greatest threats facing our native species. For more information or to report AIS, see our website (<http://esrd.alberta.ca/recreation-public-use/invasive-species>) or call our AIS Hotline (1-855-336-BOAT [2628]). ▲





Using 2012 human footprint data, this map of four townships in the west central Alberta Duvernay-Montney pilot area illustrates the excessive linear disturbance around the Little Smoky River's blue ribbon fishery. AWA and other groups seek responsible rules to greatly reduce surface disturbance throughout the region, including sensitive Key Wildlife and Biodiversity Zones (the purple band in this map), caribou ranges, and lake shore buffer zones.

other sectors to develop land use plans to sustain lands and waters of this area. None of these efforts led to protected areas in these foothills or boreal forests: instead, the whole area northeast of the mountainous Willmore Wilderness was allotted to multiple energy and forestry tenures. Responsible limits on cumulative land and water impacts were never set; multiple temporary water diversions and permanent linear disturbance were approved.

In recent years, new directional drilling and shale gas fracking techniques, plus the surge in tar sands-bitumen extraction, have greatly increased interest in the liquids-rich gas found in local Duvernay and Montney sub-surface formations. This gas is refined into condensate or 'diluent' that is added to Alberta's unrefined bitumen and heavy oil so it will flow in pipelines. Even in today's low oil

price environment, Canadian demand for diluent outstrips supply.

In 2014, the Alberta Energy Regulator (AER) launched the west central Duvernay pilot "Play Based Regulation" pilot approval process, with a March 2015 deadline for operators to file PBR applications. Recognizing fracking's intensive surface footprint and water requirements, the AER's pilot encouraged energy operators to disclose multi-year regional plans. The idea was to streamline the application process for companies and encourage coordination of infrastructure and water supply requirements. However, the pilot was not supported by a long term environmental vision or by overarching land and water management regulatory plans.

Since learning of this pilot in the summer of 2014, AWA has been very concerned that, once again, management of cumulative environmental impacts was ignored

whilst approvals were further streamlined. To its credit, AER's PBR staff has met every few months with AWA and other environmental groups since September 2014 to discuss the Duvernay PBR pilot. We were informed that AER was coordinating this pilot with Alberta Energy and Alberta Environment and Sustainable Resource Development (AESRD) – now Alberta Environment and Parks (AEP) – with AEP leading on land and water cumulative effects assessment pieces.

But as months passed without promised land and water impact limits, AWA and several others began submitting Statements of Concern for specific applications. In general, the applications we reviewed had incredibly limited information on aquatic ecosystem impacts from development and water withdrawal: from several days to zero field site visits for hydrology, river channel or aquatic eco-



Proliferating stream crossings greatly increase the risk of suffocating sediment loads entering the area's small waterways and harming fish and many other species. These photos were taken June 2015 on bridges over Waskahigan River (top) and Tony Creek (bottom), important tributaries of the Little Smoky River.
PHOTO: © D. SMITH

system assessment. There is little to no local water gauging of streams, and limited local precipitation records. Instead, instream flow needs and estimated water available for diversion used a 'desktop' method based on gauges far downstream on larger rivers, with very limited information disclosed on other temporary or term water licenses.

The applications revealed little awareness of existing fish habitat, or impacts to endangered and threatened species, though some applications did mention voluntary efforts to minimize new linear development. In one case, withdrawals were proposed from constructed water bodies that were intended as habitat offsets in earlier construction projects. Another operator

informed AER it would no longer seek a *Water Act* term water license and will instead be pursuing temporary water diversion licences for its requirements, adding: "accordingly, the water monitoring and management objections raised in AWA's SOC are no longer relevant to the Application and should be disregarded."

Many of these applications for multiple well infrastructure have been approved, though some follow up studies and monitoring is required. In one case, permission was granted to operate a fresh water reservoir but the actual water diversion license decision has been postponed. Ecologically-based limits to regional land impacts, and a water management plan that includes temporary water diversion and term water license impacts are still missing.

Despite this neglect, Albertans still care deeply about these valuable forests. In June 2015, ten fishing, hunting, trapping and environmental conservation groups jointly called on the new provincial government to manage cumulative impacts in these lands. In late September, 10 conservation groups met with the three departments and agencies to voice support for swift reforms. Local anglers and trappers graphically outlined the urgency of the situation.

We believe AWA's efforts, together with our conservation colleagues, have raised awareness and resulted in tentative steps by policy managers towards on-the-ground improvements. We are continuing to work in a broad coalition to seek stronger goals and urgency for Alberta Environment and Parks' west central land-water integration pilot. For future generations to be able to enjoy the rich habitat we inherited, there is no better time for decision makers to finally start to reduce the degradation and threats to these valuable streams, wetlands and forests. ♣

Two Fish, One Fish, No Fish:

Alberta's Fish Crisis

By Lorne Fitch, *P. Biol.*



Dr. Seuss's *One fish, two fish, red fish, blue fish* is a classic children's story, a simple rhyming book for beginning readers. We need a similar rhyme to help people grasp the problems afflicting Alberta's native fish species. It might read like this:

Two fish, one fish, dead fish, no fish,
No grayling or goldeye, something's
amiss.
This one has a tumor and a rotten fin,
There's no home for that one to live in,
Say, what a lot of fish there used to be,
Where are the fish for my kid and me?

My apologies to Dr. Seuss, but what would he have thought of the sorry state of fish in Alberta? Like convicts on death row, trends indicate dead fish swimming, where populations have been driven to

perilously low levels.

The current status of fish populations cannot be appreciated until we acknowledge where we were by reviewing historical abundance and distribution. Only then, will we grasp where we are, appreciate the losses, and see the potential for recovery.

It's sad but true that just too few fish live here anymore. It was not always so for fish and their downward spiral started long before Alberta became a province. Here's that history.

Grant us our daily fish... no more

Fish were once a staple in the diet of native peoples and fur traders, especially in the parkland and boreal forest regions. David Thompson, the Hudson Bay Com-

pany surveyor, fur trader, and mapmaker wrote in the late 1700s: "...when a new trading House is built...everyone is anxious to know the quality of the fish it contains for whatever it is they have they have no other[food] for the winter."

In 1798 a Hudson Bay Company post was established on Lac La Biche. Over 200 years later Dr. Andrea McGregor painstakingly quantified the harvest of fish from Lac La Biche that supported the westward expansion of the fur trade and settlement in her doctoral thesis. The annual harvest of lake whitefish increased from 85 tons caught in 1800 to over 1,200 tons in 1875. But even subsistence harvest by a relatively small population was not sustainable and the fishery collapsed in 1878.

One fish collapse followed another. To add indignity to the mortal injury of overfishing, by the 1950s the essential watershed integrity that supported the lake and its fish populations had been compromised.

Insult followed indignity and by 1970 walleye had effectively been extirpated and by the 1990s pike and perch populations had declined dramatically. The finny wealth of lake whitefish that encouraged settlement has been reduced to a fraction of historic levels.

We've influenced the ecological cogs and wheels of the lake's delicate mechanism, tipped the balance so far that the lake may not have the capability to snap back to some previous steady state.

David Thompson would not be impressed.



Fishing Near Fort Macleod 1902 File NA-4954-34 PHOTO: © GLENBOW MUSEUM

Arctic grayling - going, going, gone

Arctic grayling shimmer, even in tea-coloured water and, with their huge dorsal fin, seem more to sail through the water than to swim.

This member of the trout family had a historic range through the entire Peace, Hay, and Athabasca river basins. Grayling slipped between our fingers. More than half of Alberta's current grayling populations have been reduced to 10 percent or less of their historic population numbers. Also, there has been a 40 percent contraction in the range of grayling waters. Most of this contraction has happened in living memory.

Examples include the Beaverlodge and Redwillow rivers of north-western Alberta. Prior to the 1980s these rivers supported one of the largest spawning runs of Arctic grayling in Alberta. No grayling have been seen in the Beaverlodge River since 1994; they are now considered "extirpated." Populations in the Redwillow River are classified as "declining."

Why did historically abundant populations of Arctic grayling (and northern pike, bull trout and mountain whitefish) disappear from the Beaverlodge River?

