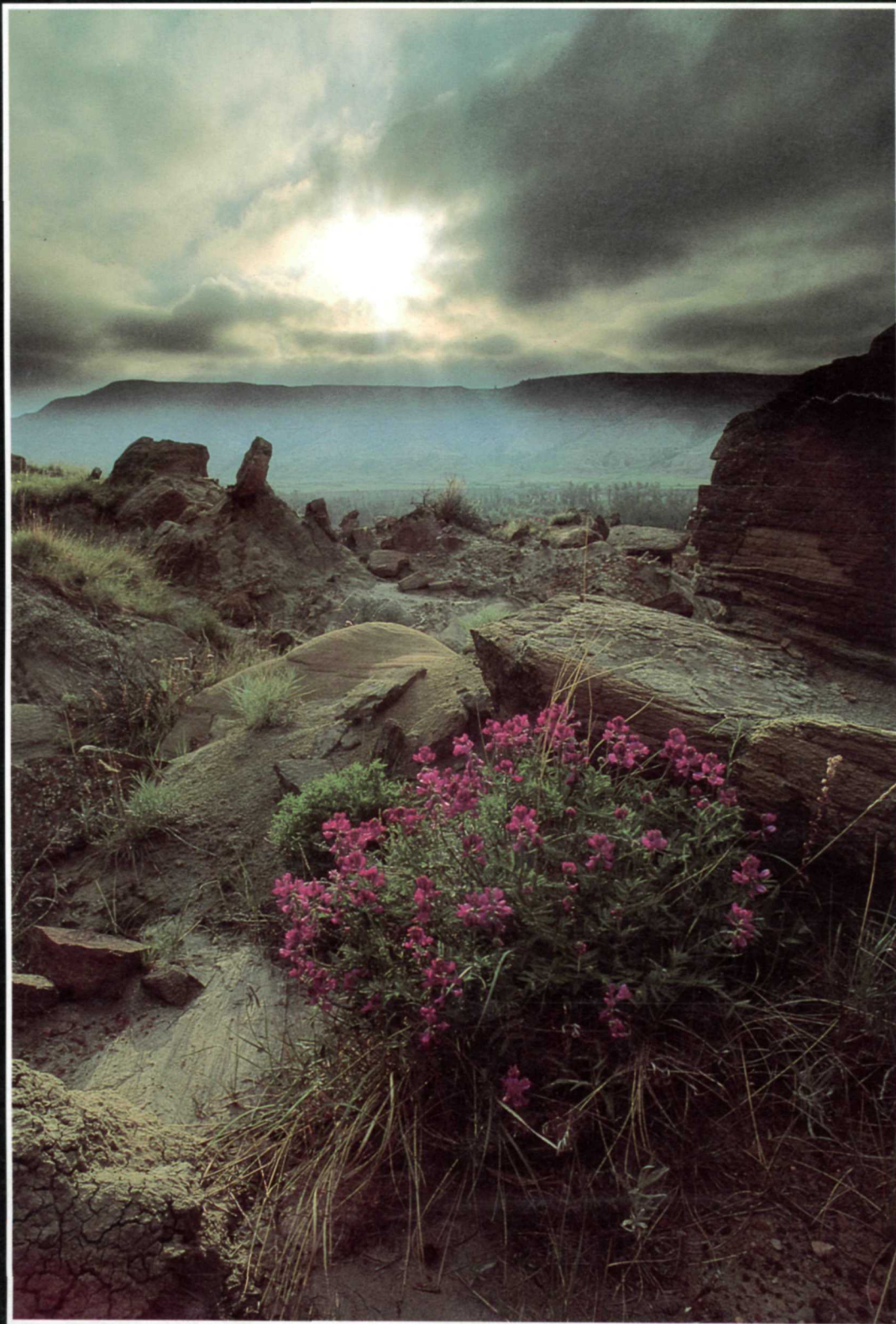



# BOREALIS

The Magazine of the Canadian Parks and Wilderness Society

Summer 1993

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# BOREALIS

The Magazine of the Canadian Parks and Wilderness Society

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COVER

**Red Deer River**

The Red Deer River near Drumheller in Alberta's northern fescue grassland. The photograph is one of thousands of images taken by a team of Alberta professional and amateur photographers in support of the Alberta Endangered Spaces campaign. See our special report on page 17.  
Picture by Daryl Benson

BACK COVER:

**South Saskatchewan River**

Down on the South Saskatchewan River in the recently created National Wildlife Area in the Suffield Military Reserve in south central Alberta.  
Picture by Charles Truscott

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The Day Environmentalists Halted A New National Park  
Article and Photography by Roger Turenne

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Ecological Reserves are lifeboats in earth's sea of humanity intended to rescue representatives of vanishing communities of plants and animals.  
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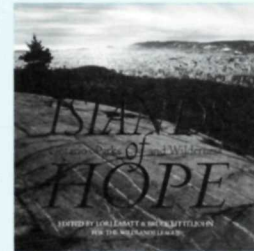
In a historic victory, the Canadian Parks and Wilderness Society stopped logging in Wood Buffalo National Park in 1992.

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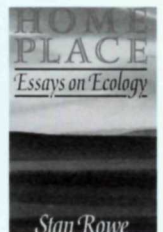
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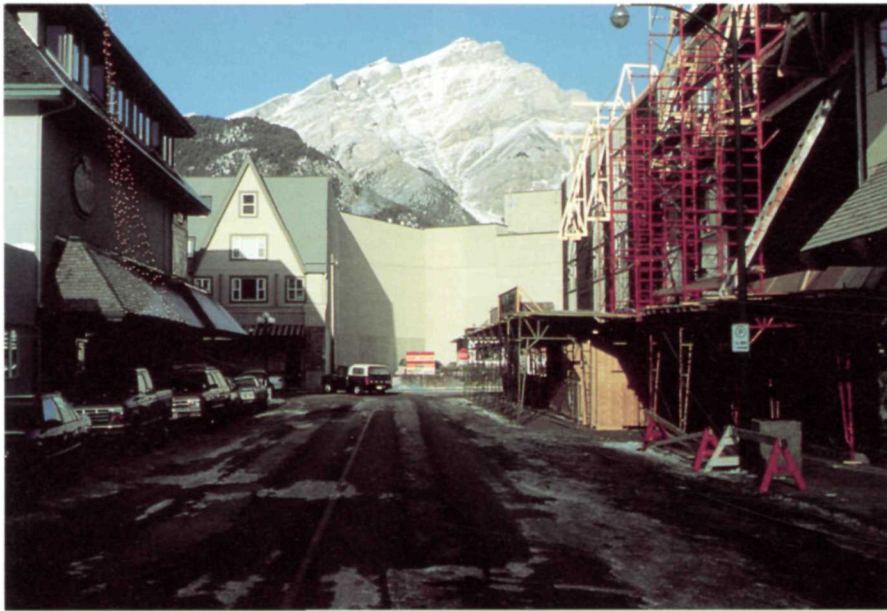
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## Is Banff an Endangered Space?

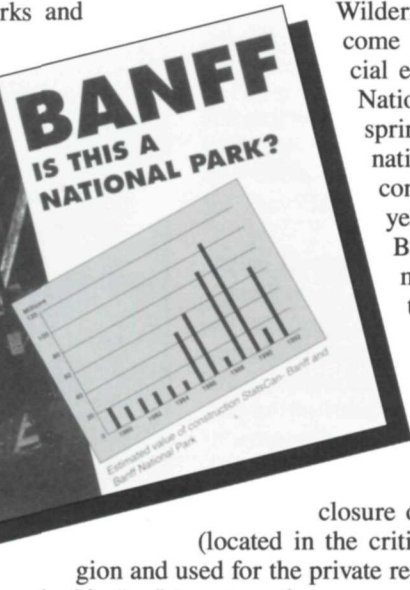
by Harvey Locke

**Y**ou bet. In the last 12 years, half a billion dollars worth of construction permits have been issued in Banff National Park.

The park's black bear population is in jeopardy because of the amount of development in the montane ecoregion. Elk are now attacking tourists in the crowded areas near the town of Banff. The town itself has become an extravaganza of shopping malls, fur stores and canyonlike streets where the view of the park is obscured by buildings. All of this in an area that, by law, is supposed to be "made use of in a manner that leaves it unimpaired for future generations."

At the Canadian Parks and Wilderness Society, we believe the time has come-

we come for an end to the commercial exploitation of Banff National Park. This spring, we launched a national campaign in conjunction with this year's review of the Banff park management plan. Our solution to the problem is simple: a moratorium on commercial development inside Banff National Park, immediate



closure of the Banff airstrip (located in the critical Montane ecoregion and used for the private recreation of a few pilots) and a big "no" to yet another proposal to expand the Sunshine Village ski hill.

The centrepiece of our campaign is a postcard with the inscription: "Not all postcards from Banff are pretty." The postcard features a photograph and is addressed to federal Environment Minister Jean Charest. Every subscriber to *Borealis* has been sent one. Send it in. Write a letter, too. What's going on in Banff is simply not good enough. It's time Canadians rose up and said so. □

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# NASA Carves Up The Wilderness

By David W. Hamer and J. David Henry

**T**he American National Aeronautics and Space Administration (NASA), has launched a major study to investigate global warming, using Saskatchewan's Prince Albert National Park. The four-year multimillion dollar study called BOREAS (Boreal Ecosystem Atmospheric Study), will examine the role of northern forests in global warming. The study is jointly sponsored by NASA, Environment Canada, Energy, Mines and Resources Canada and university researchers. The project has developed considerably since we reviewed it more than a year ago (see *Borealis*, Issue 10).

On July 28, 1992, Environment Minister, Jean Charest signed an order to change four one-square-kilometre plots in the park from Zone II Wilderness to Zone III Natural Environment to accommodate the research program. Existing fire roads will be upgraded and 4.5 kilometre of new, all-terrain trails will be cut to the study sites. These road and trail corridors, now also Zone III areas, will provide motorized access to two of the sites. The NASA team will have to choose between walking and helicopters to gain access to the other two.

The research project has been scaled down considerably from its original concept. Gone is the proposal for 50 kilometres of buried electrical cable. The number of kilometres of upgraded fire roads and new trails has also been scaled down dramatically. Prince Albert National Park has hired an Environmental Site Manager to oversee the project and each of the 80 BOREAS research projects that are located in the park will undergo an environmental impact assessment. However, certain ironies and important policy questions remain. The BOREAS team chose this wilderness area in the park because of its pristine conditions. Yet they will now be permitted to alter those pristine conditions with motorized ground access, construction of research towers, installation of trailers and forest clearing for construction of facilities and helipads. To run its research instruments, BOREAS proposes to use diesel-fuelled electrical generators at each of the tower sites.

BOREAS has passed all major hurdles and policy reviews. It will begin this summer and continue for four years. The research sites and access corridors will supposedly revert to Zone II Wilderness Areas after December 31, 1996. The question remains, however, whether such research are compatible with National Park wilderness areas.

To its credit, the Canadian Parks Service has chosen to revise its national policy, making greater use of ecosystem management principles. But the CPS has not made any progress on the important policy and management questions raised by the project. They have not clarified what guidelines should be used to determine whether research projects are compatible with the preservation and educational objectives of our national parks or what types of research are compatible with each of the five zones found in our national parks. This process is an important opportunity to address the issues that such a multimillion-dollar research program raises.

The BOREAS project initiates new uses of our national parks as part of an international research program. It sets a precedent that may ultimately affect all our national parks. While we enjoy the protected wildlife, undisturbed alpine meadows and natural ecosystems of our parks this summer, we should take a moment to reflect on two issues. It is still unclear why the Canadian Parks Service did not conduct an adequate survey to determine if appropriate study sites could have been located outside Prince Albert National Park. Second, such high-impact research projects would never be allowed in wilderness areas protected by the U.S. Wilderness Act. Why is Canadian wilderness not afforded the same protection?□

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## Natural Order vs. Legal System

[Last year] at a small gathering of people, Lester Howse, a disgruntled Kanata indigenous person, expressed his discontent with government policies, in particular those of the free trade agreement, that deal with the exporting of water to the U.S.

The elders in Lester's past told him of impending danger and the consequent destruction of the land. The prophecies he was told of — trees dying from the top down and the selling of fresh water — are happening.

Lester declares that the Rocky Mountain Cree and the Plains Cree, whose lands traditionally met at the foothills and the mountains, will "resume responsibility to take care of this part of the earth. Our rights are not negotiable." He fears for his children as do all of us, and under that pretence he impresses upon us the right of the Cree to take *responsible* stewardship of the Great Divide and the surrounding ecosystems — something he feels the Canadian government is not doing. He looks at this as a step toward territorial autonomy. "You were never to live here. Unless you needed sanctuary. We will protect what is left of the natural world. This land will not take any more development."

Lester's future actions may be a bit overwhelming for many of us, but the underlying principle cannot be disputed. The present stewards of this pristine wilderness have not protected our natural resources, as can be seen by the pollution in the rivers and the air. And as our government representatives praise the expansion of natural resource exploitation at a time when we start looking at alternatives for the sake of Mother Earth, I welcome the Natural Law of these historic keepers of the earth.

M. Garrah  
Jasper, Alberta



Daryl Benson

*A dragonfly waits for the morning sun to dry its wings in the Parkland region of Alberta.*

## Natives Not First Environmentalists

Lately it has become both fashionable and politically correct to idealize aboriginal peoples as the enlightened vanguard of the green movement, as the first environmentalists, as people who have lived in a blissful state of harmony with nature since time immemorial. Well, I'm sorry, but I, for one, cannot subscribe to these romantic notions, as too much of the historical and archeological record suggests that, like us, they too must accept their portion of blame for environmental degradation.

To begin with, one credible theory suggests that Paleo-Indian hunters caused the mass extinction of indigenous wildlife species such as camels and horses. These extinctions occurred just after man's arrival from Asia, and it was mainly those wildlife migrants from Asia, such as bison, that were able to survive man's invasion. No doubt because they were familiar with human predation.

There is also an increasing body of evidence that suggests that the proliferation of bison jumping indicated a shift from subsistence hunting to commercial hunting of bison for trade with neighbouring peoples. Once this change from purely subsistence hunting to commercial hunting was adopted, any claim to a moral higher ground was clearly abandoned.

And the final extirpation of the plains bison in Canada was accomplished not by European hunters or settlers, but by Métis and aboriginal hunters who willingly exhausted this wildlife resource in commercial trade with the Hudson's Bay Company.

When native peoples were first confronted with European technology, they readily chose to adopt it into their own cultures. Why? Because metal pots and other European technologies made life easier for them, and so, to

obtain more European goods, they wholeheartedly engaged in ecologically damaging activities, as is evidenced by the near extinction not only of the bison but also of the beaver.

Like us, native people were greedy, a characteristic that is universally shared by our species. And greed, the essence of mankind, has got us into today's huge environmental mess.

So please, no more idealizing of aboriginal peoples as the role models to emulate.

Gary Pedersen  
Saskatoon, Sask.

## About the Leopard's Spots

I believe the frogs on pages 27 and 23 of the Fall 1992 issue may be a pickerel frog rather than a leopard frog as the black spots on its back are in relatively symmetrical rows. Would you please check with the author.

R.H. Rehder  
Peterborough, Ont.

*The author is confident that the frog on pages 27 and 23 is a leopard frog since it was calling when he took the photo. Our amphibian experts felt that the markings were certainly consistent with the wide variety of markings in leopard frogs.*

## CPAWS Overlooked

Re: Paul Eagles' review of *Islands of Hope: Ontario's Parks and Wilderness (Borealis, Winter/Spring, 1993)*. I concur fully that the Wildlands League has done a great service in providing this "permanent benchmark of one powerful view of Ontario provincial parks." From a historical perspective, however, the book falls short in its failure to recognize the National and Provincial Parks



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Association of Canada (now CPAWS) alongside the Algonquin Wildlands League. At that time there was no formal affiliation between the two organizations as there is now.

Given that *Islands of Hope* is #7 in the Henderson Book Series, I find this lapse both hard to understand and most regrettable.

Gavin Henderson  
Toronto, Ont.

### Thank You From Dunster B.C.

I would like to thank you for your donation of a CPAWS membership and *Borealis* subscription to the Dunster Environmental Student Committee Auction.

We raised over \$3,500 at the auction and the money will be put toward various environmental projects and activities.

Susan Cousineau  
Dunster Environmental Student Committee  
Dunster, B.C.

### Return of the Buffalo

Re: the article on Wood Buffalo N.P., Spring 1991.

In the chronology on page 23, Mr. Struzik states that a plan to annihilate the bison in Wood Buffalo Park was proposed in 1953. In 1951, I happened to be at a culling of some of the bison at Elk Island Park. Dr. B.I. Love, superintendent of the park and a

veterinarian, told me that he had recommended that they kill all of the bison in Wood Buffalo Park. He stated that too many of them were infected with tuberculosis and other bacterial and parasitic diseases.

The article states that anthrax struck the park in 1963. In the early spring of 1960, the medical doctor based in Ft. Smith diagnosed anthrax in one of the wildlife officers who had dissected a dead bison. The wildlife officers immediately set up a program to kill sick bison and bulldoze the bodies into lime-filled pits and cover them with lime and then backfill.

Jack Grainge  
Edmonton, Alberta

### Call for Help

I am enrolled in Sir Sandford Fleming College and am focusing on children's environmental education. The concept of Endangered Spaces has fascinated me. I am, however, finding difficulty in delivering this concept to children in inventive ways. It is my hope that you may offer a few suggestions to assist me.

Tina Hohenadel  
Lindsay, Ont.

*"Endangered Spaces" is a new concept that has not yet been integrated into environmental education programs. It may be difficult to find information on what's being done in the Ontario Endangered Spaces*

*campaign, although we will have an article on that topic in the next Borealis. You might also want to look at Endangered Spaces: The Future for Canada's Wilderness, edited by Monte Hummel. As to particular exercises, look for activities that foster an understanding of the concepts of sharing the planet with other species, the differing needs of species for habitat, food and nesting areas, and the disappearance of habitat. The game of musical chairs could be easily adapted to teach the idea that there will be fewer species or individuals if the nesting or feeding areas they need disappear. The environmental education activities in the Fall 1988 Borealis Young Environmentalist column may help.*

*If our readers know of activities that work, please send them in and we will pass them on to Tina Hohenadel.*

### Dialogue

*Borealis welcomes letters, but please be brief and remember letters must be signed and include the author's address and phone number. Letters are edited for clarity, length and taste.*

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# Manitoba's Boreal Wilderness Primeval

Manitoba Lowlands:

## The Day Environmentalists Halted A New National Park

Article and Photography by Roger Turenne

**T**hat morning the water on Lake Winnipeg was mirror-calm, a rare treat on the north basin in late September. The canoe glided effortlessly in complete silence. The sky was grey, not a cold threatening grey but a light, warm, enveloping grey. Sky and water melded into an invisible horizon and gave us a feeling of floating in space. Ray Nielsen, my canoeing partner, and I were paddling the wild shores of Lake Winnipeg, north of the central Manitoba community of Grand Rapids. We spoke very little, as if words might break the spell.



Ray Nielsen



Above: What seems like a mirage in the misty stillness of morning on Lake Winnipeg transforms into an explosion of waterfowl as canoeists encroach on the birds' comfort zone. The picture was taken just off Fiddler Point on Lake Winnipeg north of Grand Rapids.

Below: Ray Nielsen and the author on a CPAWS expedition to explore the potential to create a national park in the region.

We noticed, in the distance, a thin black line stretching almost the entire horizon. Having seen, over the last few days, some of the trash left behind by fishermen along the shore, my first thought was some sort of pollution. Oil slick? As we approached, however, the pollution turned into a wondrous experience. The black line consisted entirely of ducks, thousands of them, taking a rest on their way south. We approached the line quietly, in awe. We could hear the busy chattering but, neither one of us being par-

ticularly adept birders, could not identify the species of ducks. At one point we violated their comfort zone and they took off in a cacophony of loud squawks and beating wings, to re-form the line some distance behind us.

We had witnessed an occurrence that has been played out for thousands of years and which we hope will continue for generations to come, in an area that will one day become a magnificent new national park.

From the expanse of Lake Winnipeg,

Manitoba's great inland sea, to the dark, confined space of a cave sheltering little brown bats from wintry winds, from the lofty grey limestone escarpments that overlook the land-locked shores of glacial Lake Agassiz, to the bogs, marshes and inland lakes where great flocks of colonial nesting birds breed, 8,000 square kilometres of little-disturbed boreal wilderness known as Little Limestone Lake/Long Point awaits its fate. Extending north and south of Grand Rapids and including Little Limestone Lake, Long



Point and more than 200 kilometres of Lake Winnipeg shoreline, this lowland wilderness is being promoted by Manitoba conservation groups as the best area to represent the Manitoba Lowlands, one of two natural regions in Manitoba unrepresented in Canada's national parks system. (The other is the Hudson Bay Lowlands where Churchill National Park is under consideration.)

The azure blue of the lake water in the Little Limestone area is unrivalled anywhere else in Manitoba. The region is a mosaic of landforms and vegetation: flood plains, sinkholes, glacial till, limestone

outcrops, fens, bogs and boreal forest. There are also many caves, home to those gentle creatures of the night, little brown bats. A small herd of brucellosis-free wood bison has established itself north of Chitek Lake. Its protection would enhance that subspecies' long-term chance of survival. As well, the intriguing possibility of reintroducing whooping cranes to a region they once occupied is being explored by the Manitoba chapter of the Canadian Parks and Wilderness Society (CPAWS) and the Canadian Wildlife Service.

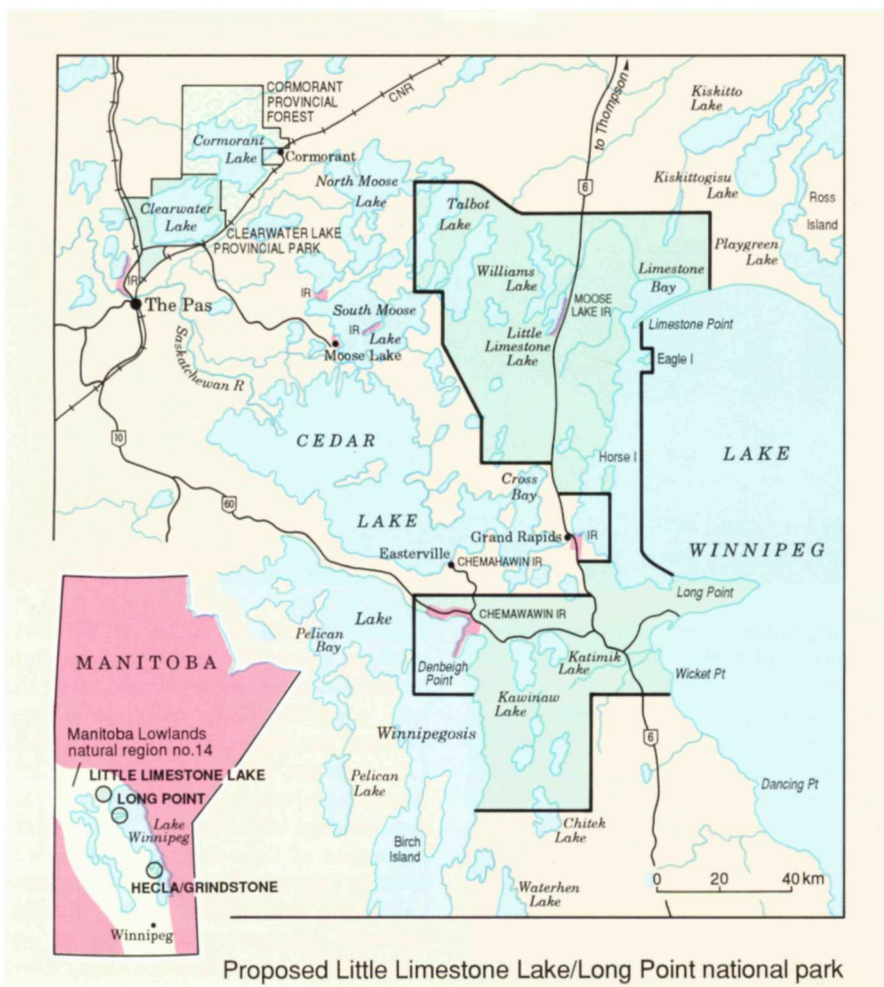
A major battle has developed over the

*White pelicans and double-crested cormorants sitting on the edge of Lake Winnipeg north of Grand Rapids. The Little Limestone Lake/Long Point areas form the core of a proposed national park that features more than 200 kilometres of Lake Winnipeg coastline.*

selection of a site for a national park in the Manitoba Lowlands. For reasons unrelated to wilderness protection, the provincial government is hostile toward the choice of the Little Limestone area. It prefers an enlarged version of Hecla and Grindstone provincial parks 200 kilometres south on Lake Winnipeg. By Manitoba Natural Resources Minister Harry Enns' own admission, the province's motive is to "unload Hecla to the feds" and "save" \$800,000 a year. The federal government appears prepared to back the plan. It is being told by the province, that unless it does, it will not receive any land for a national park. And the federal government wants a park as part of its Green Plan commitment to have one in each of Canada's 39 ecological regions.

CPAWS, the Manitoba Naturalists Society, and other groups making up the Manitoba Wilderness Caucus have been opposed to the choice of the Hecla area from the start. They argue that it has been too disturbed to qualify as a national park.

Hecla Island is a former Icelandic settlement and Grindstone Point is a provincial park supporting an extensive cottage community. Hecla Island's original vegetation has been largely removed to make way for settlement and agriculture and a highway has destroyed wildlife habitat. The island contains several Icelandic heritage buildings, a small tourist community and, on its northern tip, Gull Harbour Lodge, a golf course, a yacht basin and other developments, all incompatible with the primary ecosystem preservation mandate of a national park. In 1979, the consulting firm of Hilderman, Feir, Witty and Associates identified Little Limestone Lake and Long Point as the only two areas that qualified for national park status



Proposed Little Limestone Lake/Long Point national park



*Top: Limestone cliffs on Lake Winnipeg at Sturgeon Gill Point. The limestone karst cliffs have been sculpted over the years by the action of glaciers and water.*

*Right: An aster.*

*Above: Red-osier dogwood.*



in the Manitoba Lowlands. It considered the others, including Hecla/Grindstone, too degraded.

Designating the Hecla area as a national park would create an unfortunate precedent for other national parks in Canada. The federal government would find it difficult to say no to the next province tempted to offload an unsuitable provincial park onto the Canadian Parks Service. A park in the Hecla area would not add significantly to the amount of wilderness area protected under the Endangered Spaces campaign since it is already protected by provincial regulation. Most

important of all to the Wilderness Caucus groups is the concern that if the Hecla area is chosen as the park site, the ecologically superior Little Limestone area wilderness will be abandoned to industrial development.

The Little Limestone area is already severely ecologically compromised by a major highway, hydro transmission lines, large-scale clearcut logging and mineral exploration. Despite this there are still large tracts of wilderness left. But time is

of the essence to prevent further degradation.

For months, support for the Little Limestone area and opposition to the Hecla area were repeatedly conveyed to both federal and provincial governments by Manitoba conservation groups. In August 1992, when CPAWS learned that provincial Natural Resources Minister Harry Enns and federal Minister of State for Environment Pauline Browes planned to jointly announce a feasibility study for a

# Little Brown Bats & Their Caves

One of the most fascinating creatures found in the Little Limestone Lake/Long Point area is *Myotis lucifugus*, commonly known as the little brown bat.

These small insect-eaters gather in groups of a dozen to more than 10,000 to spend the winter together in caves. In some caves, the temperature remains at +5 °C and the humidity at over 90 per cent – conditions that permit the bats to hibernate from late September to late April. Caves are crucial to the survival of this species. Bats are highly susceptible to disturbance by people, especially during the hibernation period. The caves can also be damaged by collapse or filling in by heavy equipment used in logging and other industries.