Alberta Fish and Wildlife investigations report a "perfect storm" of cumulative, synergistic causes that resulted in crashes in fish numbers and distribution. The perfect storm came in the form of a series of land use decisions. Forest was rapidly replaced by agricultural fields; riparian fringes were narrowed and often disappeared with the patterns of settlement. Wetlands were drained and now roads interrupt drainage and channel flow. They send water to rivers faster. Both floods and droughts are exacerbated.

The Beaverlodge River has been transformed from a low productivity watercourse to one with an excess of nutrients. A small amount of nutrients promote growth and are beneficial in producing more of the things fish like to eat. Excess overwhelms the system. Oxygen is robbed from the water and fish suffocate.

If the changes in the Beaverlodge River and the loss of fish provide a lesson, it is that fisheries management — maintaining fish — often has little to do with how we manage catching fish (ie. seasons, catch limits, harvest size). Instead, the integrity of the watershed, the integrity of habitat, primarily dictates whether fish will persist or not. The cumulative effects of land and water use in the Beaverlodge watershed eroded the ability of fish to persist. Several species, consequently, have disappeared.

In most watersheds Arctic grayling are either a distant memory or, even worse, forgotten about entirely.

Looking for the last Goldeye

Goldeye have a prominent place in fishing stories from the past. Goldeye are deep-bodied fish, flattened laterally and silvery with large scales. They are named for their large, yellow-gold eyes which are adapted to the dim light and turbid water of prairie and parkland rivers.

The goldeye of the Battle River were tasty and once abundant. Harley Louis of the Montana First Nations near Hobbema recalled how productive fish traps were in the 1940s: "We'd catch enough fish [goldeye] to fill our saddlebags and ride back for a big feed of fish with our families."

It didn't last.

A fish biodiversity study sampling 128 kilometres of the river, from the headwaters at Battle Lake to the border, undertaken between 2005 and 2007 captured just seven goldeye. A few pike and walleye were found but 80 percent of the catch consisted of white suckers and minnows. Suckers are tough, resilient fish capable of survival in harsh circumstances. Even they were suffering lesions, eroded fins, and growths.

A provincial government river monitoring program found that over the span of 2009 to 2010 the Battle River had the poorest water quality of all river sites monitored in Alberta. The water's so bad, goes the joke, that when the angler turns his back, the worm makes a break for it.

What's the matter with the Battle River?

Dr. Michael Sullivan, Provincial Fish Science Specialist, sums it up succinctly: "too many nutrients coupled with too few filters spells big trouble for fish".

What has changed from the Battle River of Harley Louis's day to the one of today?

As the wave of settlement and development spread and the ecological integrity of the watershed became more and more compromised, fish numbers, fish distribution and fish health all declined. It wasn't the space race, nor the arms race but the food production race, aided by the horsepower race in farming that led to the decline and disappearance of native fish from watercourses in the settled portion of Alberta.

Perhaps ironically, there is safe haven for fish in the Battle River within the boundaries of Canadian Forces Base Wainwright, a military base. This isn't a function of armed soldiers protecting fish, but rather a landscape that is relatively unchanged. The military base, formerly Buffalo National Park, is uncultivated, uncleared native Aspen Parkland.

The Battle River through the military base is where the last few goldeye can find habitat conditions to their liking and where pike and walleye populations make their last stand. As was the case for grayling, the lesson from this safe haven on the Battle River is that effective fish population maintenance and restoration depends fundamentally on habitat. Everything else done on behalf of fish pales beside watershed integrity. Give me that integrity rather than mostly cosmetic window dressing designed to make me feel good.

Even a goldeye can see that.

It's a bear market for bull trout

Bull trout look like baseball bats with fins. They are torpedo-shaped and similarly dangerous to other aquatic species. Think of bull trout as the aquatic version of a grizzly bear — a summit predator.

And, as with grizzlies, the range of the bull trout has shrunk drastically. Bull trout



Bull trout from Allison Creek circa 1920

have now been eliminated from the Redwillow and Beaverlodge rivers, the North Saskatchewan River below Drayton Valley, the upper Crowsnest watershed – including Crowsnest Lake, the Willow Creek watershed, the Red Deer River downstream of Dickson Dam, the Rosebud River, the lower Bow River, the lower Oldman River and the lower St. Mary, Waterton and Belly rivers. In many watersheds bull trout may have disappeared before we even knew they had been there.

These reductions in the current range of bull trout continue. In 2005, Travis Ripley, then a provincial fisheries biologist, predicted extirpation of bull trout, in as little as two decades, from 24 to 43 percent of streams in the Kakwa River Basin subject to logging and road construction.

The provincial government's recent *Bull Trout Conservation Management Plan (2012-2017)* summarizes population status for the species. Remarkably the report escaped the spin doctors found in the province's Orwellian Public Affairs Bureau in 2012. Its authors clearly make the case bull trout are in trouble. No wonder the species has been designated as "threat-

ened" under Alberta's *Wildlife Act*. Population trends indicate that 61 percent of Alberta's 51 bull trout core areas show declines; 39 percent are stable or increasing.

However, tucked into the tables and unjustifiably sunny narrative of the management plan are a series of red lights flashing out danger signals to be interpreted and decoded. "Stable" populations are still below their historical levels and the word doesn't imply the population is healthy, only that there have been no changes in survey results over the short time of monitoring. Of the mere handful of populations to have increased in numbers over time most of them exist in areas protected from industrial land use pressures. A close examination leads to the conclusion that 94 percent of the provincial bull trout population is still in trouble.

It's a "bearish outlook" for bull trout, a pessimistic future given their range has shrunk and continues to do so while their numbers follow a similar downward trajectory.

It's a cutthroat world for the cutthroat trout

The trout is called a "cutthroat," not from personality or behaviour, but rather for a brilliant vermilion/orange slash on the underside of its jaw. In the clear streams of the upper Oldman and Bow watersheds seeing the flash of a cutthroat, a splash of liquid sunshine, is to glimpse a magnificent piece from nature's art gallery.

Duncan McEachran, a veterinary surgeon, traveled in 1881 from Fort Benton, in Montana, to Calgary along the foothills of the Eastern Slopes in search of possible ranch locations. Not only was he stunned by the potential of the foothills grasslands to support a livestock industry, he commented on the streams that ran clear and cold and were "full of trout...which are most delicious to eat."

From the June 15, 1903 edition of the *Calgary Herald* comes this insight into cutthroat populations in the Bow River watershed: "Two sportsmen went out after trout at Fish Creek one day last week and

as a result brought back 400 fish."

Yes, anglers were greedy, wasteful, and even rapacious, but the bigger impacts that destroyed trout populations were the landscape scale impacts on trout habitat: logging, mining, hydropower development, agriculture, and petroleum development.

The combination of overfishing and industrial land uses depleted cutthroat populations until a cry rose from sport-fishers to restock lakes and streams. Although cutthroat from the Spray system were used initially, non-native rainbow trout which were easier to obtain and rear became the species of choice for stocking efforts. Cutthroat populations, already hit by overharvest and habitat degradation, were overwhelmed by the new, foreign neighbour in their midst.

It is apparent that perhaps less than five percent of historical habitat is currently occupied by cutthroat in the Bow watershed, somewhat more in the Oldman. Cutthroat trout are now designated as "threatened."

There are approximately 5,500 genetically pure fish remaining in both watersheds, which is about the present human population of the Crowsnest Pass. Not so very long ago cutthroat trout outnumbered people in Alberta.

What happened to all those fish? What can we do about it?

The simple answer to the first question is: we killed them. We may not have meant to, we may not have been aware of the consequences of our actions and we might have firmly believed more fish existed.

Answering the second question is more difficult – at least if we want to get off the path we've been on since the 1800s. Here I think the first step is to rethink what we mean when we say that "fish are harvested." The phrase means much more than the obvious – the fish caught and kept by anglers and commercial fishers. We also harvest fish by the ways we develop, the ways we exploit, the ways we use landscapes.

Each unit of habitat, the sum of appro-



Logging on Spray River, 1889-1890 File NA-35535-211 PHOTO: © GLENBOW MUSEUM

appropriate water quality, quantity and temperature along with abundant overhead and instream cover, clean substrate and riparian shading is capable of producing and sustaining a number of units of fish. Any activity that degrades or eliminates units of habitat effectively harvests fish because it removes the potential for fish to exist.