Little brown bats feed on small flying insects like moths and mosquitoes. In summer, the females move in groups to hollow trees or attics, where they each give birth in early June to one young. The males disperse throughout the province, roosting in trees and sometimes under building soffits. All return to the caves in late August or early September, where they mate before going into hibernation.

The Little Limestone bat hibernacula are the most northerly hibernacula known in Canada. At least six of the caves support bats. There are probably many more caves to be discovered. There is also much to learn about the bats themselves, for example, the “disappearing females” phenomenon. The ratio of males to females at birth is even, but the ratio found in the winter hibernacula is always 60:40 in favour of males. A national park would forever protect their

habitat and allow scientists to continue to discover the secret lives of *Myotis lucifugus*.

•••

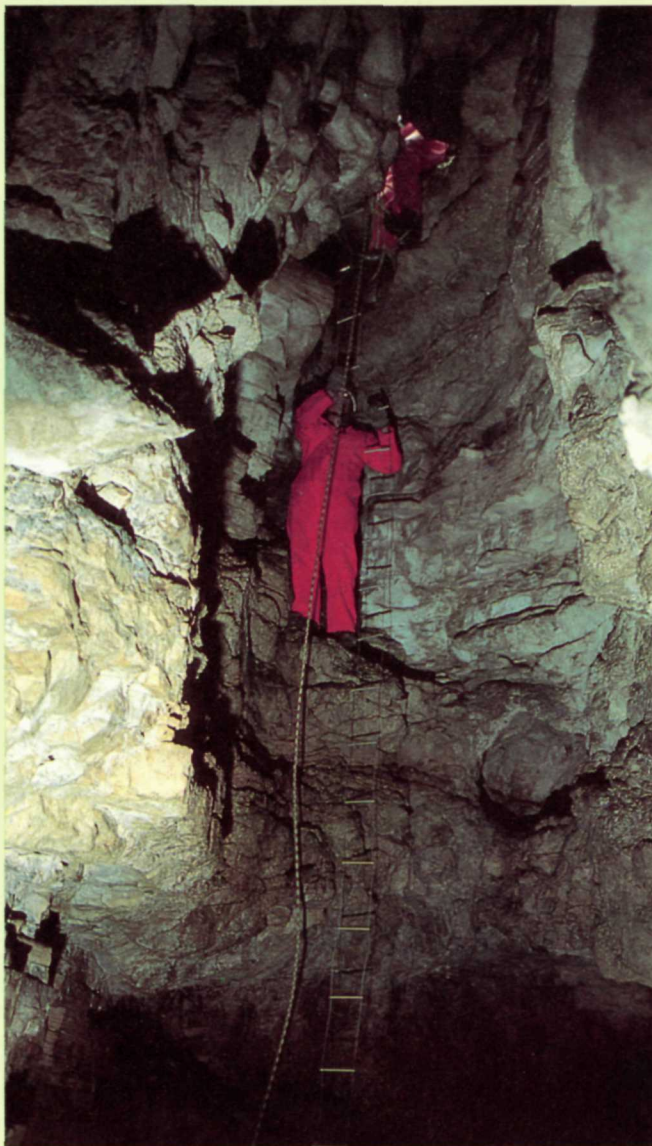
Manitoba and Caves. The words don't seem to go together. Manitoba is prairie, Canadian Shield, boreal for-

est, tundra, but caves? Yes indeed.

Manitoba's Interlake region, once covered by a large inland sea, has a series of deeply bedded limestone and dolomite deposits. Karst is limestone or dolomite (sedimentary rocks) eroded by water. Thousands of years of glacial and water erosion have sculpted these rocks into a spectacular landscape of cliffs and hollows above the surface and caves below the surface.

Caves riddle the Little Limestone area. As you hike across the land, you can often see small openings, sometimes hardly large enough to put your head into. But for some adventurous souls, these are openings into a wonderland few have ever seen – an underground world of beauty with formations of redeposited calcite decorating the ceilings and walls. In winter, caves breathe softly, creating hoar-frost around the entrances, enhancing their mystery and beauty, while deep within sleep clusters of little brown bats.

A cave is a true wilderness – a gentle, fragile wilderness deserving of protection like any other ecosystem. Come explore the Little Limestone karst, above and below the ground. Consider supporting efforts to protect the area in a new national park. □



Above: A little brown bat being banded.

Bottom: The Little Limestone bat hibernacula are the most northerly hibernacula known in Canada. At least six of the caves in the area support wintering bats.



*Several challenges will have to be met to establish a national park in the Little Limestone Lake/Long Point area. Above are massive logpiles from timber harvesting by the shores of Katimik Lake.*

national park for the Hecla area, the CPAWS Manitoba chapter immediately went into action. By a stroke of good luck, the annual meeting of Canada's Endangered Spaces co-ordinators was under way in Winnipeg at the time. The issue was put on the agenda and a consensus developed – every effort should be made to prevent the planned agreement from being signed.

The meeting was temporarily adjourned so members could head for the phones and mount an instant national campaign to pressure the provincial and federal governments. This task was made easier by the fact that nearly every conservation group in the country was represented at the meeting including CPAWS, World Wildlife Fund Canada, Canadian Nature Federation, Sierra Club, Alberta Wilderness Association and the Yukon Conservation Society. They made it clear to Ottawa that if the planned Hecla announcement was made, there would be a chorus of public condemnation from Victoria to St. John's. This was a surprise for the federal government, which was expecting praise for announcing a new national park.

To avoid a public relations fiasco, senior federal officials met with the Endangered Spaces co-ordinators and provincial officials that evening. About 25 people crowded into a hotel room for a tense meeting that lasted till the wee hours of the morning.

To provide the two governments with a graceful way out of their predicament, CPAWS and WWF proposed that a feasibility study with public consultation, be done to identify the best site for a national park. This would replace the planned study on the Hecla area. They were confident that if all candidate sites were looked at without prejudice, the Little Limestone area would end up as the chosen site.

After further talks between federal and provincial officials Harry Enns informed Monte Hummel, the chair of the Endangered Spaces meeting, that the next day's announcement would deal with site selection only. There would be no mention of Hecla.

The planned press releases were thrown away and the text of the federal-provincial agreement was hastily rewritten in time for the announcement the next afternoon. From the podium at the Forks Market overlooking the junction of the Red and Assiniboine rivers, Harry Enns and Pauline Browes congratulated themselves for this important development. In the audience, conservationists from ac-

ross Canada quietly did the same. Close co-operation between national conservation groups had thwarted, at least temporarily, a bad choice for a national park.

But the satisfaction was short-lived. Both levels of government were uncomfortable with the agreement they had signed. They are now trying to extricate themselves from it. In late December, the two governments did exactly what they had said they would not do – they issued draft terms of reference for the study without any consultation with conservation groups.

The document justified the worst fears of environmentalists. It was no longer to be a study to recommend the best site for a national park but only to "identify a range of options," including provincial parks, ecological reserves, wildlife management areas or other designations, as well as a national park. On the face of it, this would appear to make sense: looking at the entire region and choosing the appropriate designation for each area. In practice, the change was made with only one purpose in mind – the Hecla area would become the national park while a toothless provincial label would be given to some portion of the Little Limestone area as a sop to the environmentalists.

The province's aversion to the Little Limestone area as a national park is, in some respects, easy to understand. Even

though most of the area is Crown land, this site would be more costly due to the existing non-conforming uses — especially logging and mining rights — which might have to be bought out or compensated. It would be much easier for the cash-strapped and deficit-laden province to unload Hecla on the feds.

“Unloading Hecla” would also get rid of one big headache. To establish the provincial park, a previous administration had expropriated an Icelandic fishing village in the '70s. Some of the former residents are still trying to return. This is a problem the province would just as soon hand over to the feds. In addition, the province wants to privatize the government-owned money-losing Gull Harbour resort hotel but cannot find a buyer. If the island becomes a national park, with the prospect of increased tourism, the resort would be easier to sell.

Finally, the government may be leery of entering complex negotiations with native bands to establish a park in the Grand Rapids area. Three Indian reserves — Grand Rapids, Moose Lake and Chemawawin — have land in and around the proposed park and most of the surround-

ing population is native. Existing industrial development and progress have not benefited their communities. According to Chief Harold Turner of the Grand Rapids Reserve, the nearby Grand Rapids dam has led to a decline in their fishing, trapping and hunting. The few jobs at the dam, as well as in logging and mineral exploration, have gone mostly to non-natives.

The chief believes that a new national park, especially one with a strong co-management feature, would provide the native communities with a more secure economic base in an environment respectful of their cultural and spiritual values. Chief Turner has already publicly expressed support for the park. This support, as well as that of other reserves in the area, will be crucial to overcome the obstacles to establishment of a national park.

Perhaps the greatest hurdle to overcome is the fact that the Little Limestone area is virtually unknown to most Manitobans, including those in the interlake area. Support for the proposed park will grow only with the knowledge of what will be lost if the area is not protected. A

further complication is the perception among many in the southern interlake region that economic benefits will flow their way only if Hecla becomes a national park. The task for conservation groups is to change these perceptions at the community level.

The campaign is under way to make the Little Limestone area better known to Manitobans and Canadians in the coming year. This magnificent wilderness deserves to be protected for its own sake, for the sake of its undisturbed biodiversity, for its little brown bats, woodland caribou and moose and its clouds of ducks and cranes stretching from horizon to horizon. □

## Ontario's Endangered Spaces

...in the next issue of Borealis

## CPAWS-B.C. Benefit Dinner and Raffle a Huge Success

Thanks to the hard work of Nora Laryard, Maggie Paquet, Moira Knott and Dorli Duffy, our second annual fundraiser — Wildernight '93 held in May — netted over \$7,500 for the chapter. Aside from dinner, we featured chapter and national updates by Sabine Jessen and Harvey Locke, respectively; held both silent and live auctions; and had some impressive musical entertainment by Carleen Lay and an impromptu group billing itself as “Broadway Goes Wild.”

Among the highlights of the evening was a special CPAWS 30th anniversary presentation to May Murray, one of our founding members and a woman who for over 30 years has acted on her commitment to Canada's and B.C.'s wild places by volunteering her time, letter-writing skills, natural history knowledge, photos and unsurpassed dedication. May has visited parks and wilderness areas in most of our provinces and territories, including Kluane, the Tatshenshini, the Khutzeymateen, Spatsizi, practically all the Rocky Mountain parks, has boated up the Stikine River, paddled ma-

rine and fresh waters and is still an active member of more environmental groups than most of us can name.

Last year's Harkin award winner, Dr. Bert Brink, presented May with a spectacular print by Mark Hobson. Called “Uncertainty,” it features a scene in the Tat with a wolf in the foreground. Proceeds from its sale go to Tat Wild. CPAWS-B.C. thanks Mark for his generous donation. Mark also donated a signed, limited-edition print called “Morning Flight.” It is a fundraiser for the Clayoquot Biosphere Project and is a misty forest and water scene in Clayoquot Sound, the stark white of a bald eagle's head and tail feathers contrasting with the soft but detailed moss-laden trees. Thanks to May, Bert and Mark.

The moment everyone was waiting for finally came when we drew the five winning raffle tickets for the following prizes: round-trip for two to the Stikine, including two-day boat trip down the river to Wrangell, Alaska, then Inside Passage trip to Prince Rupert — winner Leonard Schein; 11-day circle rafting trip on Chilcotin/Fraser rivers

— winner Colin Rankin; 6-nights chalet-to-hut for two in Wells Gray Provincial Park — winners Tim and Wendy Turner; weekend in the Coast Mountains climbing with Jim Haberl — winner Ingrid Schneller; and full-day raft trip for two on the Thompson River — winner Aidan Vining.

For these outstanding prizes we thank Dave Ellis/Ramblin' Marine, Canadian Airlines International, Red Goat Lodge, Central Mountain Air, RiverSong Lodge, TelAir, Alaska Marine Highway, Canadian River Expeditions Ltd., Wells Gray Backcountry Chalets, NorthStar Adventures Ltd., and Kumsheen Raft Adventures.

We would also like to thank the following for providing donations for the silent and live auctions and door prizes: Bean Around the World, Curley Chittenden, Coast Mountain Sports, Ecomarine Kayak Ocean Centre, Eva Durance, Fed. Mountain Clubs of B.C., Festival Cinemas, The Fitness Group, Friends of the Stikine, Mark Hobson, Ken Madsen, Margitta's Flowers at Lonsdale Quay, Mountain Equipment Coop, Mystery Mountain Enterprises, Maggie Paquet, Rayz Hair Design, The Salmon Shop, SS Master Society and Bill Wareham. □

# How Can Your Donation of Land or Money Help Preserve Alberta's Natural Heritage?

By working together with the Recreation, Parks and Wildlife Foundation-Park Ventures Fund, YOU can become a partner in conserving Alberta's wildlife, heritage lands and parks. Help today's Albertans and future generations experience our province's great outdoors.

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Your gift may be enhanced by funding from Alberta Lotteries.





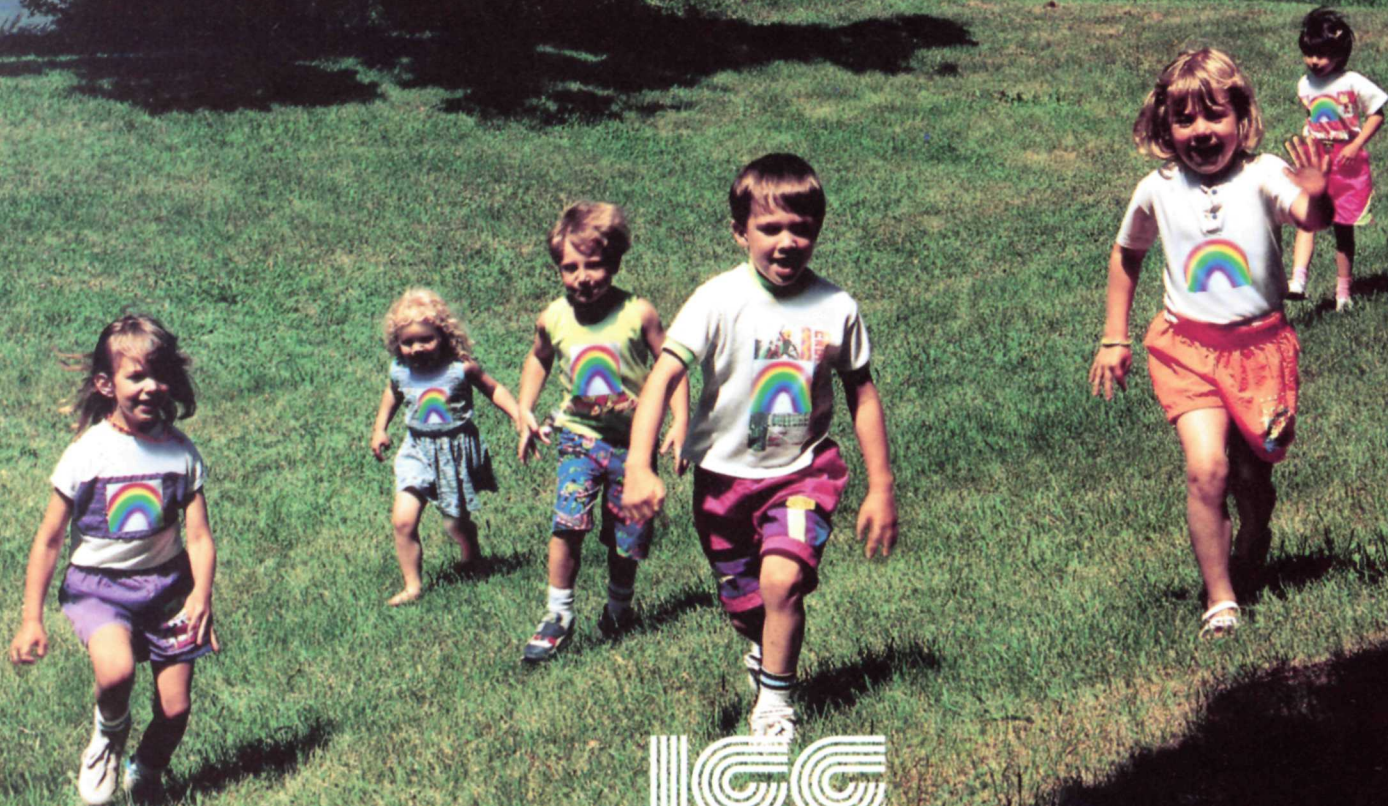
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ALBERTA'S ENDANGERED SPACES

# Keeping the Wild in the West



Charles Truscott

**S**ince the *Endangered Spaces* campaign was launched in 1989, more than 500,000 Canadians, ten provincial governments and the federal government have endorsed the campaign and the *Canadian Wilderness Charter*. The charter calls for a national effort to establish at least one protected area in each natural region of Canada by the year 2000. Without legal protection, human encroachment eventually destroys natural ecosystems and threatens the survival of native species. So join us and discover the spectacular beauty of Alberta's *Endangered Spaces*. Let the words and images inspire you to help organizations like the *Canadian Parks and Wilderness Society* ensure that Alberta's natural ecosystems survive now and in the future.

Photography by Daryl Benson, Mark Degner, Doug Latimer, Wayne Lynch, Dave Perraton,  
Charles Truscott, Cliff Wallis and Darwin Wiggett.

Writing by Kevin Van Tighem

Editing and Design by Elaine Butler, David Dodge, George Newton, Elaine O'Farrell and Charles Truscott.

Cartography by Inge Wilson

This special report is dedicated to the memory of Bill Jones, a CPAWS volunteer who died as the report was nearing completion.

His commitment and good spirits will be sadly missed.

CPAWS acknowledges the support of the Recreation Parks and Wildlife Foundation and the Environment Council of Alberta.

Charles Truscott acknowledges the generous financial assistance of the Explorations Program of Canada Council, George Truscott, Cecile MacLaggart and the Alberta Foundation for the Arts, which made the production of most of these photographs possible.

ENDANGERED  
**SPACES**  
ALBERTA CAMPAIGN



The Land of the Big Sky

# Grassland

N A T U R A L R E G I O N

Articles by  
Kevin Van Tighem



"... Prairie sky. There's something else my wife will hafta hanker for. Once when I was a kid I dumped six bags of bluing in my mother's wash water so I could get the blue that belongs to prairie sky. Take the smell of wolf willow growing silver along a crick..."

"A rather sickening..."

"The hell it is!" Jake burst out.

"Gentle honey, my mother called it. She loved the prairie — she had to, the way she come out West with my father. They didn't have a thing, not even a map for coming across that sea of taffy-coloured prairie grass. Just a compass. They came to where there was tiger lilies, millions of 'em. She said that was where and this's where."

Jim turned to Aunt Margaret. "Did you ever hear a lone coyote on a winter night, making himself into a whole pack of howling?"

"No, I..."

"Ever look in the throat of a tiger lily?"

"I've never had the..."

"They're freckled... their whole flaming throat is freckled."

—W. O. Mitchell from *Jake and the Kid* c. 1961  
reprinted with permission of Macmillan Canada.

When I was a boy, I used to ride my bike out beyond the city limits of Calgary to where meadowlarks sang from the telephone poles and the sky went on forever.

The prairie was a subtle place full of startling surprises for a 12-year-old birdwatcher. Long-billed curlews and marbled godwits came shrieking in off the fields to harangue me as I peddled past and Brewer's blackbirds lifted out of the buckbrush to scold from the telephone wires. I'll never forget the first avocet I saw, with its salmon-pink head, blue legs and upturned bill. The squeaks of ground squirrels, the scream of Swainson's hawks and the evening song of vesper sparrows resonate within me and remind me of who I am and where I came from.

One day, just at the edge of the city, I found a burrowing owl sitting on a fencepost. When it flew down to the ground, I discovered that it wasn't alone; there were actually two pairs in a quarter section of cow pasture, nesting in old badger burrows.

Today that patch of native grassland is gone, long since buried beneath an expanding city. And the burrowing owl has been designated a threatened species in Canada.

The native grasslands of southern Alberta are among our province's most threatened natural regions. The same long, hot summers that make this region too arid to produce forest give it a growing season ideally suited for field crops. Most years, there is enough spring meltwater and summer rain

Charles Truscott

Previous: Moonrise in evening alpenglow over a drumlin hill in the Central Parkland near Rumsey, Alberta.

Top: The valley of the Red Deer River upstream of Drumheller. This stretch of river flows through one of Alberta's most threatened subregions — the Northern Fescue Grassland.

Bottom: The Oldman River and the Foothills Fescue Grassland of the Porcupine Hills.



Charles Truscott

to meet the needs of wheat, barley and other grain crops. In those areas where the region's rivers have been tapped for irrigation, alfalfa, corn and a host of other more specialized crops also grow.

As a result, more than 80 per cent of Alberta's native grasslands have been plowed under and turned into cropland during the past century. Largely because of this habitat loss, more than half the species on Canada's endangered species list are prairie species.



Both: Charles Truscott

Native grassland is the foundation upon which prairie agriculture was built and the heritage that the great Plains tribes surrendered to make way for settlement. Even with the massive landscape change that has taken place since the Treaties were signed, however, there are still some places where the natural diversity of Alberta's three grassland subregions survives.

One of these places can be seen from the rim of the Milk River canyon, south of Manyberries, where native mixedgrass prairie stretches virtually undisturbed in all directions, little different from what it looked like a century ago. The arid climate of the Mixedgrass Subregion has kept the plough at bay here, as it has in the Suffield area and in places along the lower Red Deer and South Saskatchewan Rivers.

There are opportunities to protect surviving areas in the Foothills Grassland Subregion, too, because the short growing season along the Milk River Ridge, the flanks of the Porcupine Hills and the southern

*Left: An alkali lake in the vegetated dune complex of the Middle Sand Hills. Located on the Suffield Military Reserve, the sand hills were declared a National Wildlife Area last spring.*

*Below: The canyon of the Milk River in the Mixed Grassland subregion and the burrowing owl.*

*Above Right: The lifeless reservoir upstream of the Oldman River dam now covers what was once a vibrant cottonwood ecosystem.*



## GRASSLAND STATUS REPORT

✓ ACTION URGENTLY NEEDED TO SAVE GRASSLANDS

- Area: 91,780 sq. km. (14% of Alberta)
- Amount still in natural condition: < 20%
- Natural grasslands support almost 400 species of native plants
- Endangered species: swift fox, American white pelican, ferruginous hawk, peregrine falcon, burrowing owl, piping plover, mountain plover, sage thrasher, slender mouse-ear-creep, prairie long-tailed weasel, loggerhead

shrike, Baird's sparrow, western blue flag, western spiderwort, sand verbena, long-billed curlew (v), cooper's hawk (v), caspian tern (v), eastern short-horned lizard (v), smooth goosefoot (v), soapweed (v) (v=vulnerable)

More than 80% of the former native grassland has been turned into farmland, roads and towns. Remnants of native grasslands are mostly found in areas not suitable for farming.

### GRASSLAND SUBREGIONS

#### Northern Fescue

- Area: 20,860 sq. km.
- In natural condition: less than 1%



Charles Truscott

foothills has kept much of the grassland unbroken and in public ownership.

The rich black soils and moister climate of the Northern Fescue Grassland, however, stretching in a broad band east and north from Calgary to Coronation and Oyen, has proven so desirable for farming that less than 1 per cent of the region's normal native prairie remains. Even so, native grassland survives along the Red Deer River and in the Hand Hills near Little Fish Lake, east of Drumheller, where plants and animals that have disappeared from much of the region, still survive.

Only the ghosts of the bison haunt these relict grasslands today, but Sprague's pipits still sing their mysterious flight songs from high overhead and the wolf whistle call of upland sandpipers sounds across the prairie just as it has for millennia. □



Mark Degner

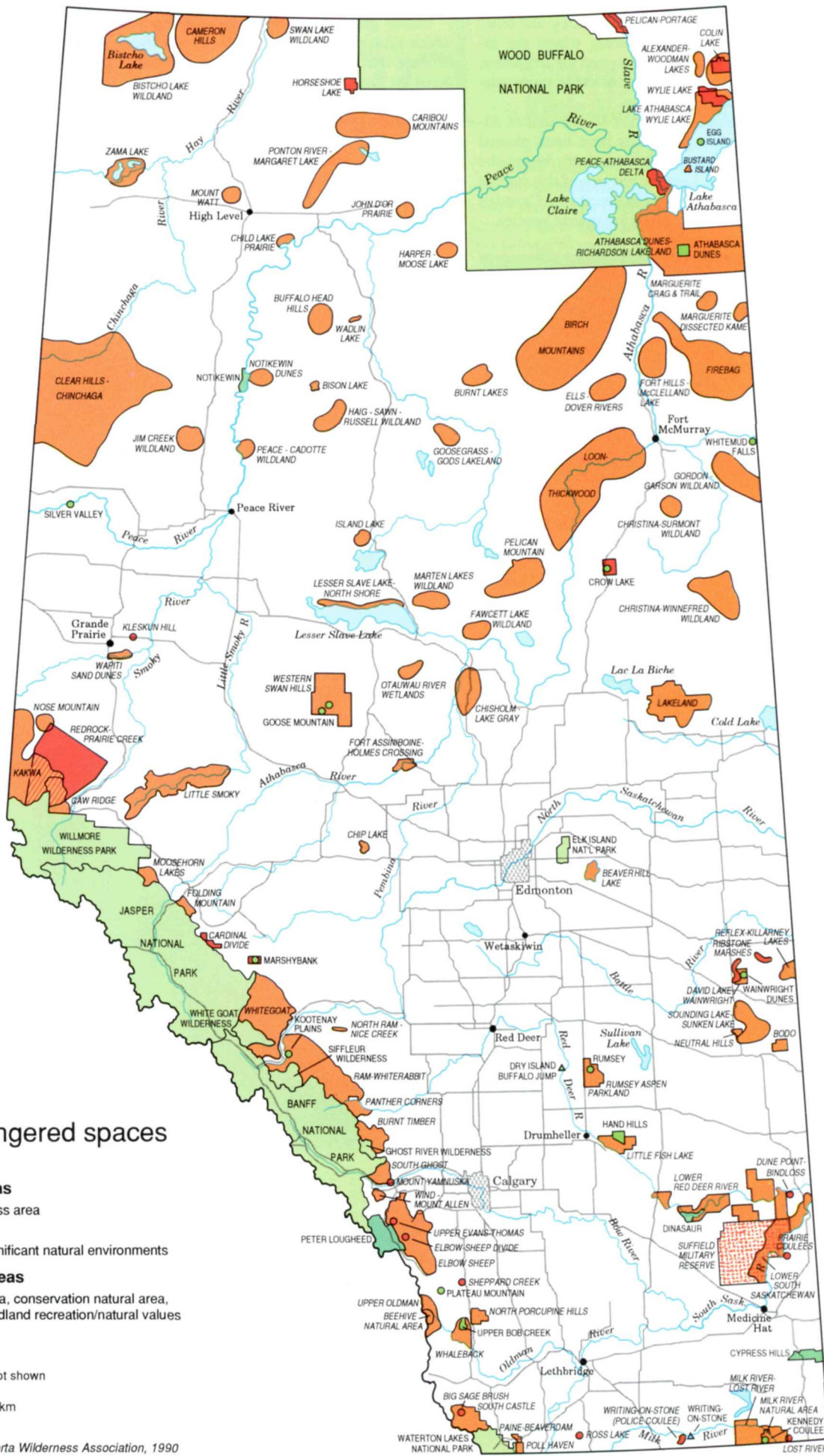
- Protection target: 438 sq. km.
- Currently protected: 26.7 sq. km.
- Sites with natural rough-fescue dominated wildlife cover are particularly important. So little native grasslands remain, it may be impossible to reach the target figure. Sites that remain are very important.

#### Foothills Fescue

- Area: 10,800 sq. km.
- Protection target: 270 sq. km. (3% of original Foothills Fescue Grassland)
- Currently protected: 37.6 sq. km.
- The narrow-leaved cottonwood (*Populus angustifolia*), a special species for this area, is not found anywhere else in Canada.
- Cottonwood forests are important ecologically and at risk from the effects of dams and development.

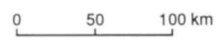
#### Mixedgrass

- Area: 60,120 sq. km.
- Native Mixedgrass prairie remaining: 25%
- Protection target: 1,503 sq. km.
- Currently protected: 569 sq. km.
- Rare and Local species: Ord's kangaroo rat, western hognose snake. □



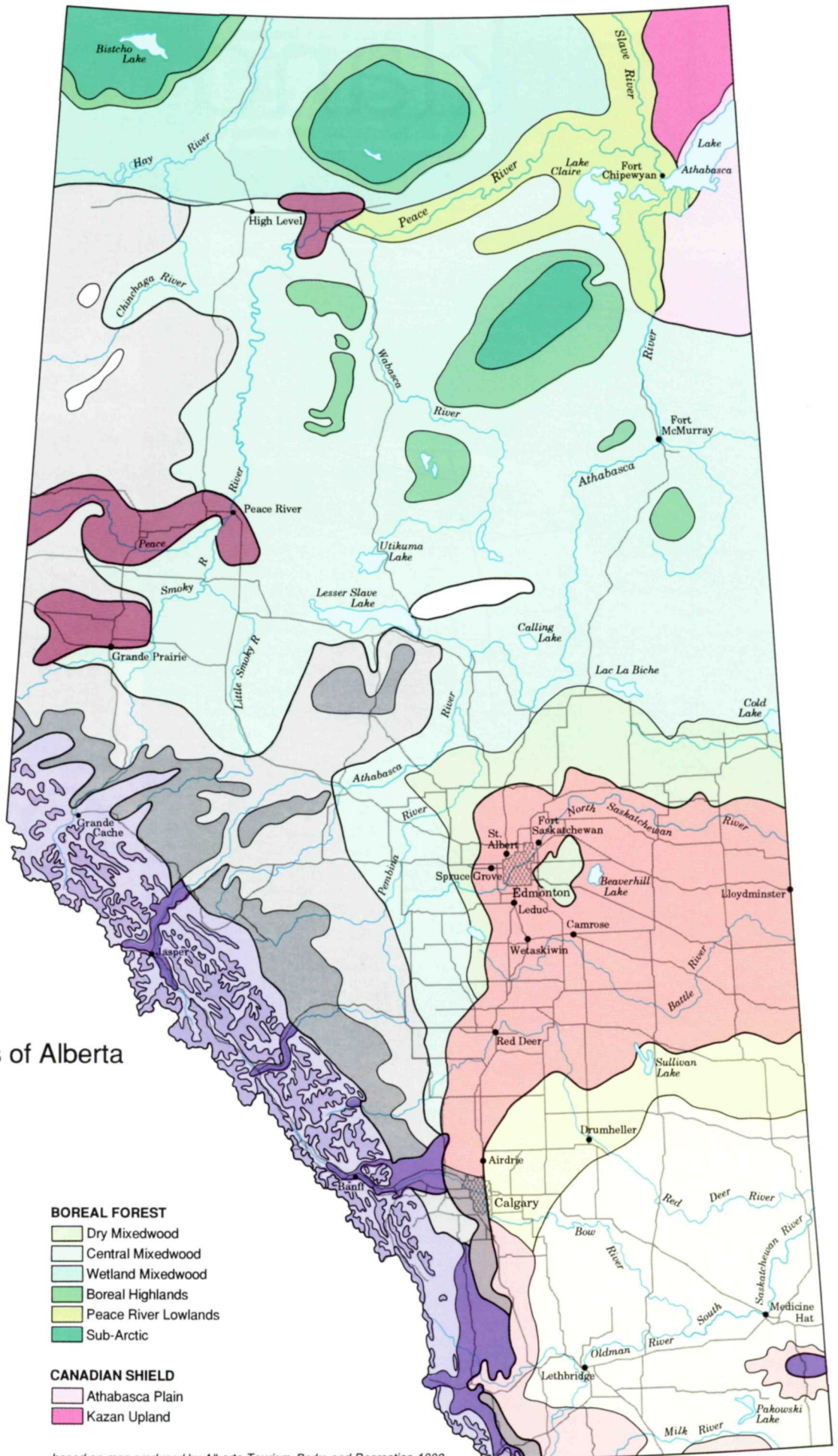
# Protecting Alberta's endangered spaces

- Existing protected areas**
- National park, wilderness area
  - Ecological reserve
  - Provincial park with significant natural environments
- Proposed protected areas**
- Wildland recreation area, conservation natural area, area with significant wildland recreation/natural values
  - Ecological reserve
  - National wildlife refuge
- Proposed protected rivers are not shown



based on map produced by Alberta Wilderness Association, 1990

Inge Wilson / Mostly Maps



## Natural regions of Alberta

### GRASSLAND

- Mixedgrass
- Northern Fescue
- Foothills Fescue

### PARKLAND

- Central Parkland
- Foothills Parkland
- Peace River Parkland

### FOOTHILLS

- Lower Foothills
- Upper Foothills

### ROCKY MOUNTAIN

- Montane
- Sub-Alpine
- Alpine

### BOREAL FOREST

- Dry Mixedwood
- Central Mixedwood
- Wetland Mixedwood
- Boreal Highlands
- Peace River Lowlands
- Sub-Arctic

### CANADIAN SHIELD

- Athabasca Plain
- Kazan Upland

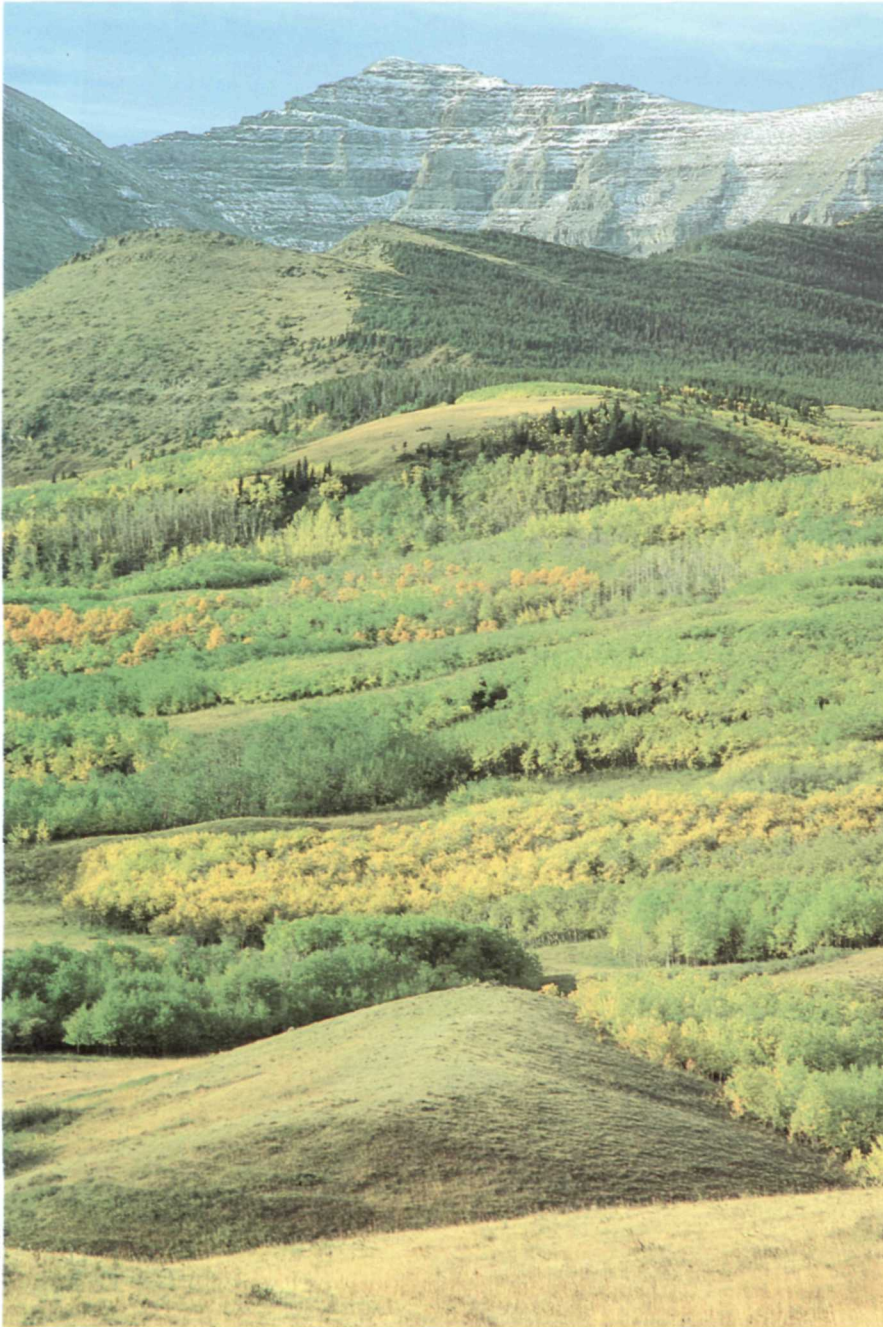
based on map produced by Alberta Tourism, Parks and Recreation, 1992



The Waterfowl Nest of the World

# Parkland

N A T U R A L R E G I O N



Charles Truscott

Above: A narrow band of Foothills Parkland north of Waterton Lakes National Park. A transition zone between the foothills and the montane forest, this subregion has very little representation in protected areas.

Right: The Ribstone Marshes, located south of Wainwright, provide important habitat for waterfowl and songbirds. Pintail duck (right) populations have fallen to 15 percent of historic levels, primarily because of the loss of habitat to agriculture.



Charles Truscott

*"We inhaled the scent of wolf willow and wild roses during June and admired the appealing loveliness of blue-eyed grass, a one-day flower doomed to die overnight. In shady ravines nearby grew blue clematis; later the river banks were bright with wild sunflowers whose oily seeds once provided food for Indians. Birds were our constant companions. Great blue herons stalked shore grasses to hunt for frogs. Mallards were bunched on sandbars. Sometimes we saw an osprey fish hawk flap over with a sucker grasped in its talons. Songbirds were always abundant, from kingbirds to mimicking catbirds...."*

—Kerry Wood, 1967. *A Corner of Canada*. A privately published Canadian Centennial Project. Copyright Kerry Wood.



Wayne Lynch

One November day, I went for a walk in the woods with Lloyd Lohr. A soft-spoken man with a quiet dedication to conservation and nature study, Lloyd recently retired after a lifetime of farming in the parkland country south of Stettler. His family farm has passed to the stewardship of the fourth generation.

"Grandfather came here in 1900 from South Dakota," Lloyd said. "It had been surveyed just to the road on the west side of us here, and the rest of it, from here east, was just open range, and that's what grandfather was looking for. He brought 50 head of cows with him. He had to have pasture, so he had to come this far from Lacombe. There was homesteaders west of the river between the Red Deer River and Lacombe. Here there was nothing but just ranches."

We strolled along a faint gap through dense old aspen forest on the old homestead section, which Lloyd's family has never cleared nor broken. Ruffed grouse tracks showed in the first skiff of new snow.

"This was one of the trails that ran from Lacombe to the Hand Hills. Naturally, of course, it followed the trail that the Indians had used, and they had followed the one the buffalo used, so it was a very ancient trail. They just built alongside of it."

We stopped in a small clearing and looked around. A chickadee came over to



Charles Truscott

Above: Located in northern Alberta, this remnant of Peace River Parkland near Child Lake is a vibrant habitat of marshes, meadows and aspen groves. Less than one per cent of the Peace River Parkland remains in a natural state.

investigate as Lloyd went on describing the parkland country as it was in his grandfather's day.

"There were groves of trees, but there was a lot of grass and a lot of sloughs. There'd be a slough and then a circle of willows and then maybe some bigger poplars around it, something like that.

"But prairie fires came through every spring and sometimes every fall. They used to come with a southeast wind and they'd come from the Hanna country. They would burn up to these bushes, burn the grass, and then they would kill the sapling trees around the ring. And the bigger trees in the middle, they'd stay. So it kept it under control that way. It would be moist in there, so there'd be little circles of willows around little pot-holes."

The Parkland Region has seen a lot of changes since the plains Cree retreated from it before a growing flood of hopeful settlers came late in the last century. The Parkland is one of the richest agricultural regions in Alberta. Its climate is moister than the dry prairie grasslands to the south. Small streams and wetlands abound; bluffs of aspen and balsam poplar offer shelter and the rich black soil produces bounteous crops. The rolling terrain and abundant sloughs sustain large numbers of waterfowl. In the few places where native parkland survives, deer abound, Baird's sparrows sing their rich song from grass tussocks and red-tailed hawks circle in the afternoon thermals. The

mosaic of aspen forest, fescue grassland and wetlands sustains a rich diversity of plant and animal life.

Lloyd Lohr preserves a full section of land because he loves nature and takes pride in his family heritage. His protected island of natural habitat has changed over the years, the aspens are spreading and growing old in the absence of the fires that were once integral to parkland ecology. In most other areas, the original aspen parkland has vanished or survives only in much smaller fragments. Few farmers can afford to leave large tracts of original parkland intact.

It's too bad, because aspen parkland is one of the most productive natural environments in Alberta and less than five per cent remains in its native state.

The Central Parkland Subregion reaches in a wide arc from Airdrie, to a point north of Edmonton and east to Lloydminster and Provost. Today it's a checkerboard of cropland with a

few surviving patches of original parkland in the Wainwright area, the Neutral and Bodo Hills and the Sounding Lake sand plain.

In all the world, the largest surviving patch of native aspen parkland survives here in Alberta, just northeast of Rumsey. We still have the opportunity to protect it as a part of our province's natural and cultural heritage.

A mix of aspen forest, patches of grassland, spruce and willow shrubbery stretches along the foothills from Cremona south to Waterton Lakes National Park. The Foothills Parkland Subregion has survived somewhat better, thanks to shallow soils and a climate less favourable to farm crops, but it remains largely unprotected.



Dave Perraton

The Parkland Natural Region has been so heavily exploited by agriculture and urban development that less than five per cent remains in a natural state.

The most fragmented subregion is the unique Peace River Parkland, which John Macoun visited in 1875: "West of the mountains, the climate was cold and moist and the land generally covered with a coniferous forest, but here we found prairie and aspen forest and a climate dry and warm. Here, 3,000 feet above the sea, the mountains are actually without forest and covered with grass and vetches over two feet high... There were many signs of the grizzly bear being in the vicinity as there was scarcely a log which had not been turned over or torn to pieces in their search for ants and their larvae."

Today, there are very few uncultivated areas where the landscape Macoun described survives in anything close to its original state. Charles Truscott, who travelled to every corner of this province on a two-year odyssey to document Alberta's best surviving candidates for protected areas, considers the Peace River Parkland to be nearly gone.

"The largest remaining upland site is at Kleskun Hill near Grande Prairie, but it's only one square mile in size," he says. "It's sad. And the tiny prairie near Child Lake only remains because it's too wet and saline to have been turned into cropland. There are some sites on the steep south-facing slopes of the Peace River valley, but there is virtually no typical Peace River Parkland left." □

PARKLAND STATUS REPORT	
● 5% OF THE PARKLAND REMAINS IN A NATURAL STATE	
<ul style="list-style-type: none"> <li>● Area: 80,998 sq. km. (12% of Alberta)</li> <li>● Native Parkland remaining: &lt; 5%</li> <li>● Endangered species: American white pelican, trumpeter swan, ferruginous hawk (limited sighting), peregrine falcon, piping plover, prairie long-tailed weasel, loggerhead shrike, Baird's sparrow.</li> </ul>	<ul style="list-style-type: none"> <li>● Native Central Parkland remaining: less than 5%</li> <li>● Protection target: 1,418 sq. km.</li> <li>● Currently protected: 212 sq. km.</li> </ul>
<p><b>Foothills Parkland</b></p> <ul style="list-style-type: none"> <li>● Area: 3,210 sq. km.</li> <li>● Protection target: 228 sq. km.</li> <li>● Currently protected: 47 sq. km.</li> </ul> <p>A characteristic of the southwestern upland forests is masses of glacier lilies, which bloom in May.</p>	
<p><b>Peace River Parkland</b></p> <ul style="list-style-type: none"> <li>● Area: 13,333 sq. km.</li> <li>● Native Peace River Parkland remaining: less than 1%</li> <li>● Protection target: 200 sq. km.</li> <li>● Currently protected: 31 sq. km.</li> </ul> <p>Due to widespread cultivation, only small, scattered remnants of native habitat remain. This is an important nesting area for the rare trumpeter swan. □</p>	
<p><b>Central Parkland</b></p> <ul style="list-style-type: none"> <li>● Area: 64,455 sq. km.</li> </ul> <p>Development and farming has considerably changed the vegetation, particularly in the Central Parkland and Peace River Parkland. Many native species were eliminated from the area before they could be documented.</p>	



Covering Half of Alberta – Canada's Circumpolar Ecosystem

# Boreal Forest

N A T U R A L R E G I O N



Charles Truscott



Mark Degner

Top: The Ponton River and the Subarctic Boreal Forest on the plateau of the Caribou Mountains.

Left: Lynx and other mammals like beaver, moose, varying hare, wolf and black bear are typical of the boreal forest.

Right: A grove of jackpines in the valley of the Clearwater River between Whitemud Falls and the Cascade Rapids. The Clearwater River is an exceptionally scenic and ecologically diverse area within the Central Mixedwood Boreal Forest.



Charles Truscott

*“My opinion of the whole country was that it was a continuous muskeg with islands of spruce through it and our trail led through the islands. When we reached the lake, we were all tired out and immediately camped and settled down for the evening, but not to sleep because at this time (late in September) the whole lake, as far as we could see, was covered with wild fowl of every description; in fact, no water was to be seen, it was all waterfowl. This was the condition of the lake the whole time we passed along it....”*

—John Macoun, 1872

**M**ighty rivers drain north and east from the Rocky Mountains into the watershed of the Arctic Ocean. Look at any map of Alberta and you will see them: the Athabasca, Smoky, Peace, Chinchaga and Hay, tracing sinuous patterns across the vast northern half of the province, a lightly populated and little-known region of dark forests, muskegs and distance.





Boff: Charles Truscott



Geologically, this landscape is very similar to the better-known prairies of the south. Vast continental glaciers scoured northern Alberta and then retreated, leaving a rolling landscape covered with glacial till, carved by huge rivers and occasionally interrupted with low hills. But this far north, there is more rain, less summer heat and longer winters, so the landscape is heavily forested and covered with vast bogs and muskeg.

Most southerners think of mosquitoes, moose and muskeg when they look at Alberta's road map north of Edmonton. In reality, there is a great diversity of vegetation and wildlife in the boreal forests of Alberta, from the complex wetland meanders of the Hay River to the lush mixed forests of aspen, pine and spruce in the Lakeland area, to the complex vegetation mosaics of the Clearwater, Peace and Athabasca river valleys.

Northern species like the arctic grayling, river otter and black-throated green warbler rely on the boreal ecosystem and remain rare elsewhere in the province. Endangered

species such as the well-known whooping crane and the woodland caribou also depend on the boreal forest for their well-being.

One summer, Cliff Wallis and I camped in an old abandoned cabin north of Sturgeon Lake, near Valleyview. We covered miles of scrubby aspen forest, black spruce muskeg and mixed pine and aspen forest, to make an inventory of the rich diversity of northern plants and animals to add to our limited knowledge base on Alberta's northern ecosystems.

It was a fine summer, full of discoveries like the goshawk nest near camp, the bald eagle nest far back in the woods and exotic northern warblers I had never seen before.

Seeking owls one night after the 2 a.m. sunset, we headed out into the lake with our aluminum boat. As tall spruce trees stood silhouetted black against the fading glow in the northwest sky, we floated along the shoreline listening to barred and saw-whet owls, snipes, grunting moose and even the bawling of black bear cubs through Cliff's parabolic microphone system. When we got back, we had seen another face of boreal Alberta, added new species to our wildlife inventory and avoided mosquitoes for three blissful hours.

The boreal forest is a circumpolar landscape that links Alberta to the rest of Canada and the world.

The boreal forest has remained wilderness for much of this century, but today it's undergoing rapid resource development. Recent forest management agreements have set the stage for roads and clearcuts over an area equal to one-quarter of Alberta, feeding new and expanded pulp mills on the north's major rivers. Oil and gas exploration and development has left a legacy of linear scars all over northern Alberta.

We have an urgent need for people with



Charles Truscott

*Top Left: Dawn in the Subarctic Boreal Forest near Margaret Lake in the Caribou Mountains of northern Alberta.*

*Left Below: The moss-covered forest floor of an old-growth spruce forest on Watt Mountain – a diverse highland area in the Wetland Mixedwood Subregion northwest of High Level.*

*Above: Along with oil and gas exploration and development, industrial forestry operations are radically degrading the ecological integrity of the boreal forest.*

new attitudes and new ways of doing things in the forest – people like Jorden Johnston, the superintendent of the huge Footner Lake Forest in northwestern Alberta. Johnston has the responsibility to oversee forestry, oil and gas activity, but he has chosen to do more. Under his leadership, several small but important protected areas have been established, biophysical studies of the major river systems in the forest are being conducted and a selective logging program has been initiated.

The need to protect places like the Caribou Mountains, Clearwater River valley, Buffalohead Hills, Wabasca River and Lakeland is growing urgent as the eyes of the resource-hungry south turn more and more to the North. □

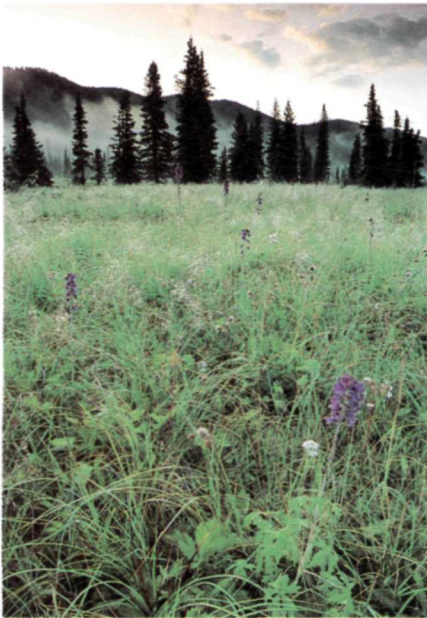
BOREAL FOREST STATUS REPORT	
<ul style="list-style-type: none"> <li>• Area: 314,298 sq. km. (48% of Alberta)</li> <li>• Boreal forest remaining in natural condition: 60%</li> <li>• Endangered species: woodland caribou, wood bison, American white pelican, whooping crane, trumpeter swan, peregrine falcon, grizzly bear (v), wolverine (v), Cooper's hawk (v), great gray owl (v) (v=vulnerable)</li> </ul> <p style="font-size: small;">Characterized by extensive wetlands (bogs, fens, swamps and marshes) which provide important habitat for nesting and migrating waterfowl</p>	<p><b>Wetland Mixedwood</b></p> <ul style="list-style-type: none"> <li>• Area: 43,243 sq. km.</li> <li>• Protection target: 1,600 sq. km.</li> <li>• Currently protected: 13,500 (includes part of Wood Buffalo N.P.)</li> </ul> <p><b>Boreal Highlands</b></p> <ul style="list-style-type: none"> <li>• Area: 22,500 sq. km.</li> <li>• Protection target: 1,125 sq. km.</li> <li>• Currently protected: 2,305 sq. km. (includes part of Wood Buffalo N.P.)</li> </ul> <p><b>Peace River Lowlands</b></p> <ul style="list-style-type: none"> <li>• Area: 22,727 sq. km.</li> <li>• Protection target: 1,000 sq. km.</li> <li>• Currently protected: 15,200 sq. km. (includes part of Wood Buffalo National Park)</li> </ul> <p style="font-size: small;">The Peace-Athabasca Delta is one of the largest freshwater deltas in the world. It's a major nesting and moulting ground for ducks and a staging area for migrating waterfowl, such as the tundra swan.</p> <p style="font-size: small;">The round whitefish and short-jawed cisco are found here and nowhere else in Alberta.</p>
<p><b>Dry Mixedwood</b></p> <ul style="list-style-type: none"> <li>• Area: 24,000 sq. km.</li> <li>• Protection target: 600 sq. km.</li> <li>• Currently protected: 335 sq. km.</li> </ul> <p><b>Central Mixedwood</b></p> <ul style="list-style-type: none"> <li>• Area: 179,545 sq. km.</li> <li>• Protection target: 3,950 sq. km.</li> <li>• Currently protected: 2,818 sq. km.</li> </ul>	<p><b>Subarctic</b></p> <ul style="list-style-type: none"> <li>• Area: 22,283 sq. km.</li> <li>• Protection target: 1,025 sq. km.</li> <li>• Currently protected: 960 sq. km. □</li> </ul>



Between Forested Plains and Towering Mountains

# Foothills

N A T U R A L R E G I O N



Charles Truscott

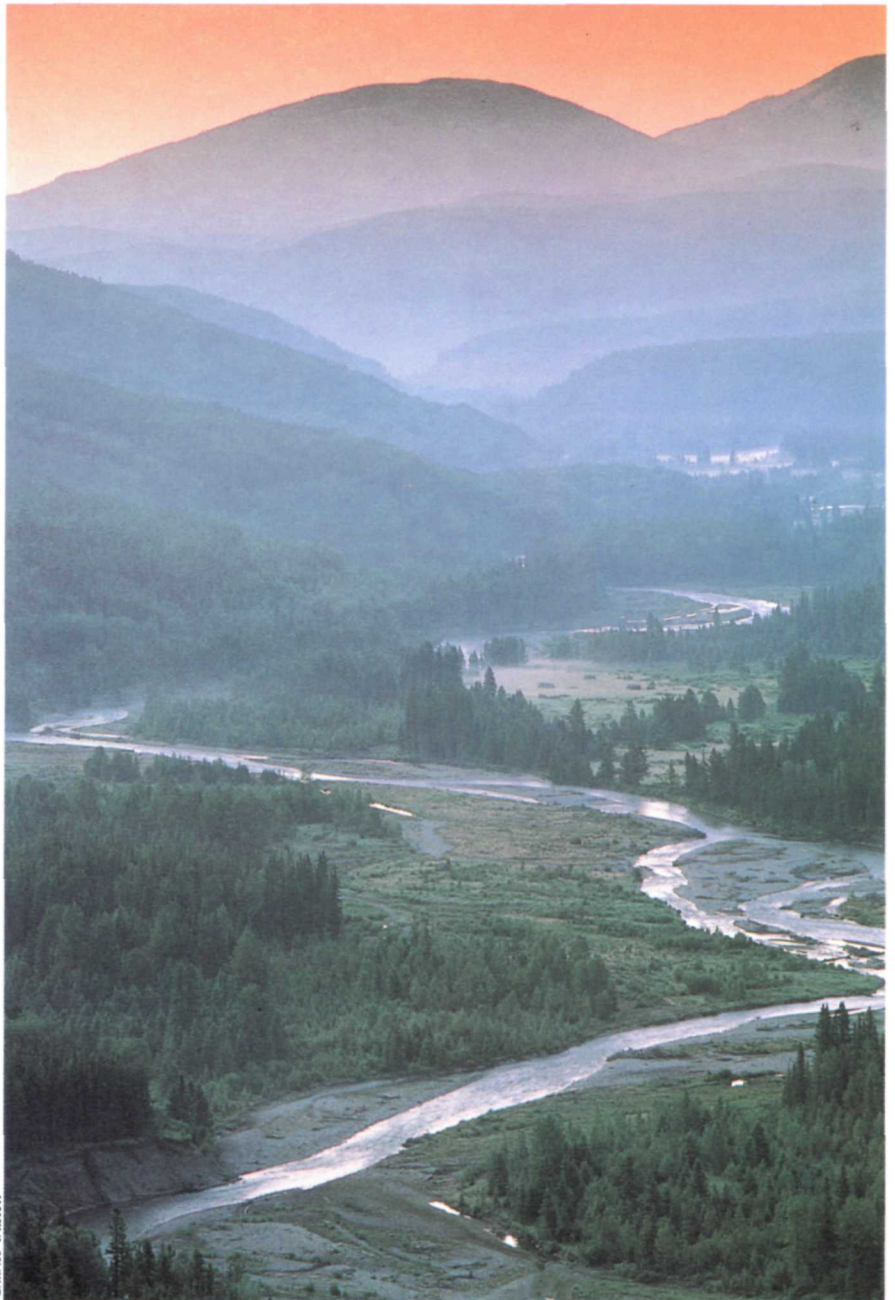
*"That night, we camped on a beautiful, large meadow about two miles east of Elk Creek, where we could see numerous elk, moose and deer. We decided this would be our permanent camp. The following morning, we crossed Elk Creek and followed along a large meadow due north for about seven miles on the old Stoney Indian trail, which Stoney Indians travelled during the early fur trading days when travelling from Morley to Rocky Mountain House and to the Big Horn River and Kootenay Plains. The grass on the meadow which we travelled on our way to the Ram River was chiefly bunch grass. It brought back memories of some of the lovely country I travelled over when I lived among the Zulu people...."*

*"Every little distance, we saw mule deer, moose and elk, not just single specimens, but families of from four to a dozen of deer in a family...."*

—Henry Stelfox, 1903-1968.  
Journal entry for June 1938.