A fish removed from the water on the end of a fishing line may die sooner, but death is just as inevitable when fish habitat is altered, compromised or destroyed. The difference is a fish removed by angling usually has minimal impact on the viability of the population. Lost habitat not only eliminates the existing fish but also any hope for population recovery.

Farmers, miners, off highway vehicle users, roughnecks, homeowners, politicians and a cast of thousands have devastated Alberta's fish populations without ever catching let alone frying a single fish. Instead, large numbers of fish, populations of fish, and watersheds of fish were killed through habitat alterations, loss of critical

habitats, water withdrawals, and pollution. Alberta's fish have died by a thousand cuts, not a thousand hooks.

Fish losses in Alberta are not solely an artifact of history — it's a current event, happening as you read this, in a watershed near you. The past has an annoying way of trespassing into the present. Every decision about how we use and develop land, water, and other resources is a decision about the fate of fish. And, the myth of endless growth and the policy of multiple use without weighing the consequences of either mindset has sentenced many fish to an untimely end.

A prognosis for Alberta's native fish.

With a few tiny exceptions, there has been precious little movement towards actively managing or restoring fish habitat. The recent *Fish Conservation and Management Strategy for Alberta* contains good words on integration, planning, monitoring, use of science and stewardship to benefit fish. But, it is weak on the crucial issue of im-



Poorly designed roads such as this one in the McLean Creek off-highway vehicle area send silt and sediment into streams to kill fish. PHOTO: © L. FITCH

plementation. It doesn't demand enough actions that would ultimately produce and sustain fish by protecting and restoring habitat. Since watershed management is the key to keeping fish swimming everyone involved in land use and landscape planning must pitch in. Fisheries biologists cannot do this on their own.

It is all about priorities. There is consistency in policy that favors economic development over environmental protection. What is noticeably absent is the spine to address the thorny issues of conservation targets and thresholds.

One thing about fishery collapses is that they are not completely predictable and do not happen according to some recipe. All the fish don't die at once (usually); instead they disappear in a series of almost indistinguishable whimpers, too quietly, too silently for most to notice.

However, we are getting better at defining thresholds, the crucial lines that, once crossed, signal imminent fish population collapse. Sediment from an eroding human land use footprint has long been recognized as a mortal threat for fish. The relationship between road density, the land use footprint, sediment, and fish population persistence (or not) seems clear. The research results are exhaustive, categorical, and yet unconscionably ignored as our land use footprint continues to bleed sediment.



Clean gravel substrate, one key to healthy fish populations. PHOTO: © L. FITCH

The cumulative and, in many cases, irreversible loss of native fish virtually everywhere in Alberta over our history of settlement should shock us. If anything approximating this had happened to most of Alberta's charismatic mammalian species it likely would have made for banner headlines and some level of political commitment to action.

It is perplexing that this happened in modern times, with some level of environmental consciousness and overlapping government responsibility. It speaks to institutional barriers that preclude action, poor communication between silos in government, and a lack of oversight mechanisms. Couple a reluctance to regulate and enforce to this daunting list. Mostly it speaks to our failure to plan for tomorrow, to use existing evidence to guide us onto a path of better decisions.

A call for action.

Fish, given their watery homes, are largely invisible to us terrestrial creatures. It isn't that fish are actually invisible, it is that people are unused to seeing them, of perceiving that they live beneath the surface of the water. Of course, if no one sees them, are they really there at all? And, if they somehow disappear, does anyone note their disappearance?

It's this invisibility of fish that makes it too easy to disregard their present plight and the decline in habitat that supports fish. It makes it easier to ignore potential and lost capability and set erroneous goals for fisheries management.

As Dr. Andrea McGregor points out:

“...managers, scientists and citizens are likely to assume the ecosystem conditions of the intermediate and distant past resemble those of their own remembered history and thus can be ignored — a classic characteristic of the shifting baseline syndrome”.

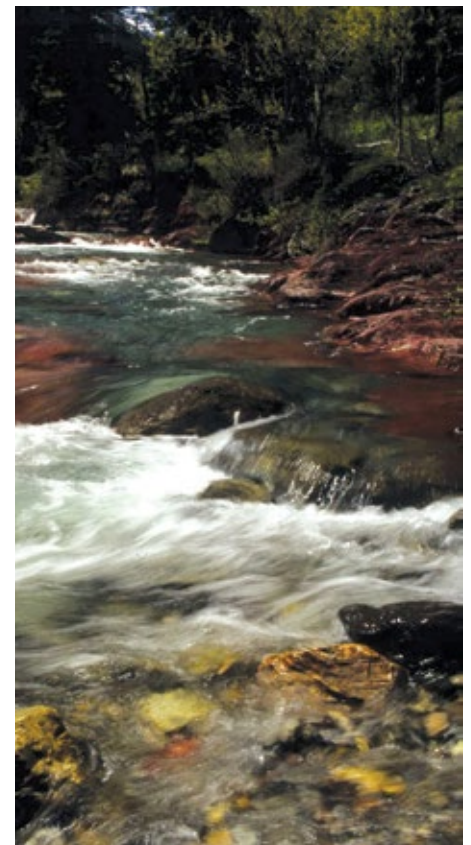
A question Albertans should answer, before the last fish swims to a watery grave, is this: Shall we be bold and ask for some of the fish harvest we have lost through

habitat losses back? To answer yes means we will require habitat restoration, riparian revival, fewer chemicals leaking into the water and, less sediment to muddy the water. The affirmative answer commits us to watershed improvement, true integrated planning, full cost accounting, and an ecological approach to decision making about future resource decisions.

Or, we could just answer no and call this failure to act, as we have become want to do — the price of progress. I hope that, on reflection, we will find progress sometimes has too high a price tag, especially when applied to fish.

In the Dr. Seuss classic that opened this essay is found this: “So, open your mouth, lad. For every voice counts.” Native fish need acknowledgement, empathy, encouragement and friends. ♣

Lorne Fitch is a professional biologist, a retired Alberta Fish and Wildlife biologist, and an Adjunct Professor with the University of Calgary.



Habitat Heaven, Blakiston Creek, Waterton Lakes National Park PHOTO: © L. FITCH

At the Top of Grassy Mountain



By Brittany Verbeek, *AWA Conservation Specialist*

Sometimes it takes climbing to the very top of a mountain to get the whole picture. A 360 degree view. I had the opportunity to do just that on Grassy Mountain at the invitation of Riversdale Resources' staff. I was invited to tour the proposed coal mine site on what turned out to be a stunning September day in the Crowsnest Pass.

We met for lunch prior to the tour at the Crowsnest Pass Golf and Country Club, at a cozy clubhouse tucked in the valley just north of Blairmore. I found the meeting spot somewhat ironic considering Riversdale has received conditional approval by council to locate their coal load out facility right on portions of the *golf course*. The Golf and Country Club website touts that it's been "voted Alberta's most scenic golf course;" that opinion may be hard to maintain if the scenery afforded by its mountain vistas is replaced by the stark industrial presence of a coal conveyor belt system and load out facility.

After lunch, I headed north on the seven kilometre drive to the mine area with two Riversdale staff, an aquatic ecologist, and a local retired coal miner. The company truck took us past remnants of old buildings, private lands, evidence of off-highway vehicle traffic, and meandering cows until we began ascending the precarious switchbacks of Grassy Mountain. Riversdale staff helped us orient ourselves; identifying landmarks and explaining some of the current and historical land uses in the area. They told us Grassy Mountain had been previously mined without much (if any) reclamation. Nowhere was that more obvious than

standing at the end of the mine road near the top of the Grassy Mountain. The coal seams were very evident in several deep gashes along the crest of the mountain.

They also pointed out that the surrounding area is in far from pristine ecological condition. And they were absolutely right. As with so many other areas in Alberta, overlapping land uses abound. There is a lot going on or has gone on behind those hills north of Highway 3 and many of the scars are visible from the top of Grassy Mountain. The Forest Reserve lands to the north and west showed both old and recent clear cuts. Roads wound through the valley on either side headed to oil and gas well pads and private properties.