**M**y father used to take us camping each summer up the Forestry Trunk Road from Calgary. We camped beside Burnt Timber Creek, the James River or on the Idlewild Flats of the Clearwater, where Henry Stelfox explored on horseback back in the '30s. It was a wonderful time to be young, with undisturbed coniferous forests framing quiet foothills valleys where we fished for trout.

Just a few summer expeditions were enough to make a lasting impression. Many of my earliest memories are of the pine-forested foothills and Front Ranges, trout streams, the wind, the sound of streams chattering quietly outside the tent all night



Charles Truscott

*Top Left: Dawn in the meadow near Marshybank Lake in the Upper Foothills Subregion.*

*Top right: Morning mist blankets the valley of the North Ram River downstream of Nice Creek. This proposed protected area is a small but diverse and representative example of the Upper Foothills Subregion.*



Charles Truscott

*Left: Old-growth forest in the Clear Hills. The lichens that festoon these forests provide an essential winter food source for the endangered woodland caribou.*

long. All through the peaceful days spent along remote trout streams, we would be surrounded by the sound of wind in lodgepole pines. Sometimes, we would spot mule

deer or elk, or watch flocks of waxwings feeding on the sidehills.

Many Albertans know the Foothills Natural Region from family camping trips and



fall hunting trips up the forestry roads that head back into the hills west of Rocky Mountain House, Edson and Grande Prairie. It is a landscape of long ridges and rolling hills clothed with lodgepole pine, aspen and spruce, where small streams wind their way through valley-bottom meadows of dwarf birch, willow and grassland. Elk, moose, deer, bears and other wildlife are widespread.

As natural habitat is fragmented or destroyed by resource development, and as new roads and seismic lines change predation patterns by both wild and human hunters, natural balances are upset, species decline and the integrity of the foothills ecosystem diminishes.

Lee Morin is a Metis trapper who operates a trap line near the Chinchaga River in the Clear Hills northwest of Manning. He is not much given to talk, but on the topic of the demise of the endangered woodland caribou, he speaks with passion and eloquence. "The greatest threat to the caribou comes from the destruction of their habitat,

and stress due to oil and gas exploration and from clearcut logging operations." Morin believes we have a responsibility to respect wildlife and natural ecosystems. Acting on this belief, he founded the Chinchaga Woodland Caribou Protectors several years ago and has continued to lobby and to build support for a caribou sanctuary in the Clear Hills ever since. Ultimately, if endangered species like the mountain or woodland caribou are to be saved, then endangered spaces like their wintering and calving grounds in the Clear Hills must be protected. And it's committed individuals like Lee Morin who will save them.

There are a few places where foothills ecosystems survive essentially intact, but we will have to act quickly to protect them. Marshybank, the Ram River valley, the Prairie Creek drainage and the vitally important Clear Hills with their old-growth forests and endangered caribou are among the few special places where we can yet ensure that Alberta's Foothills legacy will survive. □

## FOOTHILLS STATUS REPORT

✓ PROTECTION NEEDED SOON

- Area: 105,714 sq. km. (16% of Alberta)
  - Foothills remaining in a natural state: less than 25% that's not committed to exploitation.
- Endangered species: woodland caribou, trumpeter swan, slender mouse-ear-creep,

prairie long-tailed weasel.

### Lower Foothills

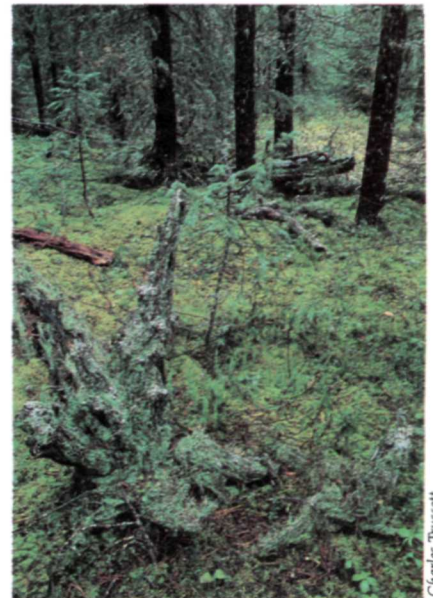
- Area: 80,357 sq. km.
- Protection target: 1,125 sq. km.
- Currently protected: 64 sq. km.

### Upper Foothills

- Area: 25,357 sq. km.
- Protection target: 710 sq. km.
- Currently protected: 50 sq. km. □



Darryl Benson



Charles Truscott

*Top Left: Mountain caribou on their fall migration from the mountains of Willmore Wilderness Park to their winter range in the Red Rock and Prairie Creek areas of the Upper Foothills Subregion. The Prairie Creek drainage is the only winter range of the endangered mountain caribou that has not been logged.*

*Top Right: Sunset from Goose Mountain in the Swan Hills – an outlying area of Upper and Lower Foothills south of Lesser Slave Lake.*

*Middle Right: A moist spruce forest in the Clear Hills.*

*Below: An aerial view of the network of roads, oil wells and gas wells in the Swan Hills.*



Cliff Wallis



The Crown of the Continent

# Rocky Mountain

N A T U R A L R E G I O N



Charles Truscott



Charles Truscott

Above: Caw Ridge provides an important habitat for a variety of wilderness-dependent species, including one of the largest herds of mountain goats in Alberta. The sensitive alpine ecosystem of the ridge is threatened by expansion of the Smoky River Coal mine, north of Grand Cache.



Mark Degner

Above: The western wall of Avion Ridge above the headwaters of the South Castle River. Located immediately north of Waterton Lakes National Park, the South Castle area supports a diversity of plant life and provides important habitat for grizzly bears. The ecological integrity of the area is threatened by tourism development, forestry activity and mechanized recreation.

Left: Grizzly bears require large wilderness areas to survive.

October 12 [1800], Sunday. Along the Red Deer River, we came to two tents of Peigan Indians who were eagle-hunting and put up with them. I went up a high knoll and took a rough sketch of the appearance of the mountains. I killed a fisher today. There are many of this animal about the woody hills, as also of wolverines. Buffalo, red deer, moose and small deer are also plentiful and grizzled bears but too many.

In the evening, the Indians, having finished their eagle hunt and having killed eight this day, made a feast. The eagles were all laid upon clean grass with their heads towards the fire...."

—From the journal of explorer and map-maker David Thompson

Canada's first national park was established at Banff in 1885. Soon after, Waterton Lakes National Park was created in the south and Jasper was created in the north. In

1959, the Government of Alberta protected another significant mountain ecosystem in Willmore Wilderness Park, north of Jasper.

The exceptional foresight of those who set aside these parks ensured that Alberta's Alpine and Subalpine subregions are well-represented in protected areas today. These high-elevation habitats have short growing seasons, rugged winters and low biological productivity. To meet their needs and maintain viable populations, mountain wildlife need more habitat than animals that live in more benign environments at lower elevations. Therefore, it's fortunate such large areas were protected. Even so, the task of protecting the region's full range of natural diversity is far from complete. One of its most important subregions, the Montane, remains largely unprotected.

The Montane Subregion has mild winters, warm summers and diverse vegetation. Open areas are covered with grassland. Rocky or sheltered areas are covered with Douglas fir, aspen, white spruce or limber pine. In the valley bottoms, streams are dammed by beavers and they meander through rich wetlands of willow, sedge and

spruce. This subregion supports large populations of elk, deer, cougar and many species that are found nowhere else in the province. In some ways, this is the most ecologically significant part of the Rocky Mountain Natural Region.

Only the low-elevation mountain valleys of the Athabasca, North Saskatchewan, Red Deer and Bow rivers, as well as a narrow band of foothills in southwestern Alberta, lie within this subregion. Even where montane areas have been included within existing national parks, they have been fragmented and damaged by townsites, roads, golf courses and other tourism developments to the point where they cannot be considered truly protected.

One of the most important montane areas in Alberta is the Whaleback — a long foothills ridge complex running north from the Oldman River, just west of Highway 22. Hundreds of elk and mule deer rely on this windblown country for winter range, while migrating eagles and other birds of prey ride the wind currents along the ridge each spring and fall. Spectacular almost beyond belief and rich in plants and animals that are restricted to this unique subregion, the Whaleback offers a unique opportunity for Albertans to protect this important ecosystem and to complete the protection of the Rocky Mountain Natural Region.

One of the key people working to protect the Whaleback is Dianne Pachal. Her mind is like an encyclopedia of Alberta conservation history. For nearly two decades, Pachal has devoted her life to the single-minded cause of completing a network of protected

wilderness areas in Alberta. She has been at the centre of every wilderness campaign in the province and hasn't forgotten a single detail. Pachal is a formidable person, with a passionate devotion to Alberta's wildlands.

Much of Dianne's commitment is fuelled by a family tradition of returning each year to the spectacular headwater country of the Oldman River — even as roads and clearcuts have whittled it away. In this threatened mountain paradise nestled beneath the Continental Divide, she and her family hike the windy ridges, explore the valleys of tributary streams in search of native cutthroat trout and watch golden eagles trace the thermals along the face of Gould's Dome. Such personal experience provides the best motivation to act to protect a special place.

Today, the Beehive Natural Area protects a small part of Dianne's family heritage. It is only a fragment of what she would like to see protected, but that it exists at all is a tribute to her efforts on the front-lines of the wilderness battle. □



Charles Truscott

Right: A view along the Whaleback Ridge to the Oldman River. The Whaleback area is one of the most important areas of Montane Subregion in Alberta.

Above: The Montane Subregion of Banff (above) and Jasper national parks has been especially hard-hit by tourism developments.



Darwin Wiggett

ROCKY MOUNTAINS STATUS REPORT	
✓ GENERALLY GOOD PROTECTION OF THIS REGION	
<ul style="list-style-type: none"> <li>• Area: 50,469 sq. km. (8% of province)</li> <li>• Natural habitat remaining: 70%</li> <li>• Endangered species: woodland caribou, Banff longnose dace (extinct), grizzly bear (v), wolverine (v), Cooper's hawk (v), great gray owl (v) (v=vulnerable)</li> </ul>	
<b>Montane</b>	
<ul style="list-style-type: none"> <li>• Area: 8,857 sq. km.</li> <li>• Protection target: 620 sq. km.</li> <li>• Currently protected: 200 sq. km.</li> </ul>	
<b>Subalpine</b>	
<ul style="list-style-type: none"> <li>• Area: 20,806 sq. km.</li> <li>• Protection target: 645 sq. km.</li> <li>• Currently protected: 4,000 sq. km.</li> </ul>	
<b>Alpine</b>	
<ul style="list-style-type: none"> <li>• Area: 20,806 sq. km.</li> <li>• Protection target: 645 sq. km.</li> <li>• Currently protected: 6,000 sq. km. □</li> </ul>	

## Protecting Endangered Spaces: How is Alberta Doing?

Alberta is very fortunate to have already protected 9.6 per cent of the province in parks and protected areas. This might suggest that we are on our way to protecting the minimum of 12 per cent recommended by the World Commission on Environment and Development. But such unqualified statistics can be misleading.

Most of the legally protected area in Alberta is accounted for in Banff, Jasper and Wood Buffalo national parks. But these large national parks adequately protect only three of Alberta's 19 natural subregions. For 10 of the subregions, the area protected ranges from 0.9 per cent down to none. For all practical purposes, the Peace River Parkland, Central Parkland, Northern Fescue Grassland, Mixed Grassland, Foothills Grassland, Lower Foothills, Upper Foothills, Central Mixedwood, Athabasca Plain and Kazan Upland Subregions are unprotected.

In seven of the 19 subregions, we have already lost the opportunity to establish protected areas as large as Edmonton or Calgary.

On the plus side, Alberta does have a good classification system to categorize protected areas. The province has been divided into six natural regions (see page 4) and a variety of natural history themes, that provide a reasonable basis to plan a protected areas system and to set protection targets.

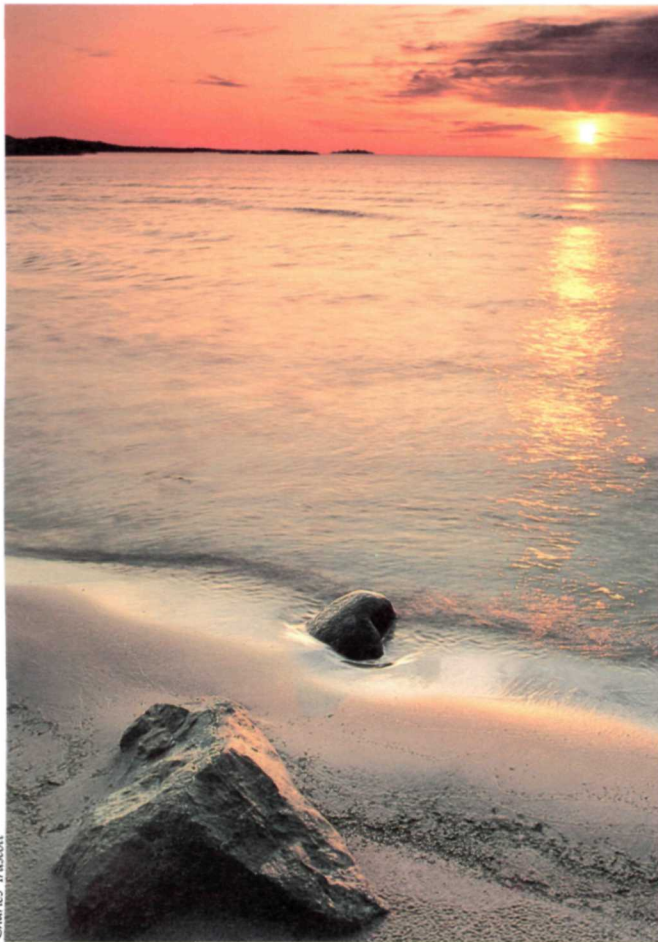
In recent years, Alberta has virtually ignored its responsibility to protect endangered ecosystems, but this may soon change. In late 1992, the Government of Alberta released Special Places 2000: Alberta's Natural Heritage, a document that unofficially endorses the Endangered Spaces campaign. The challenge is to see that the vision of Special Places 2000 — to complete Alberta's network of protected areas — is carried out by the year 2000. □



Alberta's Last Untouched Wilderness

# Canadian Shield

N A T U R A L R E G I O N



Charles Truscott



Charles Truscott



Wayne Lynch

Far Left: Sunrise over Lake Athabasca.

Top Right: A view from the headland at White Sand Point on the north shore of Lake Athabasca.

Lower Right: The peregrine falcon is an endangered species that depends on the cliffs and lakes of the Kazan Upland for its nesting and feeding habitat.

**T**he Group of Seven painters defined Canada's north for all time with big blotches of colour dramatically depicting wind-blown pine trees, rocky outcrops, rushing rivers and hidden lakes.

Those landscapes exist in a remote north-eastern corner of Alberta, in the Kazan Upland and Athabasca Plain subregions of the Canadian Shield.

Some of the oldest rock on earth is exposed here, great outcroppings of Precambrian granite scoured clean by the Ice Age glaciers that retreated 10,000 years ago. The underlying bedrock largely determines the vegetation diversity of this wilderness landscape by creating dry, soil-poor highlands interspersed with wet hollows and sparse open forests. Jackpine forests carpet much of the Kazan Upland with strange, otherworldly understoreys of pale reindeer lichen, dusty green sage and bearberry.

Along the shores of Lake Athabasca, vast sand dune landscapes grade into pine forest and provide habitat for plant species found nowhere else in the province.

Charles Truscott is one of the privileged few who has visited the north shore of Lake Athabasca. "It is a very special place," he

says. "The Kazan Upland and the Athabasca Plain come together here to form a unique ecosystem. It is strikingly beautiful in its diversity. And it is wilderness in the fullest sense of the word." It is hoped that the people who know this place have the foresight to preserve it as it is — as a true wilderness — while they still have the chance to do so.

The locals refer to this sweep of shoreline as Alberta's best-kept secret — and for good reason. Granite headlands and bright sand beaches stretch from Fidler Point to White Sand Point and beyond. The landscape has never been scarred by industrial activity and the trackless wilderness is nearly absolute.

This is the far North, one of Alberta's

harshest and most spectacular landscapes where peregrine falcons and golden eagles nest on granite cliffs. In winter, Arctic animals like the barren ground caribou, Arctic fox and willow ptarmigan occasionally find their way south into this area of our province. It remains little-known, little-visited and only vaguely imagined by the hundreds of thousands of Albertans who crowd together in the southern third of this great province. It is the finest of what wilderness can and should be. If it is protected now, while there is little of the land-use conflict that has developed in the south, it will remain that way far into the future. □

## CANADIAN SHIELD

### STATUS REPORT

● FEW CONFLICTS — STEPS SHOULD BE TAKEN IMMEDIATELY TO PROTECT NATURAL REGIONS

- Area: 18,059 sq. km. (3% of Alberta)
- Canadian Shield remaining in a natural state: 95%
- Endangered species: gray fox (v)

#### Athabasca Plain

- Area: 11,000 sq. km.
- Protection target: 385 sq. km.
- Currently protected: 39 sq. km.

#### Kazan Upland

- Area: 7,059 sq. km.
- Protection target: 360 sq. km.
- Currently protected: none



# Posterity Will Bless Us

By Kevin Van Tighem

**A**ny given morning, more than 2.5 million people wake up with the comfortable knowledge that they are Albertans and that there is no finer place on earth to live out one's days than here in Alberta.

But each morning, Alberta is a little different than the day before. During this century, the world has changed more than in any century in the history of the planet. Alberta has not escaped this change.

Where millions of grunting, constantly moving bison once washed like a living tide across miles of unfenced native prairie, the summer sun now traces rainbows across the watery veils of thousands of irrigation sprinklers watering farm fields. Where explorers struggled with deadfall and fear, asphalt highways slice mindlessly across the Rocky Mountains, past resorts and service stations. River-crossing campsites have vanished under huge cities like Edmonton and Calgary. The rivers themselves, and the soil, forests, wildlife and fishes, have become resources to be changed, managed and used. There are people everywhere, rearranging the landscape a little more each day.

Life is too busy for most of those Albertans to stop and ask how much change it will take before this place ceases to be Alberta and becomes something else altogether. Few of us lose much sleep wondering what it really means to say that this place is Alberta or that we are Albertans.

A province is more than its name. It's a living mosaic of human lives, landscapes, living things and history. Each of us has an

image in her or his mind when we think of Alberta. The unique, natural landscapes of this part of earth form part of that image.

How we perceive our home places, and ourselves, is all tied up in the sights, smells, sounds and sensations that surround us, and

vivid picture of a baby robin crouched in the corner of a rain-wet lawn. I've long ago lost the specific memory, but that image remains a part of me, a legacy of my childhood — one part of that growing tapestry of experiences, memories and relationships that define myself.

A couple of springs ago, my wife Gail and I and our children floated down the Milk River in southern Alberta with a group of friends. It had been several years since we had last been there, yet I was at home right away.

The smell of wolf willow, the wind, the brown water twisting its sinuous way from cutbank to cottonwood grove to sandbar, the call of a goldfinch, thunderstorms wheeling far off across the prairie...everywhere I turned were things that were meaningful to me. I felt more myself than I had in ages. There was depth and richness not only to the landscape through which we floated, but also to my relationships with that landscape and the quality of my experience. It was the same for Gail. She kept on bringing up anecdotes from her foothills childhood. I watched our kids, lost in their own experience. I wondered what part of the Milk River canyon was finding its way into their minds, their memories, their identities... maybe a baby robin under a lilac bush was there somewhere for them.

I hope so. I love those little children and I love Alberta. If there is a future for the Milk River, for the endless prairie sky, sweet winds, willets and wilderness, then there is a future worth entrusting to my children. There is a future for Alberta. Because they are all the same thing, all a part of one another. They will become the same future.

“

*There must be places to which people can return from time to time to immerse themselves in something great and humbling... to be woven into a work of art so immense, complex and intricately detailed that we can never hope to comprehend the Art, let alone the Artist.*

”

become us, as our lives unfold.

Each June, for instance, I bury my face in a clump of the domestic lilacs that bloom at my mother's home in Calgary, inhale deeply and my brain fills instantly with a

**ENDANGERED  
SPACES  
ALBERTA CAMPAIGN**

It may be that one of Western society's biggest problems is that we really don't know ourselves. We are too new to this land that now shapes and defines us. We know our names, but not our meanings.

And so, too easily, we squander the very things that are the root of our beings, thinking that it is a part of progress to write off a river here, a forest there, a wildlife species, a patch of grassland....

We take our heritage for granted at our own risk. In some cases, we have already lost elements of original Alberta. Things our grandparents knew will never be known to us because they are gone. Forever.

We are inseparable from our environment: the environment into which we were born, the environment we shape and create, the environment that shapes and creates us. Why else do so many of us feel so passionately for Alberta's windblown foothills, remote mountain wildnesses, far-flung northlands, rolling prairie and living rivers? Because those places are who we are. Because it is Alberta that makes us Albertans. By seeking to preserve some of Alberta's natural diversity, we do not defend something abstract or idealized. We defend a part of ourselves, our very identity – creation as it is inscribed upon our souls.

We need to set aside places of celebration; areas that celebrate the vast variety of living systems, places and creatures that



Charles Truscott

*Pine Rapids on the Clearwater River in the Central Mixedwood Boreal Forest. On the previous page is the Milk River Canyon in southern Alberta.*

make up this province and planet. There must be places to which people can return, from time to time, to immerse themselves in something great and humbling; to live in a basic way as citizens of the organic earth

sleeping in the sun, hunting, fishing, eating berries, drowning, fleeing from bears or shadows; to experience being cold, mosquito-bitten, frightened, exhilarated, exalted, enlightened and utterly humbled. Places where people take their children to learn what it is to be of Alberta, to be woven into a work of art so immense, complex and intricately detailed that we can never hope to comprehend the Art, let alone the Artist.

Who we are today is a product of the rich natural diversity Albertans have been blessed to inherit. Who we will become depends on what we save of wild Alberta for tomorrow.

The goal of preserving Canada's natural diversity has united Canadians from all walks of life in the Endangered Spaces campaign – a national effort to establish at least one representative protected area in each of our country's natural regions by the year 2000. With the active involvement of government, industry and the public we will achieve this goal. We still have time, barely enough time, to act together for the love of wild Alberta.

When ranchers near Pincher Creek persuaded Canada's minister of the interior in 1895 to set aside Waterton Lakes National Park as a legacy for future generations, he wrote: "Posterity will bless us." He was right.

It will bless us, too, if we act now. □

# Become A Wilderness Crusader

Alberta is blessed with diverse and beautiful ecosystems that have evolved over millenia. You can help ensure these special places survive in future.

**1. Please read and sign the Canadian Wilderness Charter.** Encourage others to do the same. Mail your list of signatures to CPAWS at the address below and we'll add them to the growing list of more than 500,000 Canadians who have already signed the charter. Copies are available from CPAWS in Edmonton (403)453-8658 or Calgary (403)232-6686.

**2. Please write a letter to the premier of Alberta** and let him know that you want to see a network of protected areas established to protect each of the diverse natural regions found in Alberta. Write to your MLA as well. Write the premier at: 307 Legislature Building, Edmonton, Alberta T5K 2B6.

**3. Visit your MLA** and tell him or her that you support the goal of completing Alberta's protected areas network. If you have never done this before, you'll find that it's a satisfying thing to do!

**4. Make a tax creditable donation to the Canadian Parks and Wilderness Society (CPAWS) or the Alberta Wilderness Association (AWA).** With your financial support, we can continue our work to protect endangered spaces. For CPAWS see address in coupon, for AWA call (403)283-2025 or write Box 6398, Stn. D., Calgary, Alberta T2P 2E1.

**5. Join the Canadian Parks and Wilderness Society or the Alberta Wilderness Association.** As a member of CPAWS, you will receive *Borealis* magazine and chapter newsletters. As a member of the AWA, you will receive the *Wildlands Advocate* and regular action alerts. These publications will keep you informed about the Endangered Spaces Campaign.

**6. Donate your time and talent as a volunteer.** Get personally involved in the Endangered Spaces Campaign. This is where the action is. We need your help! Call CPAWS at (403)453-8658 in Edmonton or (403)232-6686 in Calgary.

**7. Visit an endangered space in Alberta.** Get to know and love it. When you are ready to champion it, let us know and we'll help you find a way.

**8. Discuss the Endangered Spaces Campaign with your family and friends.** Help them become wilderness advocates too. You'll make an even bigger difference that way. And you'll feel better for it.

**9. Stop now and then to appreciate what you have achieved.** Pat yourself on the back and do the same for others who are working to protect natural ecosystems. □

## I SUPPORT ENDANGERED SPACES

I'm enclosing \$35 to join CPAWS and support the Endangered Spaces Campaign. Sign me up as a member and begin sending me *Borealis* magazine today!

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Address \_\_\_\_\_

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ENDANGERED  
SPACES  
ALBERTA CAMPAIGN





# Such is the Harmony

By Doris Hillis

Springcrisp morning  
sunshine from a scoured sky -  
and between cedar bough and spruce  
is spooled the delicate orb of the spider  
the silver argiope  
An exquisite web of life and death  
cruel but entrancing  
its tensile rays and spirals  
are patterned by an inner law  
and deftly woven from the common substance  
of the Living Void:  
the stuff of burned-out stars  
This subtle gossamer taut resilient quivering  
and scintillate with dew  
in its equipoise and momentary perfection  
is a holy diadem

# Wildlife

By Peter Unwin

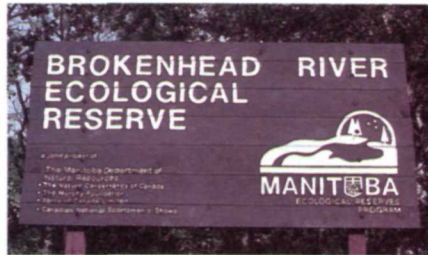
There is a plan in this mixup  
of motives and emotions that unfolds  
like a shiver of ecstasy in the spine.  
Carefully as the venation on a leaf  
it arranges the passage of moisture  
from tear duct to wetlands, from kiss  
to carcass, a field of silver eels  
writhes to water, wet with intent,  
shadows enter like a drumbeat  
on the bottom of the lungs;  
reconciliation brews in the trees;  
in the bronchial apertures of the chest  
condors and osprey wheel  
to the walls of their freedom.

Photography by Daryl Benson





# Lifeboats for Wild Lives



## Ecological Reserves Save Wild Lives and Natural Communities

Article by Yorke Edwards

Saving earth's living treasures is a growing worldwide issue. Ecological reserves are one of the legacies of that concern for the survival of earth's original environments.

"Lifeboats for wild lives," someone once called these reserves. Most provinces call them ecological reserves — "ecological" coming from the academic world and meaning all about everything, "reserves" rising from bureaucracy and meaning "hands off this patch of land unless you have our permission." The combination is close to meaning everything protected.

There are also some official names in use, like ecological area, natural area, nature park and others. "Ecological areas" is the best term to include them all. Most governments creating these areas call them ecological reserves, but they are often referred to as "ecoreserves."

The ecological areas found across Canada are patches of earth's original living communities that have been protected from most of the destruction caused by human's use. These lifeboats in Earth's sea of humanity are intended to rescue representatives of our vanishing communities of plants and animals, the complex communities of life that make our planet unique.

Ecoreserves are not parks. While parks and reserves are both dedicated to protecting natural areas, their uses are different. Most parks preserve wild tracts of land for recreation — swimming, hiking through



Cottonwood Consultants

wilderness, camping, strolling in urban green spaces. By contrast, ecoreserves are dedicated to education and research. They are carefully selected representative samples of much larger wild regions.

Ecological reserves are kept as wild and unchanged from "before destructive man" as possible. Destructive human uses within the reserves are illegal. Unsupervised public uses are not encouraged and use by educators and researchers is controlled. In some ecoreserves, human entry is illegal without a special permit.

These reserves celebrate the wild conditions of land. The many lives on these lands are the main concern. In these lives lie the roots of nearly all our wealth. Our supreme wealth is knowledge, and the richest untapped body of knowledge awaits discovery in these other lives. Earth's living things hold a vast array of undiscovered natural inventions not even remotely matched elsewhere in our solar system.

At first, "ecological reserve" may appear to be a doubtful term. While "reserve" vaguely suggests something important because someone took the trouble to protect it, "ecological" could equally describe a patch of rare vegetation or a garbage dump. But, in fact, this possibility is the very point.

Unlike Canada, much of the world has no virgin areas to save. Many countries now have only modified lands and waters on which to focus their ecological concerns. In their own ways, garbage dumps, sheep pastures or urban forests can be as ecologically enlightening as a forest of thousand-year-old Douglas firs. But there is one big difference. We can make more garbage dumps tomorrow but making more giant trees takes centuries. Some ecosystems may be impossible to re-create once lost.

In Canada, we are privileged to have original vegetation and animals in areas still largely untouched by people. Many countries do not and so are often ignorant about the histories of the landscapes that sustain them and about the biological treasures they have lost.

In the '60s, Canada, joining other nations co-operating in the International Biological Program (IBP), organized a grass-

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*Above: An upland sandpiper in fescue grasslands at Rumsey Ecological Reserve, Alberta. Below: Entrance sign at Broken River Ecological Reserve in Manitoba. Opposite Page: A pink lady's slipper on Prince Edward Island.*



*The rough fescue grasslands of the Hand Hills Ecological Reserve, Alberta.*

roots effort to document surviving locations of original plant and animal communities. The government funded studies by biologists to find the best areas.

From Vancouver Island to Newfoundland and from the Arctic Islands to Lake Erie, these volunteers enlarged our understanding of Canada's portion of the biosphere and documented thousands of wild communities. Biologists and others worked to preserve in ecological areas the best of the areas. In Canada's vast expanse are countless variations of conditions to influence what kinds of life can live where. Completing this national study was quite an accomplishment.

By 1975, the group working in the Northwest and Yukon territories had proposed 65 reserves throughout the Arctic. Ontario's initial list proposed about 400 sites. By 1978, the group in British Columbia, with the most biologically diverse terrain in the country, had proposed 297 reserves and had already established 92 as protected ecological reserves. Some provincial groups were more successful than others at preserving their best finds.

Understanding the legal process that creates reserves is important. The method used in British Columbia is typical. The government introduces an act that makes

ecological reserves possible on public lands or on private lands acquired by gift or purchase. If the legislature passes the act, it becomes law. Each ecological reserve is created by a document called an order-in-council, which names the new reserve and describes its location and size. These orders-in-council are done quietly and take only a few signatures to become legal.

The downside of this process is that reserves created by orders-in-council (and this is true for many parks as well) can be simply erased by other equally quiet orders-in-council. This need not involve anyone informed about either the reserve or the reasons for its preservation.

Protecting each reserve with its own separate act is less popular with governments because acts are difficult for governments to change without legislative or parliamentary debate. Orders-in-council ensure that future changes can be made quietly and quickly.

Ecological areas can be very small when their purpose is to protect one kind of plant or animal. For example, Eleanor Island National Wildlife Area protects nesting colonies of herring gulls and great blue herons on only six-tenths of a hectare. Similarly, British Columbia has a three-hectare reserve, Katherine Tye Ecological Reserve, which preserves the very rare Austin's phantom orchid. Among British Columbia's 131 reserves, 43 per cent are under 100

hectares in size, 74 per cent are under 500 hectares. By contrast, 13 per cent are more than 1,000 hectares.

Most ecological areas, however, are not dedicated to preserving single species so much as sample communities of wild lives. To do this properly, they must often be large. They might contain clusters of islands including the surrounding water, like the Duke of Edinburgh Ecological Reserve, entire mountain watersheds like Lew Creek Ecological Reserve or big semi-barren blocks of undisturbed wilderness like Avalon Wilderness Reserve. Among the largest in the national registry are Newfoundland's Bay du Nord Wilderness Reserve with more than 460,000 hectares and Canada's Polar Bear Pass National Wildlife Area with 81,000 hectares. Examples of the range of contents protected in other large areas include: Tahsish River Ecological Reserve, an ocean estuary; Reindeer Islands Ecological Reserve, a freshwater island in Manitoba; Checleset Bay Ecological Reserve, a stretch of ocean containing the largest Canadian sea otter population or Oak Bay Islands Ecological Reserve, which is 97 per cent ocean. Perhaps the most unusual, Robson Bight Ecological Reserve is a buffer forest to help protect the reserved shores and shallows of Robson Bight, where killer whales rendezvous almost daily to rub on rocks at the water's edge.

Every ecological area is different but



Government du Québec



T.J. Beechley

Above: The boreal forests of the Tantaré Ecological Reserve, Quebec.  
Right: Mountain clubmoss in the Cavern Lake Provincial Nature Reserve, Ontario.

most fall into groups representing the more common reasons for creating them. Most preserve the typical, many the atypical, some the rare or the vulnerable.

In Cauliflower Lake Ecological Reserve, Ontario has protected a bog that contains a stand of red spruce trees, a rare and local tree in Ontario. Long Point Ecological Reserve in Manitoba contains a stand of large white cedars at the northwest extremity of their range. Gene pools are protected

in living populations of trees that, for some reason, have survived beyond their normal ranges. Both populations probably have unusual abilities to survive.

British Columbia protects entire small watersheds on steep mountain slopes that encompass several life zones. Goosegrass Creek Ecological Reserve, for example, rises through a mature forest of hemlock and cedar, spruce and subalpine fir forest, to top out above timberline onto alpine tundra. Saving the entire watershed ensures that the maximum forestry, biology and hydrology data are preserved since the tundra, two forests and the watercourse that drains them influence one another.

MacFarlane Woods Nature Reserve in Nova Scotia is a typical hardwood forest reserved for education and study. In much of Canada, once-typical vegetation has been destroyed or modified, so preserving these surviving areas protects the answers to future questions on the ecology and economics of these forests. Laurentides Ecological Reserve in Quebec is a place where two forests meet which are unable to invade one another except in a narrow transition zone.

Newfoundland has wilderness reserves almost large enough to contain herds of caribou, a species unable to survive much human impact. Elsewhere, Cape St. Mary's Seabird Reserve is a shoreline reserve that protects the nesting place of 52,000

seabirds, most of them gannets, kittiwakes and two kinds of murre.

Alberta protects several remnant areas of formerly extensive ungrazed grasslands.

The Canadian Wildlife Service has specialized in wetland preservation in agricultural areas, to some extent reversing the farmer's priority of draining wetlands to increase crop acreage. The main focus has been preserving and creating habitat for ducks, but many other wetland species have also benefitted.

In all cases these reserves are protected to help us understand about the care, preservation and productive use of natural resources. Meanwhile, they continue to delight the thousands of people in love with wild lives.

Across Canada, the success of foresters, biologists, naturalists and others at convincing governments to establish ecological reserves has been varied.

As of early 1993, there were 615 ecological areas, most of which are described in Canada's *National Registry of Ecological Areas*, published in 1989. The most successful provinces are Ontario with 324 nature reserves and nature reserve zones in parks and British Columbia with 131 ecological reserves. There are ecological reserves in Quebec (38), Manitoba (13), Alberta (13), Newfoundland (10), New Brunswick (3) and Saskatchewan (2). There are four nature reserves in Nova Scotia, two huge wilderness reserves in Newfoundland and three large wilderness areas in Alberta.

Some jurisdictions have had problems. Prince Edward Island and the Northwest Territories have no reserves in the registry. The Yukon recently established its first one. Prince Edward Island lacks legislation for reserves but does have an act enabling natural areas, with 25 now established. New Brunswick has an act enabling designation of ecological reserves, passed in 1978, but establishing the first reserves has been delayed by land survey problems. Currently, three are reserved and five are pending.

The federal government has 46 national wildlife areas in the registry, most of them preserving wetlands. These are scattered among the provinces and territories. Some of these totals may be a bit low because new reserves have been added recently.

Like national wildlife areas, there are many important lands other than ecoreserves currently preserving parts of the biosphere. All provinces and territories have an assortment of national parks, provincial parks (some including nature parks), regional parks, wilderness areas and nature conservancies, which are protected to varying degrees from human influences. Often these are not as well protected as ecological reserves, but many do have virgin landscapes, in some cases over large areas.

Most parks include recreational uses, which vary in their consumptive use of



*Above: The Yukon's first ecological reserve, Coal River Springs Ecological Reserve was established in 1990.*

wildland. Destructive use is often concentrated in small portions of each park, so much land remains undamaged by people and their side-effects. With improvements in management and legislation, many parks could easily contain two kinds of land use, one largely recreational and with appropriate access, the other with more difficult access and protected like many ecological reserves. In hilly or mountainous terrain, the latter could often serve recreation by preserving distant scenic views and wilderness.

The current 615 ecological areas across the nation are not the end, for new ecological areas are created each year. Many other kinds of preserved areas have been over-

looked or await entry in the registry because they are protected under different titles. Military reserves, for example, often include pristine wildlands held for security purposes. Many of these could keep their military function while serving as ecological reserves as well.

Enthusiastic foresters are among the most convincing supporters of ecological reserves. We are only beginning to understand old forests. Canadians are in danger of destroying them along with the information they hold. Some protected stands of trees now in reserves have remarkably vigorous growth or unusually good form. The reasons, as yet only partly understood, are to be found in the trees themselves, in their habitats or both. Protecting such trees, with their surroundings, makes good sense both economically and ecologically. Protected, they are held as data banks, the data to be

decoded and examined through research.

Other forest data banks may have trees located in unexpected places, such as when they are isolated from the rest of their species or are simply at the geographic edges of their normal ranges. These stands hold special information, perhaps revealing some day that the trees have rare capabilities for survival.

Each kind of forest is a living community needing study. Forests with different species, regional climates, local climates, soils and drainage, slopes and elevations, occur in every province and territory. Trees appear to be the major part of a forest, but other kinds of forest life far outnumber them. Often, those smaller lives ensure the healthy survival and growth of trees. To grow trees, foresters must understand not just trees, which are relatively easy to study, but also the ecology of trees in forests interacting with countless other lives. This is not nearly so easy.

Biologists, too, have championed ecological reserves, using them to protect spaces needed by rare kinds of wild lives in danger of being overrun by development. Rare species of plants and animals needing year-round habitat can find protected spaces in reserves. Only a hectare or two may suit a small population of orchids or contain a sedentary beetle. But far-ranging creatures like grizzly bears or caribou need much larger spaces than most present ecological reserves can offer. Places where animals congregate also need protection. Wildlife is especially vulnerable to the destructive and disruptive activities of people when their populations are concentrated. For example, areas where colonial birds nest or deer feed in winter on warm, south-facing mountain slopes must be protected. A few vulnerable hectares needed by wild animals for only a month can be the key to a healthy population ranging over many square kilometres the rest of the year.

We have made a start to protect our wild heritage, but only a start. New preservation successes must fill the next few years. We are so far from solutions to some problems that we are unsure about how the job should be done. Wide-ranging mammals, birds and other animals often cannot be contained in the little ecoreserves we have been creating. Consider the preservation of caribou herds, wolves, eagles, grizzly bears and birds that need the disappearing tropical forests to survive winter. We need to consider new, creative solutions such as chains of ecoreserves, corridor reserves, international cooperation and reserves as large as our largest parks.

Information led us out of the cold caves of the caveman to collect rocks on the moon. Ecoreserves preserve information and information is the most valuable commodity we use. Wild communities are filled with inventions still undiscovered. Commu-

# Ecological Reserves Across Canada

Province	Number 1989	Number 1992	Total Hectares 1989	Types of Areas
Alberta	11	16	18,482	Ecological Reserves, Wilderness Areas
British Columbia	122	131	150,876	Ecological Reserves
Manitoba	10	13	17,676	Ecological Reserves
Newfoundland	12	13	576,815	Ecological and Wilderness Reserves
New Brunswick	0	3	NA*	Nature Reserves
Nova Scotia	2	4	75	Ecological Areas
Northwest Territories	0	0	0	
Ontario	304	324	91,514**	Ecological Areas, Nature Reserve Zones
Prince Edward Island	0	14	NA	Natural Areas
Quebec	22	38	9,596	Ecological Reserves
Saskatchewan	1	2	750	Ecological Reserves
Yukon	0	1	0	Ecological Reserve
Federal	47	47	123,115	National Wildlife Areas

Figures for 1989 are taken from the *National Registry of Ecological Areas*. More recent numbers of reserves per province are given in the third column. Clearly, some provinces were slow to start but have overcome difficulties. No list of additional hectares is available.

\* Not Available (NA)

\*\* In the registry, Ontario documents 219 nature reserve zones located within provincial parks and 85 ecological areas. It does not provide complete figures for the amount of area involved. The total hectares shown for Ontario are for ecological areas only.

nities destroyed is information lost. The need for more and better ecoreserves is obvious. To get those reserves, we need creative thinking and convincing marketing.

*Yorke Edwards is a forester and biologist living in Victoria, B.C. He served as a*

*research biologist with the B.C. Forest Service and as director of the Royal B.C. Museum. He also initiated interpretation programs in B.C. Parks and the Canadian Wildlife Service. □*

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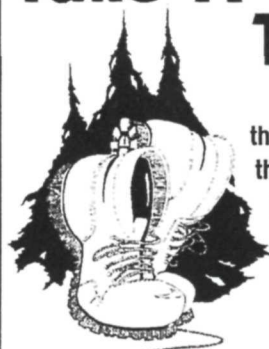


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Mark Degner

## The Case Of The Missing Lynx

Lynx populations are known to rise and fall in perfect synchronicity with snowshoe hare numbers. But recently, observers in some parts of Canada have noted declines in lynx numbers that cannot be attributed to any decline in the number of hares. This curious population decline appears to be the result of over-trapping.

The lynx has always been in demand for its long silky fur. Style-conscious consumers

in the '80s created such a demand for lynx pelts that prices between 1970 and 1985 rose almost ten-fold. The over-trapping placed severe pressures on lynx populations, some of which never recovered.

Alberta is home to the largest lynx population in Canada, with an estimated 8,000 at the low point in the cycle. In recent years, the Alberta lynx population has been decreasing, according to Alberta Fish and

Wildlife Division. The best year's harvest of lynx in the '80s was a full 40 per cent lower than that of the peak year in the previous decade. Alberta's vast network of roads and seismic trails provides easy access to trappers and has increased the potential for over-trapping.

Despite the current depression in pelt prices, trapping still threatens Alberta's lynx population. From July 1991 through June 1992, Alberta trappers caught 2034 lynx. Four years ago, the province instituted a quota system to regulate trapping of lynx. But Fred Neumann, fur management co-ordinator, Wildlife Management Branch, Alberta Fish and Wildlife Division, admits that "government management systems were implemented late."

There is less trapping pressure on lynx populations in British Columbia since there is less development. "In B.C., we still have lots of wilderness left. In 1990/1991, only 600 lynx were trapped in B.C.," said Vivian Banci, a biologist with the Wildlife Branch, B.C. Ministry of Environment.

Across the border, lynx harvest levels have reached very low proportions. In Idaho, only five lynx were trapped in the last decade.

According to many trappers, the feline curiosity of the lynx makes it easy to trap. In many areas, curiosity may well have ended up killing off the cat.

Robert Busch  
Likely, B.C.

## Standoff: A Spray for Bears

In fall 1988, Michael Francis and Conrad Rowe were photographing elk near the warden headquarters in Jasper National Park. Absorbed in their work, they were startled to look up and see a grizzly bear running straight for them. Both men are professional wildlife photographers who are very experienced with bears. They were both equipped with aerosol cans of bear deterrent spray, carried in nylon belt holsters. They managed to shout and wave off the first charge. The bear retreated, then two cubs entered the clearing. The female grizzly charged again and both men sprayed her in the face at a range of two metres with Counter Assault.

"She stopped as if she'd run into a brick wall," said Rowe. "She bellowed, swivelled around and ran away with the cubs at her heels." Francis believes that "without the spray, one or both of us would have been injured or worse."

Counter Assault, developed in Montana, and Standoff, a similar Canadian-made



Right Hind



Canadian Parks Service

The Canadian Parks Service hands out millions of "You Are In Bear Country" warning brochures each year to help wilderness lovers avoid getting into trouble with bears. But what can you do to stave off an attack?

product, attacks the sensitive nasal passages of the bear and irritates its eyes. The active ingredient of this spray is capsicum, derived from red peppers.

There is no lasting damage to the animal

from the sprays, according to Chuck Jonkel, a bear biologist based in Missoula, Montana. Bears rid themselves of the chemical by rolling in water, snow, wet leaves and grass. The spray incapacitates bears for about five minutes. Jonkel helped test Counter Assault, which was first developed in 1980 by American Bill Pounds and marketed in 1986.

Jonkel knows of about 15 incidents involving black and grizzly bears, when using the spray may have saved a life. The use of the spray may also help save the lives of bears, says John Eisenhauer, a biologist who helped develop Standoff in 1986. Bears that injure human beings risk being trapped and re-located or being destroyed. Perhaps the spray will help condition bears to avoid conflicts with humans.

On the other hand, Michael Francis echoes the wishes of wildlife officers and bear biologists. "People must be very careful with this spray and not push their luck in getting too close to bears just because they have the spray with them." That would turn bear spray from a defensive to an offensive weapon. That's the last thing its proponents had in mind. □

Sid Marty  
Calgary, Alberta



## Last Chance to Protect B.C.'s Most Endangered Habitat

Despite being the rarest and most endangered habitat in British Columbia and one of the rarest in Canada, the Garry oak meadow and woodland habitat has no protection, except in a few very small ecological reserves and regional parks. In the Provincial Parks and Wilderness for the '90s Plan and the National Parks Systems Plan, this distinctive habitat, lying within the Strait of Georgia Lowlands Natural Region, is recognized as poorly represented. Yet there are no immediate plans to protect it.

Unfortunately, there may not be much time left. The characteristic landscape of the Capital Region, gnarled oaks in sunny meadows ablaze with wildflowers like camas and shooting star, is nearly gone. Less than one per cent remains in a natural state. In 1792, Captain Vancouver thought it "enchantingly beautiful as the most elegantly finished pleasure grounds in Europe." James Douglas was so impressed by the landscape that he chose to locate Fort Victoria here in 1843. To Douglas, it had the "rankest growth of native plants that I have seen in America." Ironically, it was the native people's management of these camas meadows, a staple root crop, that created its parklike appearance.

This habitat supports more than 150 plants, including one-fifth of the province's most endangered plant species, and more than 1,000 animal species (including 800 insects). The few protected areas that do exist with Garry oak are under constant pressure from recreational use and the invasion of introduced plant species. The regional parks and ecological reserves only represent the Garry oak plant community at the margins of its range: on rocky outcrops, islands, the northern limit of its range and areas of shallow soils. The true Garry oak parkland, as ecologists refer to the dominant deep soil habitat found around the Greater Victoria area, is only represented in a semi-natural state in two municipal parks. Both of these parks, including Beacon Hill Park, are managed primarily for recreational use, which severely threatens the remaining habitat. Dr. Richard Hebda, of the Royal Provincial Museum, predicts that the deep-soil Garry oak parkland will be gone by the turn of the century.

The reason for the hesitancy to protect this habitat is obvious. Suitable areas are privately owned and expensive. Given the option of protecting 10,000 hectares of alpine meadow versus 100 hectares of oak meadow, it is not difficult to understand which choice politicians will make.



Briony Penn

The habitat is also perceived as being of only regional significance. To date, the region has not had the resources to buy a substantial park. This will have to change soon or the opportunity will be lost. Several large parcels of land still exist under private ownership. The answer may lie in a co-operative effort between the region, native groups and the province or federal government to act immediately to identify and protect remaining areas. Through the efforts of the Conservation Data Centre in Victoria, working with the Capital Regional District Parks Department, the identification process has already been completed. The Garry Oak Meadow Society has also formed to lobby for protection and to become active in promoting initiatives to rehabilitate and restore

Few natural Garry oak meadows remain in southwestern Canada. This one in Victoria was destroyed last year.

habitat throughout the region. One initiative is to encourage more protection of natural areas on Crown properties and native planting around government buildings. One society member mused, "It would be a great vote of confidence in the political system if they restored the grounds of the Parliament buildings back to their former glory of oaks and wildflowers."

The most important step remains the immediate protection of the last pristine oak meadows and woodlands.

Briony Penn  
Victoria, B.C.

## Canada's Parks and Wildlife Ministers Make Commitment to Biodiversity and the Protection of Ecosystems

Last November, parks, wildlife and environment ministers from across Canada met in Aylmer, Quebec, to initiate implementation of the Convention on Biological Diversity, which was signed by the prime minister at the "Earth Summit" in Rio de Janeiro in June 1992. The Canadian Council of Ministers of the Environment, the Canadian Parks Ministers' Council and the Wildlife Ministers' Council of Canada pledged:

- to complete Canada's network of protected areas representative of Canada's land-based natural regions by the year 2000 and

to accelerate the protection of areas representative of Canada's marine natural regions

- to accelerate the identification and protection of Canada's critical wildlife habitat
- to adopt frameworks, strategies and timeframes for the completion of the protected areas networks
- to co-operate in the protection of ecosystems, landscapes and wildlife habitat and to ensure that protected areas are integral components of all sustainable development strategies."

Elaine Butler  
Edmonton



Lu Carbyn

## The Swift Fox Roams Its Native Prairie Once Again

**A**fter vanishing from Canada, the swift fox once again roams the prairies of southern Alberta and Saskatchewan thanks to an innovative recovery program.

The swift fox is a house cat-sized predator that was once a common species on the Canadian prairies. The Canadian population disappeared during the first half of the 20th century. In 1978, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated the species as extirpated. This sparked a project that involved many agencies, a non-profit conservation group and farmers, all united by the goal of re-establishing the fox to its native land.

The recovery program began in 1983. But it wasn't until 1989 that scientists decided to adopt several experimental approaches to re-establish the fox.

In one experiment, the recovery team compared the success of captive-raised foxes with that of wild-born foxes imported from the United States.

The results were very revealing. Three months after the release of captive-bred foxes, five out of 27 (19 per cent) survived, compared to a survival rate of 17 out of 28 (61 per cent) for wild-born foxes.

Also revealing and encouraging were the long-term survival and reproduction rates of released animals. Over the years, the foxes spread to at least 278 sections of land in southern Alberta and Saskatchewan. In the winter of 1991/92, the Canadian free-roaming swift fox population was estimated to be at least 225 animals. Some foxes survived for four years and produced at least two litters of young. Since the program began in 1983, a total of 49 pairs produced an average of 3.4 young per litter. And the wild, Canadian-born young have a higher survival rate than the foxes that were released in the experimental project. Foxes also moved south into northern Montana from Canadian release sites. From 1986 to 1992, there were 12 recorded sightings of swift foxes in Montana.

For this emerging fox population, coyotes are the greatest threat. Most deaths by coyotes occurred within one month after release. Predatory birds and badgers also killed foxes. A few foxes were killed by trappers and some became victims of road kills.

Dispersal of foxes from release sites varied considerably, but the highest recorded movement was 190 kilometres. Wild-captured foxes travelled greater distances than captive-raised foxes, but they consistently

settled in prairie habitats. Captive-raised foxes moved shorter distances and were less consistent in their settling patterns. A few settled near buildings, while others opted for brushy areas near cultivated fields, roads or humans. The wild-captured foxes were much more able to adapt than the captive-raised animals.

From its inception, the Swift Fox Recovery Program has enjoyed strong public support. In 1986, a citizen's group formed to support the recovery program. Local landowners near the three release sites greatly assisted efforts to re-establish the swift fox. Ranchers' support was critical to the success of the project.

Perhaps one of the most encouraging discoveries of the program is that the ecological requirements for fox survival appear to be intact, even in this modern, fragmented prairie ecosystem. Scientists can't be certain whether the species can survive over longer periods, especially if drastic short-term environmental changes, such as drought, severe winters or long-term climate changes occur. But for now, the swift fox once again roams the prairies. □

Lu Carbyn  
Edmonton

## Clayoquot Decision Disturbs Everybody

By Maggie Paquet and Sabine Jessen

On April 13, the B.C. government announced its decision to allow logging in Clayoquot Sound, the last unfragmented old-growth temperate rain forest on Vancouver Island, and to set aside 33 per cent of Clayoquot's land area as parkland.

The decision was met with outrage by the public and environmental groups. It also precipitated a public statement by Stephen Owen, chairman of the Commission on Resources and the Environment (CORE).

The Sierra Club of Western Canada called the government's figures misleading. The Sierra Club stated that half of that 33 per cent is already protected in Strathcona Provincial Park and Pacific Rim National Park. The other half is mostly outer coast areas, consisting mainly of bog, marsh and scrub trees. More than 20 per cent of Clayoquot Sound's ancient forests have already been logged. The decision means another 54 per cent, or nearly three out of every four old-growth trees will be logged. This decision protects less than 15 per cent of Clayoquot Sound.

A few weeks earlier, the B.C. government purchased over \$50 million worth of shares in MacMillan Bloedel, which, along with International Forest Products, holds 25-year timber licences over most of the public land in the Sound. The purchase makes the B.C. government the owner of about four per cent of Mac-Blo stock. This raises the question of conflict of interest. Part of the reaction comes from the perception that this government promised to save critical wilderness areas and that it wouldn't engage in any of the "back-room deal" decision making of previous governments.

CPAWS sent a letter to B.C. Premier Michael Harcourt urging him to reconsider the decision and voicing four primary concerns: "(1)The apparent failure to consider Clayoquot within the context of southern

Vancouver Island. Clayoquot represents one of the few remaining opportunities to protect whole unlogged watersheds, a globally significant resource.

"(2) The ecological fragmentation of the areas that are to be given protection. While protecting the Megin watershed is a positive component of [the] decision, many of the other areas designated for protection appear destined to become islands in a sea of logging.

"(3) The visual corridors will be insufficient to protect viewsheds for water-based recreation and tourism.

"(4) The glaring lack of detail regarding the [proposed] new timber harvesting practices and standards to be applied to logging in [this] area. Given the history of timber harvesting in this province, we remain skeptical about your commitment to protect our land against improper logging practices."

Complicating matters is the fact that CORE Commissioner Stephen Owen was present when the government announced the compromise. Some critics feel his presence at the announcement risked public confidence in his independent status. Owen responded with a lengthy report with nine recommendations. Admitting that this "land-use decision has an impact on the work of CORE throughout the province," he says that it "raises a number of local, regional and provincial questions that must be addressed if the work of CORE... is to proceed as intended." There is no doubt that it has placed CORE's effectiveness in serious jeopardy. He suggested CORE could act as an interim independent review body to oversee forest practices in the Sound (pending enactment of a Forest Practices Act). He also recommended that B.C. invite the federal government to apply for designation of the area as a UNESCO Biosphere Reserve. Owen has also recommended that a Conflict of Interest Commission be struck, headed by Justice Peter Seaton, to investigate the shares-buying issue.