Grazing agreements on public and private land allow cattle to roam the area. And, although not entirely visible from our viewpoint, I was told by Riversdale that many of the legacy logging trails in the area are now heavily used by motorized recreationists.

The Riversdale staff said on several occasions while on the tour that their company is committed to fully reclaiming the mine area once they have completed extracting the coal. Their point of view is that they do not see any other company or any level of government ready to fund the already much needed reclamation. Someone said to me afterward that this point of view sounded a bit like the infamous military quote 'it be-



Grassy Mountain's ridge was split open by several of these deep cuts revealing the layers of mineral deposits including black coal seams. PHOTO: © D. MAYHOOD



The view from the top of Grassy Mountain shows the scars of multiple land uses on the surrounding landscapes and the need for restoration in the area.
Photo © D. MAYHOOD



The east side of Grassy Mountain was lined with un-reclaimed dirt slopes. Slumping had occurred in several spots where access fluid from drilling had flowed down into the valley below. Photo © D. MAYHOOD

came necessary to destroy the village in order to save it.’ The life of the mine would be 25 or more years if approved, and that’s not including several years of pre-construction and post-reclamation work. Our poor cutthroat trout, hanging on by a fin in Gold Creek, and many other local species, may not have the stamina to withstand such a long period of disturbance and degradation.

In good company form, the Riversdale staff ensured us that protecting Gold creek was a high priority for them. They say they envision a collaborative approach to restoring and protecting the creek and the life it supports. But I believe we have other options to restore Gold Creek and the mine area that do not involve several more decades of coal mining, as well-intentioned as Riversdale may be. The provincial government is due to complete the Linear Footprint Management Plan and other sub-regional plans for the Livingstone area, which includes Grassy Mountain, by the end of this year. These plans could scale back significantly the amount of linear disturbance in the region. It’s well known that these disturbances have surpassed scientific species at risk thresholds. Damaging roads and trails may be reclaimed; stream crossings may be improved or removed. We can begin restoring the area to a more natural state. Excellent collaborative restoration work is already taking place

on other streams in the Oldman watershed that are home to native trout populations, including Hidden Creek and Dutch Creek.

Riversdale staff also told us they plan to have their Environmental Impact Assessment (EIA) completed in the coming months. The project’s EIA will be submitted to the Canadian Environmental Assessment Agency (CEAA) to be evaluated by an independent review panel. I find it puzzling that, as news of low coal prices, layoffs, and mine closures remain in headlines across Canada and around the world, Riversdale’s Grassy Mountain Coal Project continues to chug along the regulatory line. Intended destination? Project approval.

Another topic of conversation during the tour was Riversdale’s relationship with adjacent landowners and the local community. Road access seemed to be a bone of contention with some of the landowners. Riversdale now technically owns the road, and thus far has not restricted access for landowners, recreation users, or members of the Gold Creek Grazing Cooperative. Yet that will likely change if the mine is approved.

From what Riversdale staff said and after reading many of the public submissions on CEAA’s website regarding this particular mine proposal, people have some genuine and very valid health, environmental, and property value concerns. Many questions

have been raised about ground and surface water impacts, air and noise pollution, impacts on wildlife, and whether the mine will ultimately benefit or hurt the local economy.

It has become extremely personal for some of the landowners adjacent to the proposed mine. Some have, with great reluctance and sadness, sold their properties to Riversdale. Other locals have told me they would seriously consider moving away if the mine was approved. I’ve heard many times that the Crowsnest Pass community, in a sense, has been teetering on the fence for quite some time between embracing big industry or embracing tourism to stimulate the local economy. With the newly designated Castle Parks now as a neighbour to the south, it seems a better time than any to revamp the Crowsnest Pass as a gateway community for angling expeditions, ecotourism, and low impact recreation in the surrounding areas. I hope it doesn’t regress to a coal mining community.

As I stood on the top of Grassy Mountain on that near perfect autumn day, I stared all around me at the never ending landscape. I found it hard to imagine what it would look like during and after 25 years of coal mining. I thought how strange it was that I might outlast something as sturdy and long lived as the mountain I was standing on. 🌲

Species At Risk

Westslope Cutthroat Trout

By Nigel Douglas



Alberta's native westslope cutthroat trout were in the news once again in September, as AWA and Timberwolf Wilderness Society announced that they will be taking the Minister of Fisheries and Oceans Canada to Federal Court over the department's failure to issue a critical habitat order for Alberta's population of this threatened species. Such an order is required by law under the Species at Risk Act (SARA) because such legal protection is vital to restoring the species. AWA has long focused on the cutthroat as an indicator of the health of our headwaters and, for many years, the signs have not been good.

Cutthroat trout belong to the *Salmonidae* family of fish, which live throughout much of western North America. As there is a great deal of variation in the species,

splitting them up into different subspecies is a sometimes contentious business. Up to fourteen different subspecies are recognized, differing in appearance in various ways, including size, colour, and life history. The name *cutthroat*, as Lorne Fitch pointed out earlier in this issue, refers to the distinctive blood red or orange slash on the underside of the lower jaw.

Of the numerous subspecies, the westslope cutthroat trout is the only subspecies native to Alberta and is now restricted to the uppermost reaches and extreme headwaters of the Rocky Mountains and foothills. Though once a widespread species throughout southern Alberta, pure strain westslope cutthroat trout are now found only in the Bow and Oldman drainages. They may still exist in the headwaters of the Milk River.

In Alberta, the name "westslope" is

a little confusing for a species that is found on the eastern slopes of the Rocky Mountains. But of course Alberta is only a part of the range of this subspecies, which formerly occurred across northern Idaho, Montana, British Columbia, as well as Alberta. Like all cutthroat trout, they are highly streamlined; bold black spots are scattered liberally across a silver background. The belly of the males can brighten to a rich red at spawning time. More than other species, westslope cutthroats have a preference for colder, higher gradient streams with clear, clean water. Spawning generally takes place in smaller, gravel-bottomed streams which must be free of siltation.

Westslope cutthroat trout have now disappeared from approximately 95 percent of their historic range. They were first recommended for designation as a threat-



Westslope Cutthroat Trout PHOTO: © S. PETRY

ened species by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2006. Seven years later that recommendation was finally acted upon. The designation was made because native populations of this fish had been, in the words of the *Canada Gazette*, “drastically reduced, by almost 80%, due to over-exploitation, habitat degradation and hybridization/competition with non-native trout.” It went on to say: “Forestry, hydroelectric development, mining, urbanization and agriculture have all contributed to the loss of habitat.”

Historically, some would argue that the over-exploitation of fish stocks would have been the major factor behind disappearing populations. But in more recent years multiple developments resulting in significant losses in trout habitat have continued the process. Inter-breeding with closely-related introduced species such as rainbow trout or even other cutthroat trout is certainly another significant threat to the persistence of native westslope cutthroat trout in Alberta. But hybridization is certainly not the only threat to the species. The Alberta government website states, misleadingly, that “(n)ative stocks of cutthroat trout are in decline in their traditional range due to breeding with introduced populations of rainbow trout and non-native cutthroat trout.” The government fails to mention additional threats such as those posed by industrial development and poorly managed motorized recreation.

Although the westslope cutthroat trout is designated as threatened, provincially and federally, and a recovery plan is in place, threats to trout habitat are as pressing as ever. A June 2015 review by AWA and Timberwolf Wilderness Society of overlapping human impacts throughout the Oldman watershed found that virtually every creek and river home to native trout has been negatively impacted or is threatened by logging, off-highway vehicle use, stream crossings, oil and gas development, coal mining, roads, dam operations or combinations of these

damaging activities. And the continuing refusal of the Minister of Fisheries and Oceans Canada to designate critical habitat for the species suggests a distinct lack of urgency. AWA hopes the new Liberal government will take this crucial step in the near future.

All is not doom and gloom though, and there are some signs for cautious optimism for the future prospects of westslope cutthroat trout. The recent designation of the Castle Wildland and Provincial Parks might offer the opportunity for meaningful protection of headwater habitat for cutthroats. But, we’ll

need the government to walk its “full protection for the Castle” talk much more seriously in order for this to happen.