Nobody is satisfied with this decision. The International Woodworkers of America and share our forests groups have walked away from the CORE table on Vancouver Island and in the Cariboo Mountains because of Owen's response. In the Kootenays, the environmental sector has walked pending government's response to Owen's recommendations.

Write to B.C. Premier Mike Harcourt, Parliament Buildings, Victoria, BC V8V 1X4, Forests Minister Dan Miller and Environment Minister John Cashore, (at the same address) and ask them to reconsider this decision. Also contact your federal MP, House of Commons, Ottawa, KIA 0A6.

### Young Environmentalist Habitat Match Answers

Grey Fox	CS
Whooping Crane	BF
Woodland Caribou	BF, RM
Arctic Grayling	BF, RM, F, CS
Cougar	RM, F
Elk	RM, F, P
Burrowing Owl	G
Pronghorn Antelope	G
Grizzly Bear	RM, F, BF
Balsam Poplar	BF, F, RM, G, P
Narrow-leaved Cottonwood	G
Long-billed Curlew	G
Baird's Sparrow	G, P
Blue-eyed Grass	P
Slender Mouse-ear-cress	F, G
Trumpeter Swan	BF, F, P
Bl-th. Green Warbler	BF
Peregrine Falcon	BF, P, CS
Short-jawed Cisco	BF

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## Looking for Answers in the Cypress Hills

Nothing is simple in the Cypress Hills and forest management is no exception. Cypress Hills Provincial Park, a truly unique lodgepole pine/aspen/white spruce area, rises up in the middle of the arid prairie in southeastern Alberta and southwestern Saskatchewan. Managing its forests presents a real challenge to Parks staff who try to satisfy the needs of ranchers, cottagers, recreation seekers, naturalists and business people – all park users – while living up to their mandate to maintain ecological integrity.

Recognizing a need for some independent input, the Medicine Hat, Alberta-based Society of Grasslands Naturalists sponsored a workshop last October to analyse management options.

The workshop grew out of an Alberta Parks-sponsored five-year pilot plan (which ended in 1991) of clearcut logging. The plan was designed to increase age diversity in some of the 100-year-old lodgepole pine stands, to reduce fire-prone forest fuel, to create local fireguards and to control insects and disease. However, the Grasslands Naturalists questioned some of the plan's aspects. Why only clearcutting? Why did Parks insist that 100-year-old lodgepoles are mature? (Lodgepole can live to be 250 to 300 years old. One hundred years is considered harvest age.) And, it appeared that some of the sites were chosen for ease of logging rather than out of ecological necessity.

The group obtained a grant and hired a consultant, Western Ecological Services Ltd. (WESL), to study all options for forest management in Cypress Hills. The report, released in 1992, came up with 22 key recommendations, including discontinuing clearcutting.

However, the logging contractor, Dunmore Wood Preservers, has lobbied hard for an increase in clearcutting, effectively turning it into a commercial venture rather than a management tool. Backing them is the area's Conservative MLA Alan Hyland.

Park staff obviously believed that log-



Logging in Cypress Hills Provincial Park.

ging was necessary. Before the workshop, they were taking that belief to the public. For example, in a June program on forest management at the Cypress Hills Interpretive Centre, a park forestry officer painted a distorted picture of a forest filled with diseased, insect-infested, over-mature pines and genetically unstable spruce. "Fire is an unacceptable option. . . . We all know what happened in Yellowstone!" Clearcutting, he claimed, was the answer.

While admitting that logging may play a role in management of the unique environ-

ment of the Cypress Hills, the Grasslands Naturalists were concerned that selective logging was rejected, other options were given short shrift and Parks staff were using emotion and distortion to present their view to the public.

At the workshop, the 30 participants from western Canada and the northern U.S. represented a wide variety of expertise. Among those presenting papers were Dr. Bruce Dancik, Cliff Wallis and Dr. Peter Achuff. The workshop provided an objective, independent, scientific base of knowledge and ideas that Parks has promised will be used in making their new Master Plan. Parks also promised to provide funds to publish the proceedings. Don Sparrow, at that time the minister responsible for parks, assured the group that there would be no more logging in the park except for salvage.

While forest management often generates emotional responses, the bottom line is what is best for the Cypress Hills. If the workshop has assisted in providing that, then everyone is a winner.

Dennis Baresco  
Lethbridge, Alberta

## Northern Outfitters Raise Money to Save Wilderness

Wilderness outfitting is known as a lifestyle business – something you pursue for satisfaction rather than riches. But, lately, there has been an awakening in the ecotourism industry. Adventure travel operators are realizing that instead of filling their pockets, they can use the high profile of exotic Canadian destinations to raise funds to protect the wilderness.

In the depths of the Nahanni Canyons in the Northwest Territories, a new group is already at work. The Nahanni River Outfitters Association, consisting of the region's four licensed outfitters, is raising money for

a new non-profit foundation called the Nahanni Trust. Each operator has agreed to contribute \$1 a day for each customer who visits the Nahanni. The outfitters predict they will raise more than \$6,000 a year.

The Nahanni Trust will support work on environmental issues that threaten the Nahanni wilderness, which the outfitters depend on. They hope to educate the public and to train natives to work with the outfitters.

The Nahanni Outfitters Association is also developing a Literacy in Adventure Travel program. Northern students can compete in a story-writing competition for prizes donated by the outfitters. The idea is to help improve literacy in the North.

In British Columbia, the newly formed Alsek/Tatshenshini Outfitters Association was chartered to raise funds for Tatshenshini International, a coalition of environmental groups fighting the Windy Craggy mining proposal. Already, by asking for a \$20 donation apiece, the operators have raised more than \$5,000.

Voluntary levies allow wilderness adventure travel operators to provide direct financial support for environmental issues. And with their guidance, the ecotourist is also being encouraged to learn more about and to contribute money toward wilderness protection.

Neil Hartling, Whitehorse

For more information on the Nahanni River or Alsek/Tatshenshini Outfitters Assoc., write to P.O. Box 8300, Stn. "P," Edmonton, Alberta T6H 4W6.



Jacques Cousteau, NATURE AND ENVIRONMENT, FISHING, TRAVEL AND RECREATION ARE JUST SOME OF THE SUBJECTS IN THE

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## Cottonwood Forests Disappearing

Recent evidence suggests that damming rivers may present a serious threat to riparian poplar forests. Professor Stewart Rood, of the University of Lethbridge, found serious degradation of poplar forests downstream of dams in southern Alberta. Similar declines have been documented along rivers throughout the western prairies of North America. Due to reduced flooding and changes to the water table caused by dams, the outlook is bleak for these forests that run like green ribbons across the prairies.

Rood studied poplar forests growing along the banks of the St. Mary, Waterton and Belly rivers in southern Alberta. By looking at old aerial photographs, he was able to compare the extent of such forests before and after construction of dams. For the reaches downstream of dams on the St. Mary and Waterton rivers, he found a decline in poplar abundance of 25 to 45 per cent between 1961 and 1981. Reaches upstream of the dam showed no such decline. Neither did any reach along the undammed Belly River.

Rood also looked at the current abundance of poplar on river banks upstream and downstream of the dams. For both the St. Mary and Waterton rivers, the downstream portions showed significantly lower abundance of poplar forests than the upstream portions. Other scientists studying riparian poplar forests found a reduction in tree growth, seedling abundance and overall forest cover associated with river damming in Arizona, Colorado, Montana, North Dakota and Wyoming.

Poplars require newly exposed, moist sand and silt beds for seed germination. The young seedlings must be free of competition from other plants and need ample moisture for the first few weeks. Spring floods are essential to create these conditions. Evidence suggests that, along undammed rivers, large numbers of poplars establish in groups every two to 10 years, depending on appropriate flooding conditions. Distinct bands of different-aged trees illustrate these events. Damming severely limits or eliminates spring flooding and can drastically reduce seedling establishment.

Once established, most poplars live for up to 100 years although trees up to 250 years old have been reported. As mature trees, poplars have very deep roots and obtain most of their water directly from the water table. Damming causes changes in river flow, which may cause a drop in the water table leading to severe drought stress, and eventually death, for mature poplars. Rood found evidence of this in historical photographs and current observations, which showed extensive recent death of mature poplar trees downstream of dams. The



*Pictured above are cottonwood or poplar forests remaining on the upper St. Mary River in southern Alberta. Below are dead poplars on the lower St. Mary River below the dam.*



Both: Stewart Rood

death of mature trees, along with poor seedling establishment, is leading to the demise of riparian poplar forests downstream of dams.

His research suggests that it is possible to regulate river flow downstream of dams so that the poplar forests will not be harmed. For example, the planned flow control regime for the Oldman River Dam in southern Alberta should not significantly damage

poplar forests downstream. Environmentalists worry that this planned flow control will not be continued in the future, and these majestic prairie forests will become another of our vanishing landscapes.

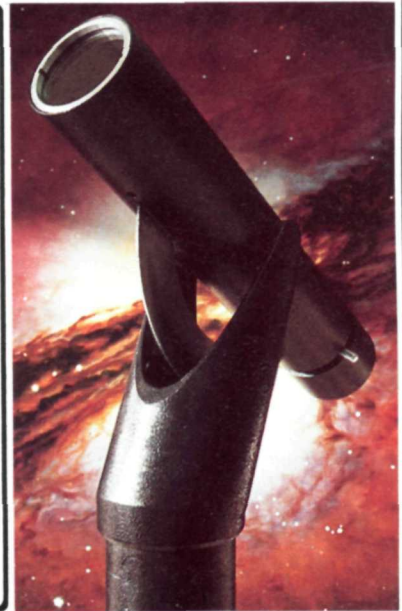
*Elle Macdonald*

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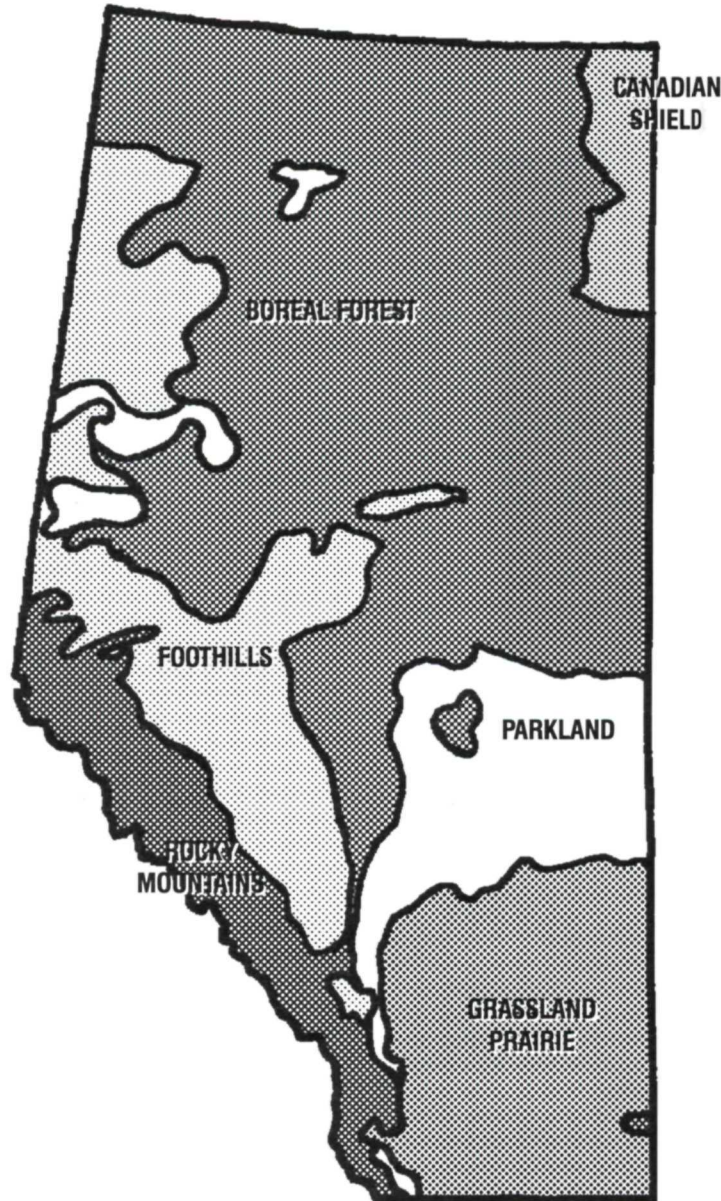
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# HABITAT MATCH

All plants and animals have special needs for food, water and reproduction that determine where they live. Habitats provide those needs and without the right habitats, the species can't survive. The Endangered Spaces Program was set up to protect the habitats. - The natural regions of Alberta identify six broadly different types of habitat: Canadian shield, boreal forest, foothills, Rocky Mountains, parkland and grassland prairie.

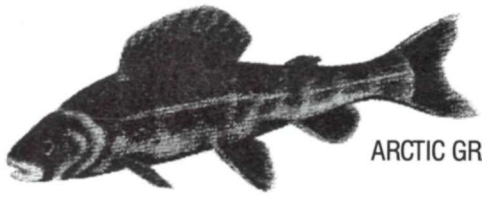
The plants and animals on these pages are all found in Alberta. Most are endangered or threatened because they're running out of the habitat they need to live in.



GRIZZLY BEAR



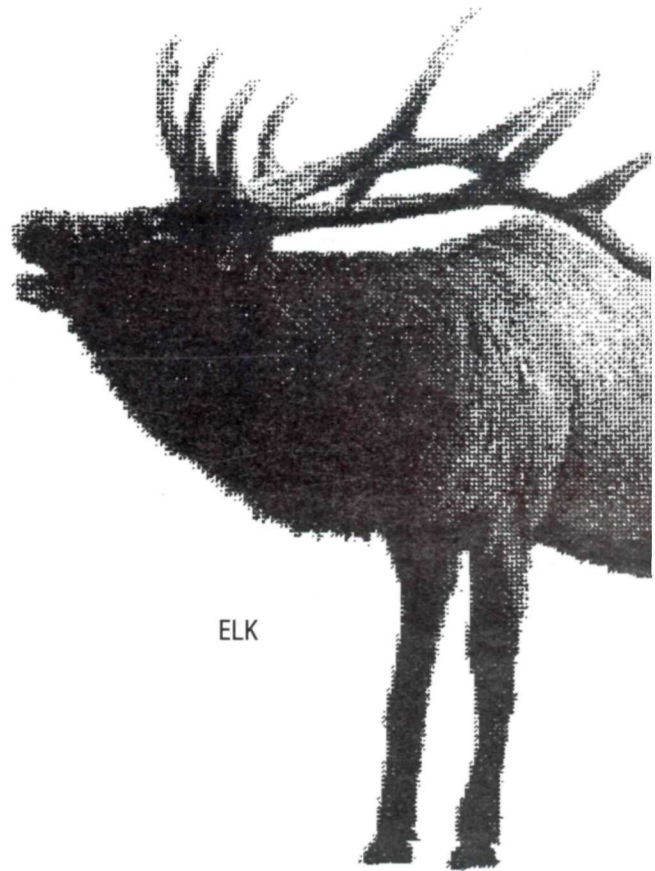
BURROWING OWL



ARCTIC GRAYLING

Match up the animals and plants with the natural regions where they're found in Alberta. Some are found in more than one region, like the elk, but others, like the short-jawed cisco are only found in one.

If you need help, look through the section on Alberta's Endangered Spaces, beginning on page 17 (Endangered Spaces 1). Answers are on page 43.



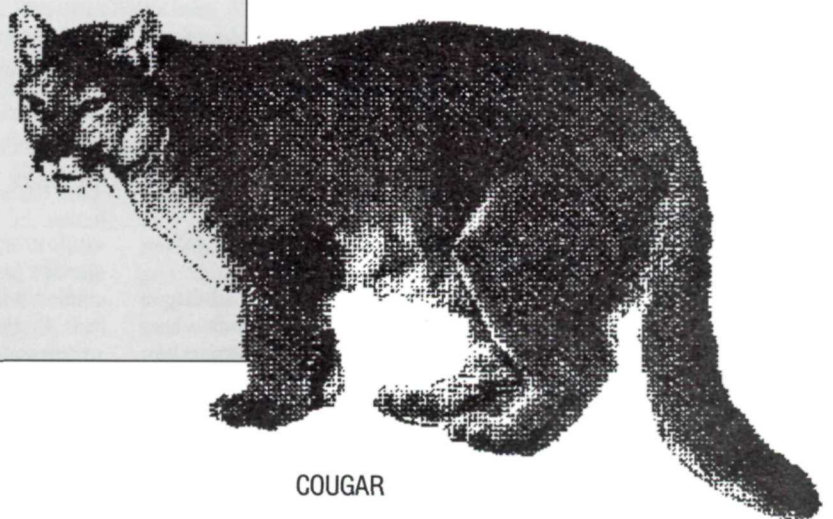
ELK

**Animal/plant**

- Grey Fox
- Whooping Crane
- Woodland Caribou
- Arctic Grayling
- Cougar
- Narrow-leaved Cottonwood
- Elk
- Burrowing Owl
- Pronghorn Antelope
- Grizzly Bear
- Balsam Poplar
- Long-billed Curlew
- Baird's Sparrow
- Blue-eyed Grass
- Slender Mouse-ear-cress
- Trumpeter Swan
- Great Grey Owl
- Black-throated Green Warbler
- Peregrine Falcon
- Short-jawed Cisco

**Natural Regions**

- CS Canadian Shield
- BF Boreal Forest
- F Foothills
- RM Rocky Mountains
- P Parkland
- GP Grassland Prairie



COUGAR

# Eco-Charlatans



Recently, I discovered a pamphlet announcing the creation of a new journal with the contradictory title: "Environmental Engineering." Its subtitle, "Journal of Ecotechnology," was equally oxymoronic. The pamphlet defines ecological engineering as the design of ecosystems for the mutual benefit of humans and nature. Another definition I have seen is the design of human society with its natural environment for the benefit of both. These are definitions of the charlatan. Combining "environment" and "eco" with words of opposite meaning such as "engineering" and "technology" suggests that humans are so wise that they can preserve the environment while at the same time destroying it. No one doubts that engineers have designed artificial ecosystems that are of immediate benefit to today's human populations, but in the process, huge expanses of nature received no benefit at all. Rather, nature was demolished.

The notion that the professions of engineering and technology have much to do with benefitting nature is founded upon a profound ignorance of the complex workings of the natural world. Billions of years before humans appeared on this planet, all of the earth's environments were already "engineered" — they were stable, healthy, productive and beautiful. During those eons of time, engineers or technologists were irrelevant.

Today's troubled world is full of engineered projects that were aimed specifically at the destruction of nature — dams, cities, agricultural fields, drains, oceanic trawlers, channelized rivers and streams, pipelines, roads and utility corridors, to name a few.

There is little evidence of increased ecological sensibility in the minds of engineers, technologists and the like. If such a sensibility were developing, we should be seeing these professions active in restoring and repairing areas of the environment that have been variously trashed by products, machines and projects that were created by legions of previous generations of engineers and technologists. Environment Canada itself recently funded a "Chair of Environmental Engineering" at a Canadian university. But apparently, this Chair has little to do with trying to reverse the enormous damage that previous generations of engineers

have done to local, regional and global environments. Rather, it deals only with industrial wastewater plants, treatment of sewage sludge and similar kinds of abnormal things. In other words, they will only deal with mitigating the effects of environmental destruction, but not with stopping or eliminating it.

Engineers and technologists will obviously continue to work on sewage and sludge treatment, recycling and other chemical and biological problems. But they should begin to use their unique knowledge to undo the extensive environmental damage of engineering projects of the past. Such projects — aimed at restoring degraded nature — would provide some basis for the words "environment" and "eco" in the schizophrenic names of these professions. Environmentalists already know which human actions would benefit nature: protecting unique populations, species and natural ecosystems; protecting large land and water areas from over-exploitation; reducing human overpopulation; and undoing the damage that has already been done to nature by people and machines in the past.

Engineers could start by removing hundreds of frivolous flood control dams on lakes and streams across the country. Many dams and weirs — such as those at the exits of Lakes Winnipeg, Manitoba, Erie and Ontario — do great damage to the environment and should never have been built. Their removal would allow nature to restore the normal annual rhythms and ecological health of these water bodies and their shorelines.

Engineers should next write an "Engineer's Guide to Road Removal" with case studies of techniques and costs. Many species across Canada are disappearing due to over-fragmentation of their ranges by roads being cut into remaining wild or semi-wild regions. Removing tens of thousands of miles of old roads and restoring the natural conformity of the land would benefit nature and its vanishing species (especially large carnivores that need isolation and non-roaded wilderness for survival).

Engineers could begin filling in thousands of miles of environmentally destructive drainage ditches and restoring channelized streams to their former natural courses. By working to undo their past mistakes, "environmental" engineers and "eco" technologists would start doing what they say they are doing — designing systems that benefit nature. In so doing, they would join today's environmental movement rather than being part of the problem. □



N. Kananakits Pass — David Dodge

*"Billions of years before humans appeared on this planet, all of the earth's environments were already fully "engineered" — they were stable, healthy, productive and beautiful. During those eons of time, engineers or technologists were irrelevant."*



# "The poetry of landscapes, dreams and visions..."

## *Shadows in the Sun: Essays on the Spirit of Place*

By Wade Davis  
Lone Pine Publishing  
CPAWS Henderson Series #19  
156 pp. \$12.95

Review by Maggie Paquet

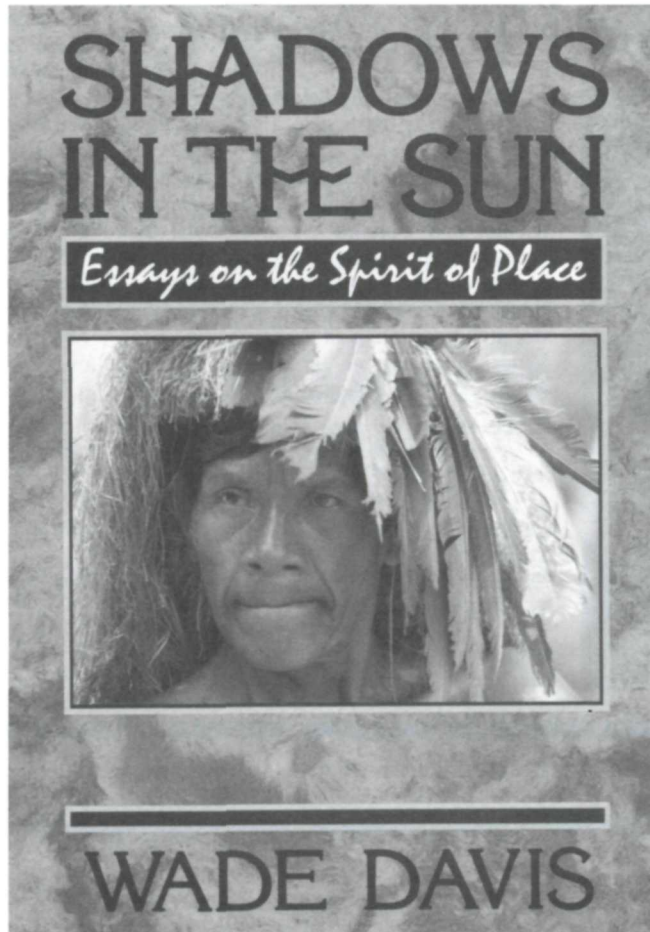
Wade Davis has a consummate sense of how cultures and landscapes interact. Not just cultures, but the individuals that define them, such as the Haitian spirit walker and the Yanomami shaman and not just landscapes, but their elemental characteristics, such as the leeches of Borneo's rain forests and the caribou of northwestern Canada.

This new book by one of Canada's foremost ethnobotanists is a collection of eight essays "about landscape and character, the wisdom of lives drawn directly from the land..." Ranging widely over the planet and among seemingly disparate indigenous peoples, Davis' essays focus on the commonality of each: the unbroken bonds between individuals and community and between communities and the land.

A basic premise of this book is that because we can move about "this small planet" with great ease, we have sacrificed that sense of connection to the land, the spirit of place deeply known, enjoyed and understood by the peoples we call primitive. But their "loyalty to the land is perhaps the single most powerful distinction between indigenous peoples and those of us whose ancestors grew up on distant continents across the endless oceans..."

In his introduction, Davis recalls the response of American poet Gary Snyder when asked how he thought "individuals could best help resolve the environmental crisis." Snyder replied, "Stay put." The implication is obvious. We whose ancestry is rooted in landscapes on the other side of the planet need to rediscover a sense of place. As a culture, we need to feel commitment to what nourishes us and gives us relevance.

I recently read a comment by a native person who was re-



marking on the large and often confusing number of land-use, endangered spaces and public processes that occupy the time, energy and consciousness of so many of us these days. He said something like, "All this activity means you are finally, after over 250 years, starting to feel as though this continent is your home. It's about time."

*Shadows in the Sun* illustrates how indigenous peoples — by their actions, stories, songs and their very lives — are the land, in a spiritual and an actual sense. When the land is occupied or controlled by people who don't understand or refuse to share that sense of place, then environmental damage is done.

If we remind ourselves of the effects of, say, introducing rabbits to Australia or any exotic species into an area where there are no natural controls, it should come as no surprise that, like those exotic species, we non-natives have wreaked im-

mense damage upon the native cultures and landscapes. We have inserted our foreign belief systems into the existing landscapes of North America, with predictable results.

*Shadows in the Sun* is "a celebration of the diversity of humankind and the lands that have tempered the human spirit." As Davis points out, "a Canadian child brought up to believe that a mountain is a pile of rocks will be a fundamentally different person than a Quechua Indian youth raised to revere a mountain as the incarnation of a god." On the other hand, the hugeness of our wilderness landscapes, the immensity of space that is our country defines us as Canadians and sets us apart; the very idea of wilderness is an integral part of our Canadian consciousness and identity. It's etched on the landscape of our minds.

Travelling from the Stikine watershed to Penan's rain

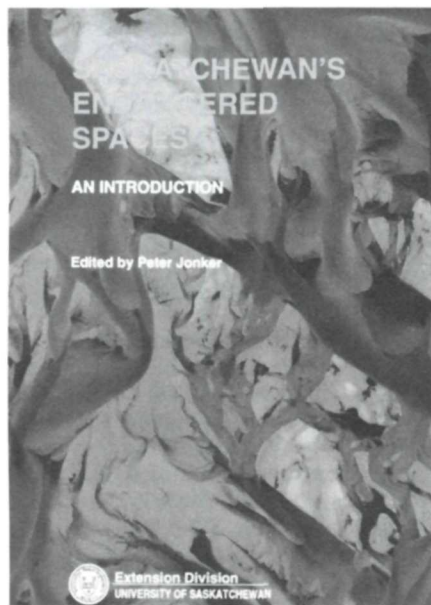
forests, from Haiti to the American southwest and from Peruvian mountain villages to Amazonian jungles, Davis recounts the peoples' daily activities, the "accumulation of gestures" and realizes that each and every one is an "affirmation of continuity." The myriad gestures of a community performing spring planting rituals, for instance, are "...way[s] of defining their place, of proclaiming their sense of belonging." Not one turns out to be a wasted — or wasteful — gesture.

Reading through a typical North American newspaper, presents us with one article after another that documents our losses: loss of lives and community; loss of species; loss of indigenous languages, cultures, skills, wisdom and alternate ways of looking at the world; and loss of sanity. It is a mantra of our loss of a sense of place. We grapple with these losses in many ways, but ultimately, Davis says, quelling the flames of destruction and "reinventing the poetry of diversity is the most important challenge of our times."

Parts of *Shadows in the Sun* are prosaic: descriptions of cultures, plants, people going about their daily routines. Other parts are exquisitely lyrical and reveal the poetry of landscapes, dreams and visions — the "topography of spirit ... inform[ing] every aspect of existence."