“Morally, to allow a species like cutthroat trout to disappear through apathy, ignorance, inactivity or greed would be a blot on our record as stewards of shared resources.” Those are the words Lorne Fitch used in his introduction to the *Alberta Westslope cutthroat trout recovery plan 2012-2017*. “These resources have been entrusted to our care,” he wrote, “not for our exclusive use and disposal but to pass on, unimpaired to subsequent generations.” Amen. ♣

Quick Facts:

- Westslope cutthroat trout, *Oncorhynchus clarkii lewisi*
- Federal status: Threatened (Alberta, British Columbia populations)
- Provincial status: Threatened (Alberta Wildlife Act)
- Length: 6 to 40 inches (15 to 102 cm) in length, depending on habitat and food availability
- Surprising fact: Only five percent of the species’ historic range in Alberta is occupied by cutthroat trout today



PHOTO: © S. PETRY

Conservation Corner

The Leopard Frog and the Fungus

By Niki Wilson



Leopard frogs, once widely distributed throughout the province, are now a threatened species in Alberta. In the late 1970s and early 1980s their populations declined dramatically, and have never fully recovered. Their survival has been threatened by many challenges; habitat loss, road mortality, water quality issues, and a changing climate. Though some of these factors can be clearly linked to aspects of their decline, the mysterious role played by a devastating fungus is still being unraveled.

That fungus is *Batrachochytrium dendrobatidis* (*Bd*), or Chytrid fungus, and it's a crafty killer. It attacks the protein keratin that toughens amphibian skin and helps regulate hydration in their bodies. In addition, it has nasty and varied effects on different life stages—in tadpoles it disrupts the formation of their mouths, affecting their ability to eat. In juveniles and adults, it is thought to interfere with the growth of cells, and to disrupt the process of eliminating waste from the body.

The global spread of Chytrid has been,

for many species, catastrophic. Some studies document over 200 species extinctions across six continents. But did the fungus have a role to play in the sharp decline of Alberta's northern leopard frogs?

"Something wiped out leopard frogs thirty years ago," says Alberta Environment and Sustainable Resource Biologist Dave Prescott. Though Prescott says there is no concrete evidence linking Chytrid fungus to the decline, it's possible the disease was the culprit.

"That's always been my thinking as to what happened in Alberta, because there's really been no other explanation as to why they disappeared," says Prescott. Though other threats were actively affecting some populations, those factors were not universally present in all leopard frog communities.

"It wasn't habitat loss, it wasn't sun spots, it wasn't UV rays, and it wasn't herbicides, because [leopard frogs] disappeared from a lot of areas that weren't agricultural. Something we couldn't see went through the population and wiped out a very big percentage of it in a very small amount of time. To me, that sounds like a disease."

If Chytrid was the main player in the population declines at the time, then it's interesting to note that most Alberta leopard frogs are now resistant to infection. In a 2012 survey conducted by Prescott, colleague Scott Stevens and Doug Whiteside from the University of Calgary, the fungus was found on numerous seemingly healthy leopard frogs, among other amphibians.

"What we found, is that Chytrid was



How many of these frogs are northern leopard frogs? They all are: two are burnsi morphs, one is a green morph, and one is a brown morph. PHOTO: BY LOBA WOLF (OWN WORK) [CC BY-SA 3.0 ([HTTP://creativecommons.org/licenses/by-sa/3.0/](http://creativecommons.org/licenses/by-sa/3.0/))], VIA WIKIMEDIA COMMONS

far more prevalent in the province than we suspected,” says Whiteside. “Approximately 44 percent of sites we tested were positive for Chytrid, but the interesting thing was that we weren’t seeing a lot of mortality with it.”

That makes sense, says Whiteside, adding that studies on northern leopard frogs have revealed peptides on their skin that function as antifungals. “[Chytrid] doesn’t seem to affect them as much as other species in the world that don’t have as many of these peptides.”

Prescott says this pattern of population devastation and recovery with resistant individuals is often seen in wildlife disease. The hope is that eventually populations will recover to previous numbers, though this is not the case with the northern leopard frog in Alberta. Numbers are

low, though seemingly stable for the time being.

“While resistance to Chytrid is good news, we still have to be vigilant,” says Prescott, explaining that biologists are just beginning to understand how Chytrid behaves when compounded by other stressors. For example, says Prescott, a frog carrying the fungus may not succumb to the infection, but if the climate is changing, or there are pesticides in the water, Chytrid may exacerbate their effects, making the frog more susceptible.

Prescott points to a study in which frogs exposed early in their lives to the herbicide atrazine had a higher death rate, but only when infected with Chytrid. “Frogs that didn’t have Chytrid in the first place were fine.”

Biologists are working to understand the

history of Chytrid fungus in Alberta. It may have arrived here some thirty years ago, or it may have always been here. “I wouldn’t be surprised if it was in the province longer than we think,” says Whiteside.

Regardless, the behaviour of Chytrid in amphibian populations will likely evolve as the environment changes around the frogs, toads and salamanders that call Alberta home. While Chytrid is definitely a piece of the puzzle, Prescott says biologists still don’t know where it ranks in terms of threats to Alberta’s amphibians.

“It’s one of many threats we have to be aware of.” 🐸

Niki Wilson is a multi-media science communicator and biologist living in Jasper. Visit her at www.nikiwilson.com



In Memoriam - Chris Havard,

June 12, 1944 - September 18, 2015

A few weeks ago our dear friend Christina Jean Ibbotson Havard passed away after years of struggle with cancer. In June she and her lifelong friend Vivian Pharis gave an inspiring account of what it meant to them to have the chance to learn about our mountain wilderness. The Hostelling Association was their gateway into the world of hiking, camping, and skiing; it also was the gateway to many enduring friendships. Many of those friends, like Chris, became lifetime members of AWA. Chris and her husband Ken have been strong supporters of AWA and their gifts covered a significant portion of the purchase price for the Hillhurst Cottage School. Pictured here during AWA’s 50th anniversary on June 25, 2015, Chris was vibrant, inspiring, and passionate on that day. In the days that followed Chris and Ken spent time in Manyberries, Cypress Hills, Brooks, and other prairie spots, enjoying the birds and reliving memories from days long gone. Chris was Ken’s soul mate, mother to Jennifer and Noel, and grandmother to Kieran, Ryan, Benjamin, and Eric. Chris, a very giving soul who loved nature, was perhaps above all a person who cared so deeply for the values and people she loved. She believed in the work of AWA; she knew her help would make a difference in our day-to-day ability to pursue our shared vision for wild lands and wildlife throughout Alberta. AWA is honoured and grateful to her family as they have asked friends and family to remember Chris with a memorial donation to AWA. Chris is dearly missed. In the days since her memorial service, she has been in our thoughts with warm memories of a kind and gentle woman who believed passionately in what we do.

Sid Marty:

A Man for Alberta's Mountains

By Lindsey Wallis



Sid Marty has been writing since the 1960s. For more than half a century his love of Alberta's wild spaces has made him a powerful voice for conservation as a journalist, prose writer, songwriter, and poet...occasionally while staring down a bulldozer at a protest site.

His time as a warden in the mountain parks, the time he spent growing up along Seven Persons Creek near Medicine Hat, and his current residence, tucked in the shadow of the Livingstone Range along Highway 22, have imbued his work with the quiet power and honesty of a man who is inextricably tied to the land.

Christyann Olson, Executive Director of AWA, sums up Marty's influence:

"Sid has, for years, influenced thoughts and actions through his books, his prose and his songs. For the most part he is likely unaware that he has made a difference to conservation in Alberta, in that quiet and most likely immeasurable way. AWA is recognizing Sid at this time for all his years of caring for the environment, for speaking out softly and more recently for protesting loudly about logging in the Castle. Logging that has taken a toll on the ecosystems and that, through protest and defiance, has stopped and given nature respite and time to heal and hopefully

will lead to legislated protection. Sid is highly regarded and when he stands up others learn from him and feel empowered to take an informed stand too."

The son of a "truck driver with a grade-school education and a feisty Limey war bride," as he puts it in his book *Leaning on the Wind*, Marty grew up in Medicine Hat at a time when kids were free to play in the wild spaces that surrounded the dusty, windswept town.