Davis' experiences with other cultures have shown him that our world is just one of many possible models of reality. He is filled with hope by the knowledge, shown to him by the indigenous peoples he visits, that "there are other ways of thinking and interacting with the earth." And if we are going to reconnect with the planet, with ourselves, we need to work toward re-interpreting our experience, to reinforce a new learning. Certainly a book such as this greatly helps us to recognize where the connections can be made. □

# Saskatchewan Wilderness Defenders Take Up the Sword



*Saskatchewan's Endangered Spaces: An Introduction* is the first in a series of three projects designed to educate the Saskatchewan public about their endangered spaces.

Each chapter is written by a different contributor and includes a philosophical discourse on an ecocentric view of nature, a how-to chapter for the beginning conservationist who wants to put that ideal into practice and descriptions of Saskatchewan's ecological regions and endangered spaces. Maps, charts and photographs show the areas at risk.

The book was a joint effort by the University of Saskatchewan Extension Division and the Saskatchewan Wilderness Strategy Committee. It is being used in extension courses and is available from the University of Saskatchewan bookstore.

Over the next two years, the Saskatchewan Wilderness Strategy Committee will map the province's endangered spaces and produce an educational kit for school chil-

dren.

The book and upcoming projects are badly needed, says Peter Goode, a Saskatchewan CPAWS representative, because Saskatchewan lags behind other provinces in public awareness of endangered spaces. With fewer than 10 members, the Wilderness Strategy Committee's efforts could be likened to St. George's campaign against the proverbial dragon. The dragon is large, and dragon slayers few in a sparsely populated province.

It all adds up to sleepless nights and bleary-eyed weekends for members who tuck committee work around jobs that pay rent — without even an office to call their own.

Goode and associates welcome volunteers willing to take up the sword. With luck, the dragon will soon lay at St. George's feet with nothing left but the lingering stink of his breath to ward off apathy. □

Sharon Smith

*Saskatchewan's Endangered Spaces: An Introduction.*

Edited by Peter Jonker. University of Saskatchewan Extension Division. Saskatoon. 1992. ISBN 0-88880-259-5, 143 pp.

## Oceans

By Philip Whitfield  
Viking, Penguin Books Canada, Markham, Ont.

ISBN 0-670-84176-5  
72 pp. illustrated

Review by David A. Duffus

*Oceans* is from a series entitled "Strange and Amazing Worlds," intended for people in the 8- to 12-year-old age range. Creating a book about oceans and writing a book for young minds are two difficult challenges.

To meet the first of these challenges, the author and editors have used a system of two-page files with a short text, illustrations and photographs with lengthy captions and a sidebar called the fact file. This seems like an effective method, more like a reference book than one with a story line or complicated links between the specific topics. The topics themselves range from special geographic areas, like "The Ocean's Midwaters," to a description of symbionts titled "Strange Partners." The book also examines human use of the oceans. Mining, fishing, aquaculture and other uses are described.

As the flyleaf states, the book is lavishly illustrated with diagrams, drawings and photographs. Judging by my expert resource person, a youngster with considerable experience perusing books with marine content, they are very effective.

On the second criterion, delivering

material to enliven and direct the young mind, I have some fairly strong caveats. The book is designed to be factual, yet the use of language colours facts in a consistent way throughout several topics. Of particular note is the section on sharks. "Killers of the Deep" is not in my opinion, nor in my six-year-old son's opinion, a very good way to describe sharks. True, they do kill, but so does every other animal in the book. Children should not be put on the defensive about sharks, rather they should respect them and enjoy their beauty. Further ignominy awaits sharks in a second essay called "Designs for Death." This is objectionable, as they are, of course, designed for life.

Some of the sections, however, are particularly useful. In "An Ocean Full of Food," the idea of the food chain is eloquently exposed, while the section on marine plants, "Forests of the Sea," illustrates more of the fascinating links among ocean life. On perhaps the most touchy task, dealing with human use of the ocean, the book remains factual and only briefly discusses negative aspects. It may be useful, but difficult, to open up subjects like pollution, particularly debris and oil spills, as they are things that children are likely to see or hear about and may have developed a desire for more information.

The book succeeds in its style. The short factual pieces lay out useful reference material. They provide children with much to think about and talk about among their peers. The illustrations are quite magnetic

and should keep the kids opening the book. It would have been nice if some of the highly biased description were removed and replaced with a little less human-centred conceptualizations.

It will fall on the shoulders of the generation reading this book to deal with the thorny problems of protecting the ocean ecosystems. Their view of the oceans must be as generous and ecologically oriented as possible. Their views begin forming when they first open books such as this. In my experience, the shortcomings of the view expressed in this book provide the meat of discussion between adult and child. It is a problem to explain that when a book says sharks are killers or whales are gentle, it is not really so. □

David Duffus is a professor of geography at the University of Victoria.

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*The Naturalist's Path: Beginning the Study of Nature*

By Cathy Johnson  
 Thomas Allen & Son Canada, Ltd.,  
 Markham, Ont.  
 ISBN 0-8027-1171-5 Hardback  
 ISBN 0-8027-7360-5 Paperback

Review by Briony Penn

When I first read this book, my thoughts immediately cast back to the summer of '77 that I spent at the Banff School of Fine Arts in the heart of the Rockies. I had arrived to study and draw nature in the raw or so I thought. When it became obvious that the closest we would come to nature was a walk between the life drawing studio and the cafeteria, I absconded to the hills alone and spent the rest of the course playing hooky. Oh, if Cathy Johnson had been my instructor, leading me to the details in the landscape to stimulate the pen; imposing a discipline and rigor to observation that I badly needed to pass beyond mediocrity; learning about the quality of line to catch the gesture of a plant or animal.

In the tradition of all the best naturalists, Cathy Johnson quietly enjoys the finer points of life: the calligraphic line, the turn of a phrase, the smell of sod, the movement of a squirrel's tail and the sound of a river. It is these qualities that make it quite old-

worldly; an instructive handbook to nature study from a bygone era when we took natural areas near our homes for granted, when discipline and rigor were assumed in our pursuits, when we had time for attention to detail or when the thrill of a new discovery wasn't trivialized by a thousand other discoveries on the TV screen. In her bibliography, I discovered the source of this old-worldliness, noting such classic naturalists as the late English artist Charles Tunnicliffe and writers like John Burroughs and Aldo Leopold.

So like an old friend who shares a common passion, I followed Cathy Johnson around in her peregrinations of her habitat. I rambled around the pages much as I imagine the author rambles around on her daily walk. One is led down the naturalist's path in a serendipity of thoughts and sketches, pausing here, musing there, thrilling at a small detail that has caught her eye, wrestling with the complicated structure of a plant, then, having observed it and drawn it, claiming it like a newborn. She starts with essays on becoming a naturalist, follows with botanical and zoological field observations of her local park, then finishes with essays on seasons and times. Anne Zwinger, who is also a naturalist/artist, writes in her introduction to this book, "this is a joyful book, full of snippets, scraps and corners that make up the natural world. In

short, the book is a field guide to eternity."

My one criticism is the title of this book as a handbook for the beginner. I would be cautious about giving this to a beginner in western Canada, in case they got the idea that they could go out and discover a hickory wood, a box turtle and a purple gallinule in their backyard. As an inspiration, it is valuable. But unless that beginner shares the author's habitat somewhere in northern Missouri, they might be frustrated with this as a manual to what's out there. There are fuzzy edges in this book between the regional descriptions of plants and animals and the manual on how to discover one's own local flora and fauna.

I have a particular bugbear about misleading the beginner who is not versed in subtleties of different habitats. I attribute this to the plethora of nature guides that informed me as a child in Victoria, B.C., that I would see a cardinal or a great tit at a winter feeding table. When I saw the picture of the cardinal on Johnson's cover, I was tempted to throw the book away as yet another beginner's guide sold to unsuspecting westerners to raise expectations for faraway species. Thankfully, I resisted the temptation. □

Briony Penn is an artist living and working on Saltspring Island, B.C.

*Stein Valley: Wilderness Guidebook*

By Gordon R. White  
 Stein Wilderness Alliance, 2150 Maple St.,  
 Vancouver, B.C. V6J 3T3  
 192 pp. plus fold-out map, \$14.95

Review by Maggie Paquet

One of the tricky things about guidebooks is that if you haven't been to an area and don't know much about it, how do you know you've bought the right book?

I knew as soon as I read the table of contents and acknowledgments that Gordon White had set out to provide an accurate, thorough and well-considered guide to the Stein wilderness. As I continued, I felt confident the author was speaking from experience, both of the Stein itself and of wilderness travel in general. To my mind, these are two of the most important characteristics of any wilderness guide.

*Stein Valley* has also been written with the sensitivity required for the Stein and many wilderness areas in B.C. It gives an inspiring historical perspective on environmental advocacy and the germinating co-operation between conservationists and First Nations peoples.

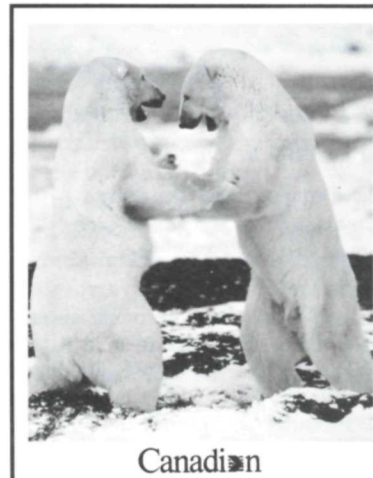
The book is divided into seven sections, from road access information to the "politics of preservation." The sections on cul-

tural and natural history contain a well-spring of detail that gives this book a usefulness and refinement that goes beyond the utilitarian nature of most guidebooks, but which is, I believe, absolutely essential to convey the spiritual quality of the wilderness journey into the Stein. The presentation of these details gently and subtly reminds us that wilderness is not only a physical entity on a map, but a psychological entity as well.

The section "Before You Go," is mandatory reading, a requirement that is emphasized by one of cartoonist Tammy Knight's

characters pointing a stern finger at the reader. The discussion on planning, physical fitness, equipment and ethics is critical advice for all who make the passage from the comfort and safety of city life into the primordial sylvan vastness of the Stein.

The main body of the book describes in wonderful detail no less than 46 trips by which the reader — and hiker — can experience the remarkable beauty and ecological integrity of the Stein Wilderness. Kayaking, winter recreation, botany, ethnobotany, cultural studies and wildlife study and appreciation are all discussed. ▶



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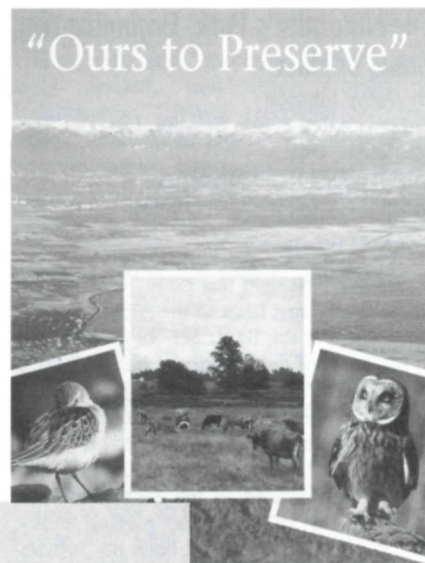
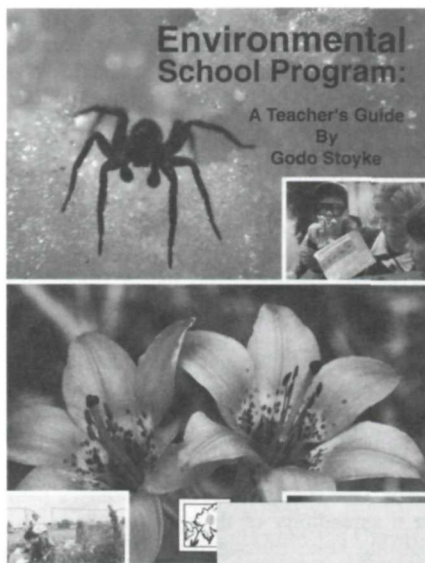
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►Stein valley cont.

Throughout the book, there are ample photographs, maps, diagrams and drawings of the plants, animals and cultural and historical artifacts found in the region. Interspersed throughout the text are outstanding vignettes – sidebars written by experts and admirably illustrated.

I thoroughly enjoyed this book and consider it an important contribution to the growing awareness of ecological principles and to the appreciation of native culture and of the ecosystems and way of life they are struggling to protect.

And it happens to be a darned fine guidebook. □



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### Environmental School Program: A Teacher's Guide

By Godo Stoyke  
Friends of the Garden, Devonian Botanic Garden. 1992.  
ISBN 1-895692-00-8

56 pp. (\$14.95)

Chockablock with charts, diagrams, photographs and tables, this coil-bound pamphlet offers direction for teachers who guide our future generations toward a greener world. It focuses on the greenhouse effect, energy efficiency and global climate change. Most useful is a how-to guide to greening a school yard, complete with a sample design and suggestions of Alberta plants that can take a little touch of love. □

### Reviews by Sharon Smith

### Citizen's Guide to Timber Management Planning in Ontario.

By Kathy Broughton and Tim Gray.  
Edited by Jane Roots and Peter Quinby.  
Wildlands League, CPAWS. 1992.  
105 pp. (\$5)

This coil-bound book recommends setting aside more wilderness areas in Algonquin Park. Because of CPAWS Wildlands League efforts, the Ontario Ministry of Natural Resources has promised a report by December on the feasibility of such an area on the east side of the park. "Reading a tim-

### Citizen's Guide to Timber Management Planning in Ontario



November 1992

Forest Guardians  
Wildlands League

ber management plan can be a daunting experience," say the authors, referring to the government tomes conservationists must fight their way through to lobby on behalf of the environment. But this CPAWS Wildlands League publication leads the reader step by step through the quagmire of dealing with the Ontario's Ministry of Natural Resources or any bureaucracy. □

### Ours to Preserve: Boundary Bay Biosphere Reserve

Edited by Anne Murray and Dr. Mary Taitt.  
Boundary Bay Conservation Committee.  
1992. 49 pp.

The lower mainland south of Vancouver abounds with wildfowl and rare plant species. But it is under constant threat from golf course developers, airport expansion, highways and residential subdivisions. Known as Boundary Bay, the area comprises aquatic, wetland and upland habitats reaching well into the state of Washington. The Boundary Bay Conservation Committee publication describes the habitats and resident flora and fauna, lists the myriad threats to the area's preservation and lays out a proposal for a biosphere reserve. This is an inviting publication, well-designed and written with information easily accessible to the uninitiated. Other preservation groups wanting to publish would do well to take note. □

## Nature Reserves: Island Theory and Conservation Practice

By Craig L. Shafer  
Washington, D.C.  
Smithsonian Institution Press,  
1991.  
183 pp.  
Hardcover \$39.95, paperback  
\$15.95.

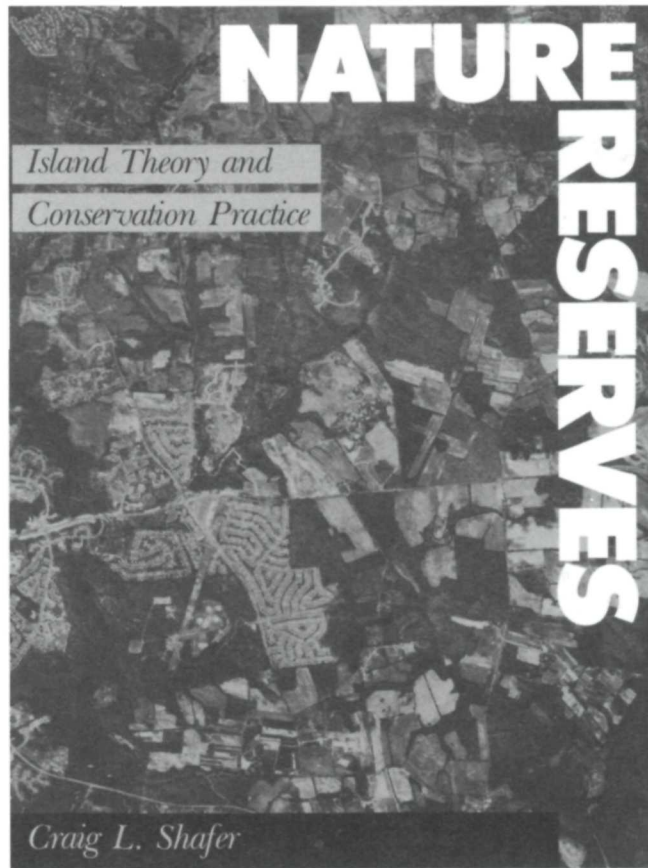
Review By R.W. Osborne

Maintaining existing nature reserves and designating new ones from the earth's remaining natural areas is one of the most pressing issues facing conservation biology today. It is also critical that existing scientific knowledge be made available to decision makers now. The art of synthesizing conflicting scientific information and making it accessible to managers and decision makers is no easy task. Craig Shafer's book, *Nature Reserves: Island Theory and Conservation Practice*, makes an important contribution to just such a review at a time when it is sorely needed.

In the first 10 pages, Shafer outlines the problem of fragmentation and insularization of the earth's ecosystems. He relates popular theory to the relatively small amount of data that has been collected. According to the author, the need is to use this information to guide the design and long-term management of nature reserve systems.

Parks and reserves are isolated microcosms of much larger ecosystems. Conveniently, most ecological theory deals with the dynamics of isolated and semi-isolated ecosystems, primarily because such systems are more manageable. The bulk of this work has been undertaken using ecological models derived from the study of islands. Its modern application can be credited to R.H. MacArthur and E.O. Wilson's bold theoretical treatise on island biogeography (MacArthur and Wilson, 1963; 1967). Appropriately, Shafer devotes a large part of the book to reviewing the MacArthur-Wilson theory, both historically and in its modern context. In the 20 years since this theory has been around, a wide array of studies designed to test it, refute it and blindly support it have been published. Sifting through the literature almost precludes the ability to apply it.

After describing the theory, Shafer deftly walks the reader through the literature, citing the opposing views at every stage. At times, the review of conflicting opinions on each topic becomes tedious. In the process, a clear understanding of the underlying concept can be lost. It might have been bet-



ter to separate the academic controversies from the sections in which topics are introduced. Yet the resulting review of the literature is worth it, particularly since Shafer supplements the academic literature with many park studies, which would normally

be impossible to read.

The bibliography is the most complete review of island biogeographic theory and nature reserve design that has ever been assembled, although a separate author index is not provided.

Unfortunately, working through the first part of the book may prove to be too arduous for some, namely politicians and non-academic managers. But with perseverance, these readers will find the basic concepts more clearly presented in the glossary.

The final part of the book looks more to the future and the idealized application of theory. Shafer stresses the need for caution in trusting unproven existing theory. He stresses the need for more research, but not at the expense of acting as rapidly as possible to preserve more areas.

The second-last chapter presents "A Nature Reserve Strategy." Prefaced with a caution, it lists general guidelines for nature reserve design and maintenance that current scientific theory and data seem to support. For the overworked politician or manager, this,

along with the epilogue, may be the only sections they need to read. However, for the manager and the scientist who must understand the underlying processes and data, little if any of the book is expendable. □

1993 Alberta Book  
of the Year

## Buffalo

edited by JOHN FOSTER, DICK HARRISON  
and I.S. MACLAREN




Specialists examine the involvement of the buffalo in plains ecology and culture from its prehistoric evolution and migration to its present and uncertain future. The colourful buffalo paintings of Clarence Tilenius are featured.

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# 1992

## Canadian Parks and Wilderness Society

La Société pour la protection des parcs et des sites naturels du Canada

### Annual Report



David Dodge

CPAWS Trustee Bill Simoes in the Valley of the Hanging Glaciers

#### MISSION

The Canadian Parks and Wilderness Society envisages a healthy ecosphere where people experience and respect natural ecosystems.

*La Société pour la protection des parcs et des régions sauvages du Canada en visage une écosphère saine où les gens se familiarisent avec les écosystèmes naturels tout en les respectant.*

#### CPAWS will achieve this by:

- protecting Canada's wild ecosystems in parks, wilderness and similar natural areas, preserving the full diversity of habitats and their species;
- promoting awareness and understanding of ecological principles and the inherent values of wilderness through education, appreciation and experience;
- encouraging individual action to accomplish these goals;
- working co-operatively with government, business, other organizations and individuals in a consensus-seeking manner, whenever possible.

CPAWS believes that by ensuring the health of the parts, we ensure the health of the whole, which is our health too.

#### La société accomplira ceci en:

- protégeant les écosystèmes sauvages des parcs, des régions sauvages et des régions naturelles similaires du Canada, préservant ainsi la diversité des habitats et de leurs espèces;
- favorisant la connaissance et la compréhension des principes écologiques et des valeurs inhérentes aux régions sauvages, par l'éducation, l'appréciation et la familiarisation;
- encourageant les actions individuelles pour accomplir ces objectifs;
- travaillant conjointement avec les divers paliers de gouvernement, les entreprises ainsi qu'autres organisations et individus dans le but d'en arriver à un consensus, quand cela est possible.

La Société croit qu'en assurant la santé des parties de l'ensemble, nous assurons la santé de l'ensemble, ce qui ne peut que bénéficier à la nôtre.

# 1992

NATIONAL REPORT



CPAWS raised money for the society's Tatsbenshini campaign by selling prints entitled "Tatsbenshini Ice and Flowers." The prints were donated to the society by artist Rob Goldberg.

Report  
Compiled by  
volunteer,  
David Seburn



## Victory in Wood Buffalo

Last year was a year of challenge and success for the Canadian Parks and Wilderness Society. The highlight of the year was the successful effort to halt clearcut logging in Wood Buffalo National Park.

The Wood Buffalo suit was brought on our behalf by the Sierra Legal Defence Fund. This kind of linkage with other groups, both national and local, is an important part of being effective.

We helped fund Tatshenshini International, the largest-ever coalition of North American environmental groups dedicated to a wilderness issue — the protection of the magnificent Tatshenshini River in northwest British Columbia and the Yukon.

We organized two speaking tours, one across Canada and the other across B.C. to raise awareness for the Tat. This was a joint effort on behalf of Tatshenshini International, carried out by Friends of Yukon Rivers, Tatshenshini Wild and ourselves.

Another example of our co-operative efforts is the involvement of CPAWS board members with World Wildlife Fund on the Endangered Spaces Campaign.

We developed more titles in the Henderson Book Series, the star of the show being the magnificent, large-format *Islands of Hope*, published by our Wildlands League Chapter to celebrate the centennial of Ontario's park system. We added Mark Hume's *Run of the River*, a collection of essays about B.C.'s rivers, to the series.

Our annual general meeting was held in Manitoba, where our new and vigorous chapter is making parks and wilderness protection an issue that cannot be ignored. With nine chapters across Canada, from Nova Scotia to the Yukon, we have an unequalled ability to deliver on a national grassroots campaign.

Financially, 1992 was reasonable, but not a great year. The pivotal event

was the retirement of our much-loved executive vice-president, Angus Scott. Angus was replaced by Paul Klein, who has a strong fundraising background and is pursuing innovative funding approaches in recognition of changing economic realities. As part of our financial stabilization efforts, we incorporated the Foundation for Canadian Parks and Wilderness and asked Angus to raise funds for it. By the end of the year, we had raised more than \$30,000 for this permanent endowment fund.

But, frankly, we are not in the money business, we are in the conservation business. As you read this report you will see that the conservation side of our business is flourishing. And that is what CPAWS is all about. □



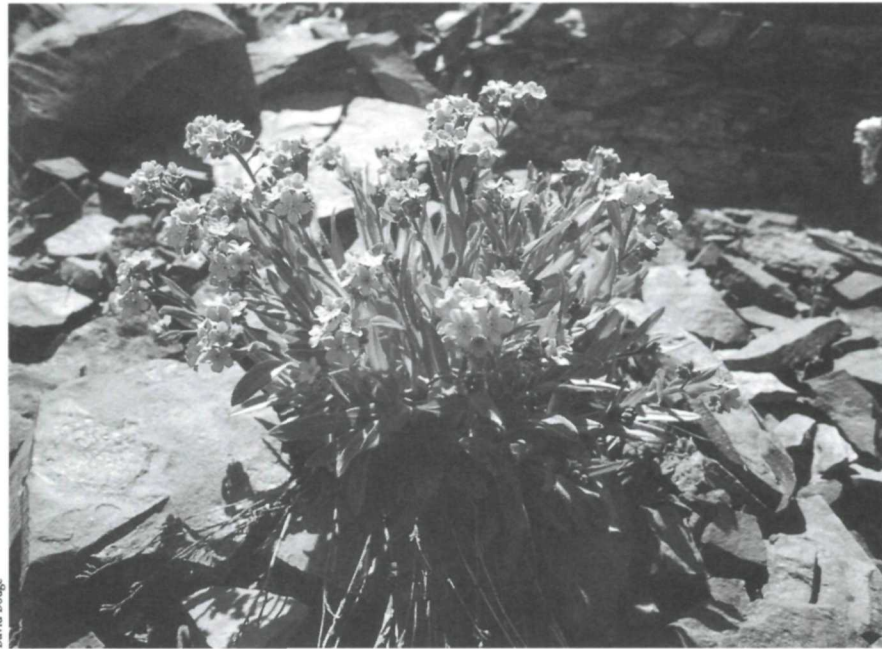
## Tatshenshini Wilderness

Our conservation director, George Smith, conducted two multimedia tours with Ken Madsen from Whitehorse to raise awareness about the Tatshenshini, which is threatened by a giant copper mine proposal. George and Ken crossed Canada early in 1992, then blitzed B.C. in November to build grassroots support for the Tat. Audience response across Canada has been very supportive. George, Harvey Locke and several national and B.C. members lobbied, wrote articles and letters and gave public presentations on the Tat.

Besides raising considerable

funds to meet our own Tatshenshini commitment, CPAWS provided nearly \$14,000 to support Tatshenshini International, the network of more than 50 major environmental groups that we helped form to fight for the Tat. Some of our money helped Dr. Stephen Herrero conduct bear research last summer in the Tatshenshini.

Our combined efforts have met with considerable success. The B.C. government has now recognized the high wilderness values in the Tat, placed a mineral staking freeze on the area, suspended the usual mine review process and asked the Commission on Resources and Environment (CORE) to examine the issue and recommend a course of action. And the new U.S. vice-president, Al Gore is on our side. So please keep your letters of support coming. Write Mike Harcourt, Premier of B.C., Legislative Building, Victoria, B.C. V8V 1X4.



David Dodge

*Alpine forget-me-nots in the Crown of the Continent ecosystem on the borders of Alberta, Montana and B.C. Below is a feature on Wood Buffalo that appeared in the society's magazine, Borealis.*

## Crown of the Continent Ecosystem

Since 1989, CPAWS has been working to ensure the co-operative management of the spectacular natural beauty and biodiversity of the international Crown of the Continent ecosystem. The Crown encompasses the southwest corner of Alberta, northwestern Montana and the southeast corner of B.C. It is centred on Waterton Lakes National Park (AB.), Glacier National Park (Montana) and the Flathead River and Akamina-Kishinena Recreation Area (B.C.).

In 1992, George Smith, our conservation director worked with B.C. politicians, officials and with local residents in the East Kootenay to create a model of sustainability for the area. Support has now been voiced by several other groups, including: the East Kootenay Environmental Society (EKES), Friends of the Flathead, the East Kootenay Wildlife Association and the Flathead Transboundary Council. George has been lobbying, giving slide presentations and pressing for the CORE Commission to include the Crown in their land management process.

Denis Gourdeau and our Calgary-Banff chapter set up a 15-person Crown committee to monitor the multijurisdictional Crown issue, to



develop a road reclamation project and, with the support of Carol Hartwig of EKES and George Smith, to construct a Flathead Biophysical Map Analysis for the pending CORE process in the Kootenays.