He and his friends passed time along Seven Persons Creek fishing and camping, looking for scorpions and black widow spiders, building forts, and playing cowboys and Indians. It's where Marty says he first developed an affinity for flowing water and learned watersheds are the heart of our wild lands. In *Leaning on the Wind* he writes:

"Out from the amber water of Seven Persons Creek, out from the riverine forest of willow and cottonwood, a love of wild creatures and wild places crept stealthily into my heart. I learned in childhood what every prairie creature knows: it is the coulee, the creek bottom, the river valley that offer the only shelter from the freezing winds of winter and the hot winds of summer. The coulees teemed with deer, pheasants, cottontails and grouse."

After a brief stint as a graduate student in Montreal Marty returned to Alberta and joined the warden service. It was there that he says he became aware of the power that wild places have to help us slow our lives down and live in the present moment. "You get the chance to live with a clear

mind and experience that older lifestyle," he says. "It connects us to our ancestors in a way – traveling at a slower speed and taking in everything that's around us. People were here 10,000 years before we showed up. You get in touch with those old souls."

The job of a park warden in the 1970s was never dull. It required Marty to be, in turns, an excellent horseman, skier and mountaineer, as well as carrying out mountain rescues and law enforcement duties (there was a history of law enforcement in his family – his great grandfather, grandfather, and a great uncle all worked as sheriffs). "It was a wonderful place for young people to be – it gave me a lot of personal satisfaction," says Marty.

Even the routine patrolling around town and breaking up drunken fights at park campgrounds was made tolerable by the variety of the work and the long stretches spent in the backcountry. "The best part of the job was the ability to travel in wild country for up to 24 days at a time," Marty says. "If you went to a new district they would give you four or five horses who would show you around – they knew where everything was. If you had any doubts you just gave them their head and they would take you to the next campground. I enjoyed the backcountry work more than anything else."

Marty left the service at the end of the 1970s, only partly of his own volition. He says he was fed up with the bureaucratic ineptitudes that he witnessed and was sick and tired of things like a ski hill development being pushed ahead despite evidence that it would be harmful to the park (he



With the Livingstone range in the distance its easy to see why Sid and Myrna Marty chose this landscape to make their home and raise their family.

points out the continuation of that attitude with the recent approval of an expansion at the Lake Louise ski hill). “There were a lot of problems with politics in Banff,” he says. “We were always getting accosted by people in the tourism industry who had someone’s ear in Ottawa so you were limited in what you could do for wildlife management and conservation.”

The final straw was when the publication of his book *Men for the Mountains*, in which he levelled criticism against park management, got Marty confined to a desk, despite it being well-received by the public and even receiving accolades from the Assistant Deputy Minister for Parks Canada in Ottawa. Being young and impatient, as he says, he chose to hand in his badge rather than sit at a desk.

He did manage to get a certain amount of satisfaction though, when, in the early 1980s, the same people who made his life so difficult were sued for negligence. This was due to their handling of bear management in the park, which resulted in sever-

al people being mauled and one (human) fatality. Marty writes in depth about the events of this period in his book *The Black Grizzly of Whiskey Creek*, which was nominated for a Governor General’s Award in 2007.

Since his time with Parks Canada Marty has made a living as a freelance writer on his and his wife Myrna’s “ranchette” as he calls it, at the foot of the Livingstone Range. There he continues to draw inspiration from the beauty of the landscape. In the heart of ranching country, Marty can wander out his back door, up through the bullpines to a hilltop where one can see all the way to Chief Mountain in Montana. In *Leaning on the Wind* he writes, “The bullpine inspires me to persevere, to strive, to endure. It is at war with the wind, but it contemplates the rock of the infinite. The sedentary life of a writer goes very much against my grain at times, and then I climb up among the bullpine, into the teeth of the wind. The one force fills me with the fierce breath of creation; the other gives me

purchase, bears me up, stiffens my resolve.”

While Marty freely admits that writing is a hard way to make a living (“It’s not something you get into these days with the idea of getting rich,” he says laughing), he thinks it is the role of writers to be a voice for the land, which can’t speak for itself.

“It’s up to writers to try and put those landscapes (that we feel are so important) on the map so they become real to other people,” says Marty. “We have a road called the North Burmis road which is the most beautiful road in Alberta but the fewer people that know about it the harder it is to protect it so in a way you have to bring some of these landscapes into reality or bring them to light for other people if you want them to back conservation efforts.”

He has been rewarded in his literary efforts over the years by people who were influenced by reading his books or hearing his music to pursue a career in conservation, whether as a park warden or environmental lawyer. Marty himself was influenced by the writings of Edward Abbey,

American author and outspoken environmental advocate.

He says he was particularly gratified by a letter he received after a piece of his on B.C.'s spirit bears ran in *Canadian Geographic*. "I got a letter from some hunters who, after reading the article, were horrified to understand that they could be shooting a black bear with black fur but it could have the genetic coding of a Kermode bear. They were going to stop hunting black bears," Marty says.

One of the other roles he has taken on is one of translator. He says: "It became clear to me quite a while ago that one of the roles of writers who address these things is to keep abreast of some of the scientific literature and translate it to a wider audience. Sometimes science isn't so good at getting its work into the public domain."

For Marty, the use of the landscapes in southern Alberta is the most pressing environmental concern for the province. "It is just a free for all on the eastern slopes – it's like the Wild West in terms of clear-cut logging, oil and gas development and ATV use," he says. "For quite a while the ATV lobby has pretty much dictated the recreation policy on the eastern slopes. We need to make more opportunities for low-impact recreation."

He points to the lack of law enforcement, especially conservation officers in the field, as one of the major problems. "I learned that asking people to do the right thing isn't good enough – you need to have people on the ground representing the government who are there to enforce the regulations for the benefit of the whole population."

Marty is optimistic that the new NDP government will create positive change but realizes that they are being cautious right now. "We can't even imagine yet all the chicanery that went on with the previous government," he says. "I think they have to go through a period where they can sort everything out and hopefully they will listen to the other voices, not just the voices of industry and motorized recreation. There are a lot of young people out there with new ideas and the new government would do



*The road to Prairie Bluff. In 1987 Sid Marty joined Mike Judd in trying to stop Shell Canada from building this road to Shell wellsites on Prairie Bluff. Shell Canada served AWA with a statement of claim for over \$100,000 because of the non-violent protests that took place at the Prairie Bluff/Corner Mountain construction site. Sid recounts this episode in his book *Leaning on the Wind*.*

well to clean house and listen to them."

AWA isn't the first organization to recognize Sid Marty's contributions to public life in Alberta. In 2009 Sid received a Lifetime Distinguished Achievement Award from Mount Royal University. A video interview with Sid on that occasion is available at http://www.mtroyal.ca/Alumni/legacy_video_09.shtml.

Recently, Marty has once again taken up the banner of environmental activism and has been on the front lines of protests near his home. He chronicled his first real taste of resistance to the Alberta government in *Leaning on the Wind*, when he stood down a bulldozer with Mike Judd, protesting the

development of a gas well by Shell on Prairie Bluff in the late 1980s. At the 2015 Martha Kostuch lecture in November he will share his recent experience at the standoff in the Castle, where members of the AWA and Castle Crown Wilderness Coalition were protesting logging by Spray Lake Sawmills and some were subsequently arrested.

AWA hopes you will be able to join us when Sid Marty delivers the 2015 Martha Kostuch Annual Wilderness and Wildlife Lecture on November 20th at 7pm at AWA's home in the Hillhurst Cottage School. 🍌

A freelance writer & photographer, Lindsey loves tramping through Alberta's wild spaces, whether on foot, horseback or skis, now with her new baby girl in tow.

Gordon Petersen:

Voice for the Castle River Wildland

By Vivian Pharis, AWA Board Member



Gord's story is the archetype of environmentalist/conservation stories in Alberta. Years, even decades of hope, long effort, personal sacrifice, deep commitment to the scraps of natural systems that remain after 60 years of relentless resource extraction, clearcutting, urban and transportation sprawl, breaking the sod and cancerous OHV growth – those efforts always thwarted because of the general belief that we can grow and extract forever without consequence.

Gordon Petersen is an Alberta boy who lived away for a while and on his return chose the Pincher Creek area as his roost. Not wanting the city life, Gord and his wife Cathy, a medical doctor, fell under the spell of the alluring southwest Alberta landscape. Undoubtedly Gord's mother influenced their choice of a home too, as she had grown up near Pincher Creek and her tales of colourful horse packing trips into the rugged Castle and Oldman River drainages are part of Gord's memory.



Gord Petersen in the mountains he has defended so well.

Gord's mother had worked for the famous area outfitter Bert Riggall as a summer packer, often packing alongside a young Andy Russell. From his roost and background, Gord became a consistently strong voice arguing for protection of the Castle River region.

Born in Edmonton, raised in Calgary, Gord first studied electronics at SAIT (Southern Alberta Institute of Technology) before taking a degree in electrical engineering at the University of Calgary. His subsequent career with Telus and the oil and gas industry left him feeling unfulfilled and he returned to university in the 1980s to study in the Faculty of Environmental design. His Master's Degree project looked at using satellite remote sensing technology to map ground cover in the winter range of barren-ground caribou. This work brought Gord closer to his childhood fascination with nature. As a young boy scout at Camp Gardner near Bragg Creek, Gord recalls an influential counsellor, Tom Beck, who also happens to be a founding member of the Alberta Wilderness Association. Perhaps an early conservation seed was set.

It was when he and his wife decided to try life in Newfoundland that Gord seriously took up wildlife and landscape photography, a hobby that has evolved into more of a career. For three of the five years they spent on Newfoundland's rocky shores, they lived on remote Fogo Island where Cathy administered to community health needs. By choice and by necessity they lived as the locals did, close to the land, often enjoying feeds of fish, wild berries, and meat from local hunters. Island life depended on winter ice, as all mainland contact was by ferry, which sometimes needed the assistance of an ice breaker. There were periods

of isolation although not like in the past when there were no phones, TV, radio or helicopters for emergencies. The tides and currents constantly provided new interests including seals and the occasional polar bear that drifted in on passing icebergs.

Eventually family beckoned Gord and Cathy back to Alberta and they cast about for a place that felt like home, settling on the small, beautifully situated hamlet of Beaver Mines west of Pincher Creek. Cathy took up a Pincher Creek practice and Gord immersed himself in the bounty of photographic riches all around him. Today Gord sells photographs to publications such as *Canadian Geographic*, *Alberta Views*, and *National Geographic*. His wanderings soon revealed the extent of environmental riches the area had to offer, and their tenuous circumstances. He was soon a defender of these riches.

Starting with the 1993 Natural Resources Conservation Board (NRCB) hearing into the proposal to expand the West Castle ski development, including major condominium developments, Gord became a voice for Castle River wilderness by joining those who formed the Castle-Crown Wilderness Coalition (CCWC) some 25 years ago. This group has stood the test of time and endured countless disappointments from successive Progressive Conservative provincial governments that consistently failed to ensure any significant future for Castle River landscapes. Those landscapes were once seen as so ecologically and aesthetically valuable as to be included in Waterton Lakes National Park.

Gord actually sees the 1993 NRCB decision as favourable, in that it recommended a compromise position – it saw ski hill expansion to

be in the public good, but only if the surrounding mountain and foothill landscapes were protected as a park. Following the decision, government, through an Order in Council, allowed ski hill expansion to begin simultaneously with plans for a park. There was excitement all around, things were unfolding as they should. But this didn't last for long. Secretly, three politically well-connected locals who didn't want a park met with Ty Lund, that most Machiavellian of Alberta's long string of pro-development appointments to the Environment Ministry. Lund reversed the entire NRCB decision; he halted the ski resort expansion and the park.

The ski resort was sold and the new developer was able to proceed with piecemeal expansions so as to avoid environmental impact assessment scrutiny or any official reviews. West Castle Development has undergone continuous expansion, mainly as a housing complex, and although the east side of the river is out of bounds as a special wildlife area, it remains the obvious place for further resort sprawl.

The dogged little group held fast to its dream of a park through the 1990s and into the new century. Since the NRCB hearing the CCWC has invested time and energy in several Energy Resources Conservation Board (ERCB) hearings, an Environmental Appeal Board hearing, and actions at the Court of Queen's Bench and the Alberta Court of Appeal. When a flood washed out the road up Lynx Creek, the group attempted to secure this area as roadless wilderness by using the courts to try to enforce the federal *Fisheries Act* and stopping fish-damaging road repairs. The province quickly repaired the road, negating the case. Meanwhile, the growth in OHV numbers and their damage to foothills and mountain landscapes became increasingly evident, with no legal way to curtail it.

Under the Special Places 2000 program, the much-supported Castle River Wilderness was declared a Special Place. A local implementing committee was appointed and again, hopes were raised. The Castle had once again met all official requirements for protection and was amongst the chosen few. However, actual designation required a revision to the area's 1984 Integrated Resource Plan, something that

proved to be unachievable in that political era.

Next came several years of effort into the C5 Management Plan that was supposed to have been a general land planning exercise that incorporated timber cutting, with a range of other values recognized, but ended up being nothing more than a logging plan. Logging began under this plan in 2012 and so did a plucky protest by local citizens – the CCWC offering legal counsel in the wake of the protest, and a still-active court challenge. A mid-winter camp-out protest on a proposed logging site had gone on for three weeks until the Alberta Government took out an injunction on the site and arrested several people including local resident Mike Judd and Calgary professor Richard Collier.

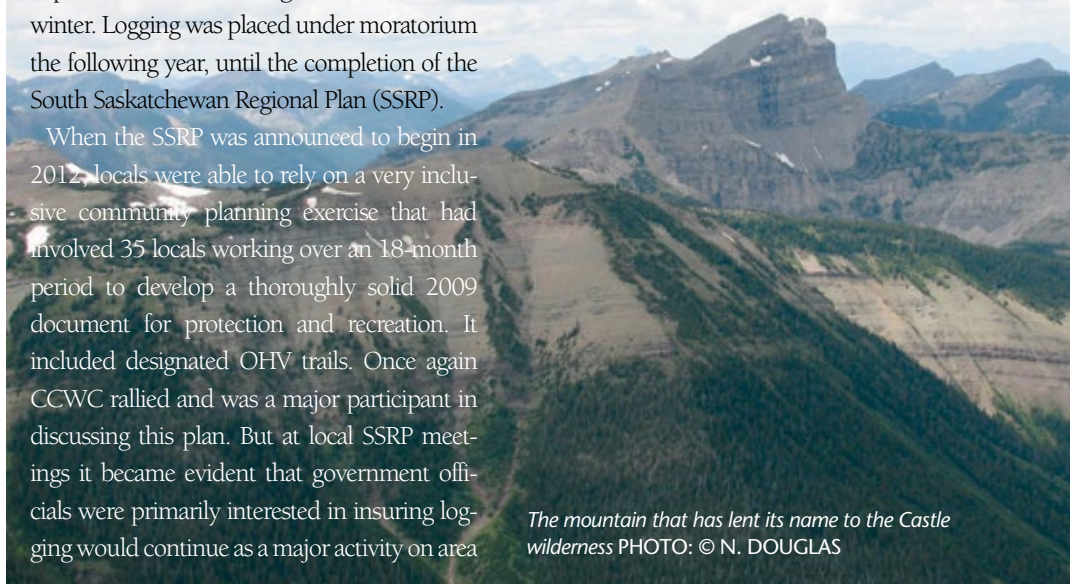
Gord participated throughout that winter of protest, as a liaison person amongst police, Spray Lakes Sawmills, media, and protesters. He describes the day of the arrest as quintessentially Canadian with the arresting constables having allowed prior time to talk to lawyers and, on the appointed day of arrest, arriving with coffee and donuts for all. An 8:00 am deadline had been set for those to step forward who were willing to be arrested. It was a serious but calm, relaxed approach and soon those not arrested, moved about two kilometres down the road to continue protesting, while those arrested disappeared in the paddy wagon. (This event will be elaborated on, November 20, 2015, when Sid Marty presents the AWA's annual Martha Kostuch lecture in Calgary.) Logging began immediately and periodic protests occurred throughout the rest of the winter. Logging was placed under moratorium the following year, until the completion of the South Saskatchewan Regional Plan (SSRP).

When the SSRP was announced to begin in 2012, locals were able to rely on a very inclusive community planning exercise that had involved 35 locals working over an 18-month period to develop a thoroughly solid 2009 document for protection and recreation. It included designated OHV trails. Once again CCWC rallied and was a major participant in discussing this plan. But at local SSRP meetings it became evident that government officials were primarily interested in insuring logging would continue as a major activity on area

lands. Two draft SSRPs were brought forward for public discussion prior to the final document. Successively, each plan had fewer conservation commitments than the previous one, with the final one being a major disappointment – it committed to protect only the rock and ice portions of the Castle River drainage.

Now, with more than 20 years of effort into the Castle region, Gord's current best hope lies with the new Alberta Government and the NDP's platform promise to finally fully protect the Castle region. In the wake of the government's September decision to protect the Castle Gord should be expected to see this area is seriously managed for conservation. His interests have been stretched by his experiences though, and he now envisions new, more environmentally sound ways of doing forestry along the Eastern Slopes, although he personally feels that forests south of the Bow River are far more valuable for wildlife, water, and wilderness than timber production, and should be left intact for these values. Gord is also buoyed by what he sees as a much more cooperative approach to land issues, by conservation and landholder groups and broader sectors of community involvement. But, he also remembers the world trophy rams that were part of his mother's Castle experiences and knows protection will have to include a huge recovery effort, one that CCWC is well positioned to participate in.

Please join AWA on November 20th when we present Gord with a Wilderness Defenders Award in recognition of his work on behalf of the Castle and a wild Alberta. ▲



The mountain that has lent its name to the Castle wilderness PHOTO: © N. DOUGLAS

On Becoming a Modern Day Rockstar

By Joanna Skrajny, *AWA Conservation Specialist*



Hello, my name is Joanna Skrajny and I am the most recent addition to the team of Conservation Specialists at the Alberta Wilderness Association. I am also a self-proclaimed rockstar. I start my crazy days at 6:30am, I have coffee and yogurt for breakfast. My days consist of going to work, answering emails, and cooking dinner when I get home. Typical wild Friday nights consist of reading a book, and if I am lucky, I'll try to get out of town for the weekend and explore what Alberta has to offer.

I have lived in Alberta for my entire life. I grew up in Calgary, and my childhood consisted of summers sweetly spent in every corner of Alberta. As a family we spent a lot of time camping all over Al-

berta. Some of my favourite places include Writing-On-Stone, Dinosaur Provincial Park, Sheep River, Buffalo Lake, areas around the Crowsnest Pass, and the Bighorn. I have also camped and hiked all along the Rocky Mountains. A particularly memorable trip was backpacking in the Tombstone Backcountry with my father, catching rainbow trout for dinner and cooking it over the fire. Nothing has ever tasted better! Winters were often spent skiing, snowshoeing, ice fishing, and skating to our hearts' delight. I've always been fond of Alberta's amazing amount and diversity of wilderness. From the expansive skies of the grasslands, to the rolling foothills and the striking Rockies, there is always some-

thing for everybody.

Having so many treasured memories in the great outdoors, I wanted a career in which I could fully immerse myself in everything conservation and environment related. I wanted to play an active part in preserving the landscape I have grown to love. And so I completed my degree at the University of Calgary, and obtained a BSc. in Environmental Sciences. Discouraged by the lack of jobs in my field, I set out to volunteer so I could help and participate in any way that I could. And so I began to volunteer at AWA - and immediately fell in love.

In case you aren't familiar, AWA is located in the historic Hillhurst Cottage School, an unassuming house on a quiet unassuming street in a nice neighbourhood. Inside you will find the conservation specialists, quietly chipping away at the never-ending pile of conservation issues that need to be addressed. They answer the phones with a smile, always happy to help. And yet it is these people that are the modern day equivalent of rockstars. They relentlessly work to keep Alberta wild for future generations. They ensure that the legacy of wilderness and wildlife in Alberta is one that we all can be proud of. And that is why I was so humbled when I was invited to become a part of this incredible team of people. I'm excited to begin my career here at the AWA. I hope I can serve you well and play my own part in keeping Alberta wild. 🌲

Fall / Winter Events

Wilderness Around the World 2015/16 Edmonton Speaker Series

UGANDA: Land of Sitatunga & Gorilla

With Dr. Mark Boyce
Wednesday, October 7, 2015

CAMEROON: Evaluation of its Biodiversity

With Dr. David Simbo
Wednesday, November 4, 2015

INDIA: Mountains and Tigers

With David Hobson
Wednesday, December 9, 2015

MOUNT ST. HELENS: The Power of Nature

With Dr. Evelyn Merrill
Wednesday, January 13, 2016

BRAZIL: Wilds of the Pantanal

With Dr. Jim Butler
Wednesday, February 17, 2016

ZAMBIA/ZIMBABWE/TANZANIA: Off the Beaten Track African Parks

With Bill Reynolds
Wednesday, March 16, 2016

Location: Jackson Power Electric Ltd.
(9744 - 60 Avenue, Edmonton)

Time: Doors open 6:30pm Talks start 7:00pm

Cost: FREE! Donation at the Door Appreciated

To pre-register and guarantee a seat:

www.gowildalberta.ca/shop/talks or call 1-866-313-0713

Annual General Meeting

Date: November 21, 2015

Location: AWA's Hillhurst Cottage School - 455 - 12th St. NW Calgary

Time: 11:00am

Music for the Wild

Headline Act

Allan & Arnell. Alberta musicians Jane Allan and Lance Arnell play songs that will bring a memory back, inspire an adventure & warm your spirits. Acoustic instruments compliment their vocals in all sorts of combinations and in a variety of musical styles: bluegrass, folk, roots and a growing number of original tunes. Their music will take you to the blue sky prairies, into the rugged mountains or into a campfire tale.

Opening Act

Diminished Fifth. Diminished Fifth (Michael and Karen Pollock, Natalie Manzer and Steven Méthot) is all about close harmony whether it be a cappella or multi-instrumental arrangements, all home-grown. Each year they host a non-traditional traditional Christmas benefit show featuring a variety of entertainment, song, music, dance and serious fun all woven together with a story from Steven. Their set will bring some of that magic "on the road" to us.

Date: Saturday, November 28, 2015

Time: Music at 7:30pm, doors open at 7:00 pm

Location: 455 12 Street NW, Calgary

Tickets: \$20.00

Pre-registration is highly recommended: 1 (866) 313-0713

Online: www.GoWildAlberta.ca/music-for-the-wild

AWA Annual Lecture and Awards Evening

2015 Martha Kostuch Annual Wilderness and Wildlife Lecture

"Banned in Alberta and other tales from the
conservation trenches"

Guest Lecture by Sid Marty

Wilderness Defenders Award Winners:

Gord Petersen and Sid Marty

Great Gray Owl Award Winners: Bob Blaxley

Date: November 20, 2015

Location: AWA's Hillhurst Cottage School
455 - 12th St. NW Calgary

Time: Reception including refreshments 6:00pm
• Lecture and Awards 7:00pm

Cost: Members \$50 • Non-members \$75

Reservations are required, space is limited

Reserve online at www.AlbertaWilderness.ca

Calgary Talk: Art, Activism & The Red Alert Project

with Barbara Amos

Artists have a history of working at the edges of many realities. Artwork has frequently acted as a social conscience. With this in mind, artist Barbara Amos tells a story of an art project in southern Alberta where people gathered to bring attention to a watershed. Striking visual statements were created with collaboration and humour. The intent was to invite curiosity and engage others in a conversation about preservation of watershed.

Cost: \$5.00

Date: Tuesday, December 1, 2015

Time: Talk at 7:00 PM (Doors open at 6:30pm)

Location: 455 12 Street NW, Calgary

For a complete list of AWA hikes and tours go to: gowildalberta.ca/product-category/hikes-tours/

Why are Alberta's Trout Disappearing?



PHOTO: Ray Blanchard

You can help save *Bull Trout* and *Westslope Cutthroat Trout* at
www.AlbertaWilderness.ca

Return Undeliverable Canadian Addresses to:



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Calgary, Alberta T2N 1Y9
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