## Two New Arctic National Parks

Two national parks were created last year, both in the Arctic. In April, Environment Minister Jean Charest announced that the government was setting aside 22,000 square kilometres of northern Baffin Island and Bylot Island for what will become North Baffin National Park. Northern Baffin Island features spectacular sea cliffs and fiords as well as many Dorset and Thule archeological sites. The new park will represent the natural region of the eastern Arctic lowlands.

The minister also announced the creation of a 12,500-square-kilometre

park on Banks Island in the western Arctic, to be called Aulavik National Park. Centred on the Thomsen River valley, it supports the world's

largest concentration of muskoxen and is a sanctuary for brant and lesser snow geese. Aulavik will represent the western Arctic lowlands.

Environment Canada has stated that it wants to complete the terrestrial park system by the year 2000 by creating at least one national park in each of the 39 natural regions of Canada. With these two new parks, 23 regions are now represented. If the department is to fulfil its objective, it will have to set aside nearly as much land in the next seven years as it has since the national park system was started in 1885.

## Completing the Wilderness System in B.C.

The new government in B.C. has agreed to double their park system through the Protected Areas Strategy (PAS) which, theoretically, will estab-

lish new standards of ecological protection in Canada. George Smith, our conservation director, has been lobbying politicians, officials and the CORE Commission to insist that the B.C. wilderness system be designed for ecological representation. George contributed to the B.C. chapter's Wildlands Project, which describes the ecological gaps in the wilderness system and offers candidate sites for protection. He worked on the World Wildlife Fund annual Endangered Spaces report card process, co-founded the B.C. Environmental Mining Council, and helped David Dodge, editor of *Borealis*, with a special B.C. edition.

George also successfully worked with our Okanagan representative, Eva Durance, to include the Brent Mountain wilderness proposal as the first study area added to the strategy. He has been helping East Kootenay groups convince the government to complete the Purcell Wilderness Conservancy. George and the Tetrahedron Alliance are struggling to preserve the Tetrahedron Wilderness near his backyard on the Sunshine Coast.

In conjunction with CPAWS-BC, George has initiated new campaigns to protect the Northern Rockies (beginning with a mapping project), to establish a West Coast marine parks system and to create a national park in the neglected Strait of Georgia Lowlands. □



# 1992

## CHAPTER REPORTS



Hank Wong

### Yukon Chapter

#### Endangered Spaces

We directed most of our energy toward the Endangered Spaces campaign, but no new parks or protected areas were established in the Yukon in 1992. A change in government means that we now have the daunting task of justifying the need for any new large parks. Public education is a top priority for the chapter. We produced (in co-operation with the Yukon Conservation Society) the first two of a series of posters celebrating the diversity of our 22 ecoregions. Final design work on an Endangered Spaces brochure is under way.

#### Land Claims and Parks

Negotiations for new protected areas under the land claims agreement continues. We hope that the Tombstone Mountains, Carcross Dunes, Kusawa Lake, Fishing Branch and Bonnet Plume River areas will be set aside in the next 18 months. The new minister of renewable resources supported the nomination of the Bonnet Plume as a Canadian Heritage River. Yuntut National Park, while not yet officially designated, will probably become a reality in 1993.

#### Wolf Kill

Our chapter opposed the wolf kill next to Kluane National Park. The five-year wolf kill is an attempt

to restore the Aishihik caribou population that declined to a point where crisis management is touted as the only alternative. Biologists admit that the effects on the Kluane Park ecosystem are unknown. Scientists have not said local extinction threatens the herd, yet the government claims it is not killing wolves just to improve caribou hunting. The government has not approved the Yukon Wolf Management Plan that says wolf kills be used as a last resort, that ethical questions be considered and that wolf conservation areas be established.

#### Wilderness Celebration

We teamed up with the Friends of Yukon Rivers to host a wilderness celebration featuring live improvised music and a look at some of the special places Yukoners want to protect. The chapter has many more active volunteers now. A year and a half after our first meeting, we have established a strong presence in Yukon parks and wilderness issues. □

### B.C. Chapter

#### Protecting Endangered Spaces

Our work focused on completion of the B.C. protected areas system last year. We are concerned about the number of areas that were not considered for protection under the Protected Areas Strategy (PAS). However, we were successful in having Brent

Mountain/Sheep Rock in the Okanagan added to the PAS process.

#### Halting the National Parks Policy

At the federal level, we joined other CPAWS chapters to lobby against the proposed national parks policy. The Canadian Parks Service ended up going back to the drawing board to develop a new policy, which has not yet been released.

#### Saving the Tatshenshini

The Tatshenshini was the focus of much of the chapter's activities in 1992. In May, we held our first benefit dinner and adventure travel draw, which raised more than \$8,000 for the Tatshenshini campaign. In fall, the chapter organized the B.C. Tatshenshini Quest tour, which took George Smith and Ken Madsen of the Friends of Yukon Rivers to 13 communities throughout B.C. Like the dinner, the tour was a success, raising both money (to the tune of \$8,500) and awareness of this important issue.

#### Regional Wildlands Project

The Regional Wildlands Project was another major focus for the chapter. The first of eight regional publications describing the biodiversity and park options in the Thompson/Okanagan region was very well received. The second of eight issues, on the Southeast (Kootenays and Rockies), will be available in early 1993.

#### Safeguarding Existing Parks

Monitoring park management plans has continued, although emphasis was placed on Cypress Provincial Park last year. The B.C. chapter is particularly concerned about B.C. Parks' lack of presence in the park and the future role of commercial activities here and in provincial parks generally. Lobbying by our chapter and the Friends of Cypress Provincial Park was instrumental in B.C. Parks' decision to lead the management planning process rather than leave it to the private permit holder. Cypress Bowl Recreations Limited has proposed expansion of its ski development in this Class A provincial park. We have also been working on the Stikine and Babine rivers and the Akamina-Kishinena issues.

#### Marine and Northern Parks

We began two other new initiatives last year; one on marine parks

and the other on the northeastern region of B.C. In addition, planning is under way for a major conference on completing B.C.'s protected area system.

Our volunteers have also attended many meetings, workshops and conferences over the last year including: Outdoor Recreation Council of B.C.'s Riverfest III, Northwest Rivers Conference, 1992 World Congress on Adventure Travel and Ecotourism, Marine Life Conference, B.C. Hydro Energy Forum, provincial and federal state of the parks meetings. □

### Edmonton Chapter

Round tables, subcommittees and consensus-building exercises have held the attention of Edmonton chapter members over the last year. It appears that our participation has been a success.

#### Endangered Spaces

The provincial government released "Special Places 2000," a document outlining their intent to complete Alberta's protected area system by the year 2000. We are involved in a long-term planning strategy to ensure that the goals in this important document are met.

#### Mountain Caribou

On one front, the Woodland Caribou Subcommittee of the Alberta Environmental Network Alberta Forest Products Association Round Table, on which we participated, caught the attention of government officials, and a provincial caribou conservation strategy is rumored to be in the works. On a less favorable front, while communication with land managers from Weyerhaeuser (formerly Proctor and Gamble Cellulose) has been good, our request that they stop logging the last major unlogged winter habitat for the mountain caribou has met with some resistance.

#### National Parks Management Plans

We continue to provide input into management plans for Wood Buffalo and Elk Island national parks. The relative remoteness of Wood Buffalo and the small size of Elk Island have allowed for the advancement of proposals that embrace

# 1992

## CHAPTER REPORTS

the ecosystem approach to management. However, these proposals are not without opposition. The preservation of the Peace-Athabasca delta and transitional grassland ecosystems remain formidable tasks.

### Alberta-Pacific Pulp Mill

We continued to participate in the task force that is modifying Alberta-Pacific's operational plans. We provided input to help modify the Operational Ground Rules. However, since there were government-mediated changes to our suggested changes, it is questionable how much more input we are going to be able to provide.

### Wainwright Dunes Ecological Reserve

A much-needed management plan has been in the works for about a year for the Wainwright Dunes Ecological Reserve, a 28-square-kilometre portion of the central parkland. One of our members has been a key force in getting included in the plan such measures as patrolling the reserve during hunting season, preventing future range improvements and carefully monitoring cattle grazing. Public meetings will be scheduled to gather further feedback. □

## Calgary/Banff Chapter

### New Office in Calgary

The Calgary/Banff chapter took steps this year to increase our conservation effectiveness. With the help of an outside facilitator, we initiated a long-term planning process to reorganize our chapter. We now have a chapter office. It is located in the EcoCentre beside Mountain Equipment Co-op in downtown Calgary. We also organized our advocacy focus into five major campaigns: the Bow Valley, Banff National Park, Prairie Conservation, Nose Hill Park and the Crown of the Continent.

### A Big Win in Wind Valley!

Our efforts to save Wind Valley paid off this year when the Natural Resources Conservation Board (NRCB) ruled that the Three Sisters Resorts cannot develop golf courses, hotels and housing in this ecological jewel of the Bow Valley. And as one development process ends, another begins. We are now set to intervene



Roger Turanne

*Ray Nielsen, CPAWS Manitoba member, paddling the north basin of Lake Winnipeg in what the chapter hopes will become the new Manitoba Lowlands National Park.*

in yet another NRCB hearing for the proposed Westcastle development, set for early 1993.

### Trashing Banff National Park

Despite the best efforts of the Canadian Parks Service, 1992 saw a further erosion of national park values. Last summer, the minister of the environment approved in principle the expansion of Sunshine Ski area, without an opportunity for a full environmental assessment and public hearings. We are considering a legal challenge to this travesty and are busy organizing a major campaign for 1993 to show how continued development threatens our first national park with extinction.

### Best of the West

To demonstrate that we can turn our heads away from the mountains, our chapter has launched the Best of the West, an initiative to help conserve prairie ecosystems through local ecotourism initiatives. With the assistance of the University of Calgary, we have hired a program coordinator for six months and have the added help of a graduate student. Already, several prairie communities have expressed interest.

### Lake of the Hanging Glaciers

Twelve members of the chapter completed a four-day hike to the Lake of the Hanging Glaciers in the Purcell Mountains, a spectacular vista of alpine meadows, jagged peaks and lakes teeming with icebergs. Despite the frigid waters, a few brave members of our group took the plunge, including former CPAWS executive vice-president Angus Scott. □

## Saskatchewan Chapter

The past year was a difficult one for the chapter. A combination of events significantly affected the workings of the executive. Some members saw increased responsibilities at work, others were temporarily relocated and some returned to university. A skeleton crew existed for much of the year and the resignation of our newsletter editor affected our communication with our membership. However, some things were accomplished.

### Advising on Parks and Forestry

We continued with our involvement in the Provincial Parks Advisory and Forest Advisory committees, providing input on a variety of topics. Our representation on the Saskatchewan Wilderness Strategy Committee also continued.

### Endangered Spaces

We assisted the University of Saskatchewan in publishing *Saskatchewan's Endangered Spaces: An Introduction*. Copies of the book are available for \$7.00 (plus \$2 shipping) by writing the chapter office.

### Saving Mixed-Grass Prairie

After a lengthy battle, a small parcel of native mixed-grass fescue transition prairie in Saskatoon was saved with our chapter's help. The city of Saskatoon has hired a consultant to develop a management and interpretation plan for the prairie.

The chapter executive is cur-

rently developing new programs for 1993 to involve more members in provincial issues and chapter activities. Our first priority is to develop a new chapter newsletter that is published on a regular basis. □

## Manitoba Chapter

This past year was a watershed year for the conservation movement in Manitoba, and CPAWS was at the forefront of the many battles that took place. We held a successful Tashenshini evening last February and also hosted the CPAWS Annual General Meeting in Wasangaming last May.

### Environmental Setbacks

The chapter was pleased when its recommendation to stop logging in parks was accepted by the Clean Environment Commission. Unfortunately the government later rejected the commission's report. We negotiated for weeks with Abitibi-Price in an attempt to reconcile wilderness preservation with the needs of the resource-based community of Pine Falls in eastern Manitoba. However, the negotiations collapsed under company intransigence.

### Conawapa Dam Canceled

The joint federal-provincial Environmental Impact Assessment Panel for the Conawapa hydro megaproject agreed to our proposals for the environmental assessment. But the project cancelled before the assessment could get under way.

### Parks Action

The chapter led the successful fight to prevent the Hecla/Grindstone area from being selected as the site for the Manitoba Lowlands National Park. We prompted the creation of a federal-provincial feasibility study to re-examine the choice of site. We exposed the uncontrolled development in Atikaki Provincial Wilderness Park. By year's end, we were working closely with the Department of Natural Resources to try to bring order out of chaos. We also participated in public forums on the province's proposed "Natural Lands Strategy," a dangerously retrograde document paving the way for a proposed revision of the Parks Lands Act.

# 1992

## CHAPTER REPORTS

### Endangered Spaces

We continued to be active in the Manitoba Wilderness Caucus, which oversees the Endangered Spaces Campaign. We also established a Wetland Committee to break the Ducks Unlimited monopoly on wetlands issues and to focus on wetlands protection rather than just species. □

### Wildlands League Chapter

In September, Wildlands League, with the support of the Richard Ivey Foundation, launched a 16-month program to ensure protection for Ontario's remaining old-growth forests. The program has three components, each designed to create a political climate where old-growth protection will be possible. Public and media education, direct policy development and public participation will be co-ordinated throughout the program. The league's executive director, Tim Gray, will be directly involved in policy development since he was appointed by cabinet to the Old-Growth Policy Advisory Committee. Nancy Bayly is co-ordinating the public education and public involvement components of the program. A full-colour information bulletin was produced in January 1993 and distributed throughout the province. It summarizes the threats to old-growth forests and points out things the average person can do to get involved. On the national front, Wildlands League co-ordinated the production of a Canada-wide "Ancient Forests Status Report." It is available through the national office.

### Parks Centennial Campaign

In August, Ministry of Natural Resources Minister Bud Wildman announced the end of logging in Lake Superior Provincial Park. A 1989 study by the ministry showed that the park's forests had been decimated by poor logging practices. The league is now working on a restoration proposal to help undo the damage. Algonquin is the only remaining provincial park that permits mining, logging or hydroelectric development.

The league also continued its forest ecology research in Algonquin on how the park's forests are being affected by fire suppression and log-

ging. The "Algonquin Park Threatened" tabloid was released in July and prompted more than one hundred letters to the premier. In 1993 the league will tour the province with an information slide show detailing our proposals for a new wilderness zone, reduced logging and a ban on new road construction. Other initiatives upcoming in 1993 include



Tim Gray

*Wildlands League volunteers and staff taking cores from red pine in Algonquin park for a forest ecology study carried out in July.*

strengthening the Parks Act and publishing additional material on Algonquin issues.

### Islands of Hope and League Anniversary

We launched the spectacular book *Islands of Hope* at a gala event held in Toronto in October. More than 350 people attended to express their appreciation for the efforts of the book's editors Lori Labatt and Bruce Littelljohn and to celebrate the 25th anniversary of the league.

### Forestry Initiatives

The league published *A Citizen's Guide to Timber Management Planning in Ontario*. The guide is designed to help individuals get involved in the forestry planning process in their local area. The league's long-time involvement in the Forests for Tomorrow coalition drew to a close as the Class Environmental Assessment on Timber Management hearing wrapped up. A decision that will shape the future of forestry operations in the province is expected

in September 1993. □

### Ottawa Valley Chapter

The past year has been challenging. The chapter has battled threats of development to wilderness areas and urban green spaces in and around the Ottawa Valley. In addition, the chapter reviewed its constitution and undertook some positive restructuring.

### Madawaska Highlands

This unique wilderness area has been a priority for the chapter for several years and recently was identified by the World Wildlife Fund as a potential area for protection under the Endangered Spaces campaign. A grant from the WWF enabled the chapter to hire a consultant to prepare a research and advocacy document to highlight the natural values of the area and to present a rationale for its preservation.

### Gatineau Park

While progress on seeking legislative protection for Gatineau Park (located north of Ottawa in Quebec) has been stalled by the strained political climate between Quebec and Ottawa, the chapter has been active in public consultations. The first of five sectoral plans has been adopted for the most southerly portion of the park. The main objective for the sector is to "strengthen links with the capital, while respecting the integrity of its ecosystems." Unfortunately, the chapter was unsuccessful in its fight to prevent the construction of a controversial double-lane road between Hull and Aylmer that will run through this portion of the park.

Also of concern is the potential development of lands that abut Gatineau Park in an area known as the Meech Creek Valley.

### Urban Sprawl

The chapter has joined with several other local groups to get the local government and the National Capital Commission to stop the urban sprawl that's swallowing green spaces in the Ottawa area.

### Park Management Plans

Members of the Parks Management Plans Committee have been actively involved in park planning initiatives related to the Rideau Canal,

the Mississippi River, Quetico Park, Lake Superior Provincial Park, Algonquin Park and the St. Lawrence Islands National Park.

The chapter continues to work with the Wildlands League chapter to seek greater protection for Algonquin Park. It is also involved in a Quebec-based coalition to stop the Great Whale project in James Bay. We continue to monitor negotiations over Parc LaVerendrye (north of Maniwaki in Quebec) between the Algonquins of Barrière Lake, the Quebec government and logging companies.

We've also been successful in raising money through events such as hosting the *Islands of Hope* book launch in Ottawa and the sale of entertainment books. We've also managed to have some fun together in the great outdoors. □

### Nova Scotia Chapter

The Nova Scotia chapter has only been in existence since 1991, and it tries to focus on the entire Maritimes region. Last year, some badly needed chapter development – getting more than a minimum number of members active – took a back seat to other conservation activities.

### Doubling Fundy National Park

We have been active on an initiative to double the size of Fundy National Park. The effort was furthered by the preparation of a pamphlet supported by World Wildlife Fund's Local Action Fund and by unanimous supporting motions passed at both the CPAWS and Canadian Nature Federation annual general meetings.

### Dune Restoration

CPAWS Nova Scotia also supported the Parks are for People program of the Nova Scotia Department of Natural Resources through a hike and dune restoration project. The dune restoration project seems to be working quite well.

### Parks Issues

With policy and management plan reviews under way for five of the seven national parks in the region and with a number of provincial issues active, CPAWS opinions have been more in demand than our ability to respond allows. □

# 1992

## J.B. HARKIN MEDALS



### Dr. Jennifer Shay

Dr. Jennifer Shay, botany professor at the University of Manitoba, was presented with the Harkin Medal at the Society's annual meeting in May. Dr. Shay was recognized for her outstanding contributions to the preservation of natural ecosystems, her leadership in research on plant communities in general and wetlands in particular, her efforts on behalf of the protection of parks and natural areas and her commitment to environmental education at all levels. Dr. Shay served as a trustee of CPAWS from 1969 to 1985, part of that time as a member of the executive.

Dr. Shay has been a lecturer and professor at the University of Manitoba since 1959. She is the author or co-author of more than 40 publications relating to various aspects of botany and ecology. This past year, the university presented her with the H.H. Sanderson Teaching Award for excellence in teaching.

In 1967, Dr. Shay was instrumental in founding the University Field Station at Delta Marsh on the south end of Lake Manitoba near Portage la Prairie. Under her leadership, the station has achieved international prominence for its research

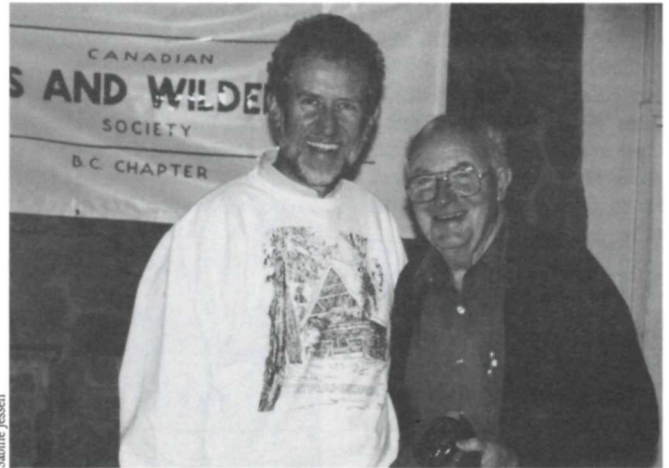
on wetlands ecology and has become a centre for environmental education.

In addition to her career as a biologist and conservationist, Dr. Shay has served on many advisory committees and boards.

During the '60s, Dr. Shay helped establish the International Biological Program's Conservation of Terrestrial Ecosystems (IBP/CT) program in Manitoba and served as its co-chair. She also administered the field programs and was involved in numerous conservation-related activities.

Dr. Shay was instrumental in persuading the provincial government to establish an Ecological Reserves Program in Manitoba. She was a member of its technical advisory committee from 1973 to 1991. She also served as a member of the National Committee for Ecological Reserves and as a member of the Canadian Environmental Advisory Council that authored the council's report *A Protected Areas Vision for Canada* until the council was abolished last year.

Dr. Shay is currently doing research on the ecology, dynamics and management of wetland, prairie and forest ecosystems and the effects of fire. □



Dr. V.J. Brink receiving the J.B. Harkin Medal from the Honourable John Cashore, minister of environment, lands and parks in B.C.

### Dr. V.C. Brink

The Honourable John Cashore, B.C. minister of the environment, lands and parks, honoured one of British Columbia's foremost conservationists at the Annual General Meeting of the B.C. chapter of CPAWS. At the meeting held at Silver Lake in the Okanagan, the minister presented the J.B. Harkin Medal to Dr. V.C. (Bert) Brink of Vancouver.

Born in Calgary in 1912, Dr. Brink completed his BSA and MSA at the University of British Columbia (UBC) before earning a PhD in applied plant physiology at the University of Wisconsin in 1940. For more than 35 years he has been a professor at UBC, where he has conveyed his knowledge and his passion for effective resource management, range ecology and vegetation ecology to hundreds of students. He has carried this love and professional expertise into many organizations and continues to dedicate much of his time to

the protection and understanding of B.C.'s rich natural environment.

Dr. Brink continues to contribute to the conservation cause in British Columbia and is highly recognized for his skill, experience and dedication. He was appointed to the Task Force on the Environment and the Economy in 1989. He currently serves on the board of directors for the Federation of B.C. Naturalists, the Nature Trust of B.C. and the Tynehead Ecological Society and as vice-chairman of the Public Advisory Board of the Habitat Conservation Fund.

The Harkin Award is a fitting tribute to the tireless efforts of Dr. Brink over many years in a wide array of parks and wilderness issues in B.C. His persistence over these years is illustrated by his efforts on what might well be the longest outstanding park proposal in Canada. He continues to advocate for protection for a park that he and Charlie Cunningham proposed in 1937, the South Chilcotins Wilderness Area. □

### The J.B. Harkin Medal

was established in 1972 by the Canadian Parks and Wilderness Society as a significant Canadian conservation award to preserve the memory of James Bernard Harkin, the first commissioner of national parks and a great conservationist. The award is not necessarily presented every year. It is conferred only on those who, in the opinion of the society, merit

this important award.

Since 1972, 12 J.B. Harkin Medals have been awarded:

1. Hon. Jean Chretien 1972
2. Roderick Haig-Brown 1975
3. Fergus Lothian 1978
4. George Ledingham 1981
5. George Scotter 1985
6. Michael Nolan 1985
7. Charles Sauriol 1985
8. Alex T. Davidson 1987
9. Gavin Henderson 1988
10. Andy Russell 1990
11. Jennifer Shay 1992
12. Bert Brink 1992

# 1992 PUBLISHING

## Henderson Book Series

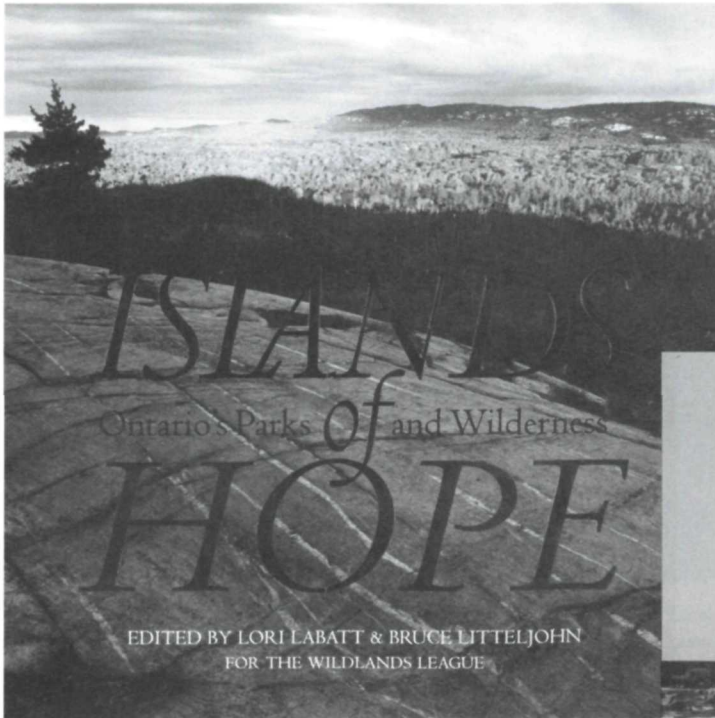
The society added two titles to the Henderson Book Series in 1992. Early in the year, Mark Hume's book *The Run of the River* became number 18 in the series. It is a wonderful collection of 11 essays on significant rivers in British Columbia. It wasn't long before the book became a best-seller in British Columbia.

The Wildlands League Chapter added book 17 to the series. After two years of work by volunteers Bruce Litteljohn and Lori Labatt, *Islands of Hope: Ontario's Parks and Wilderness* was born. It is a spectacular collection of essays and photographs on Ontario's parks and wilderness areas.

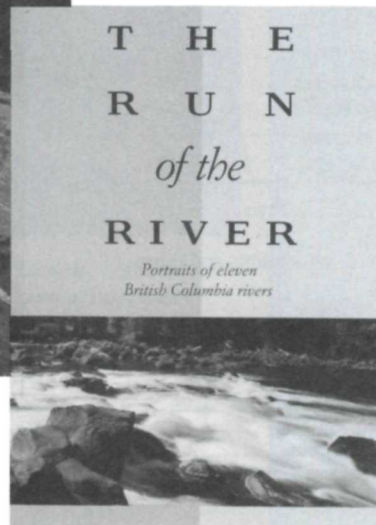
Although not part of the Henderson Book Series, the Saskatchewan chapter of CPAWS also helped put a book together last year. *Saskatchewan's Endangered Spaces: An Introduction* is an interesting account of that province's ecoregions and the idea of protecting examples of each ecoregion in the province.

The society also released a second set of greeting cards with Western Greetings Ltd. The cards were popular with CPAWS members, especially during the holiday season.

The society already has plans for three new books in 1993. □



In 1992, CPAWS released two exciting books in the Henderson Book Series: *Islands of Hope* and *The Run of the River*.



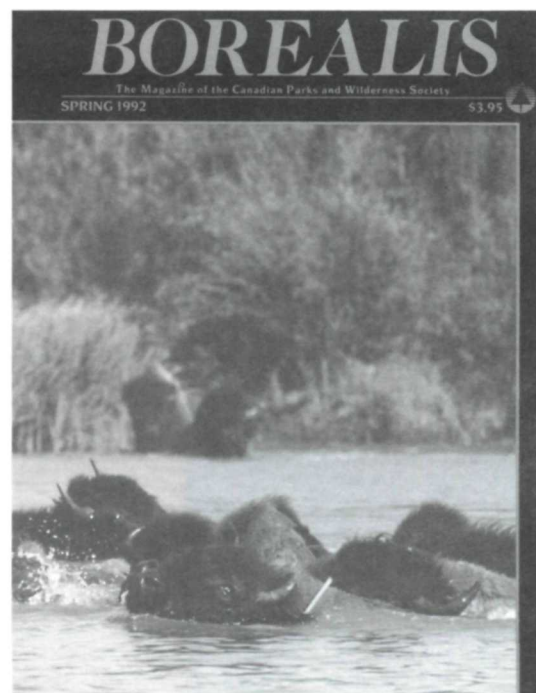
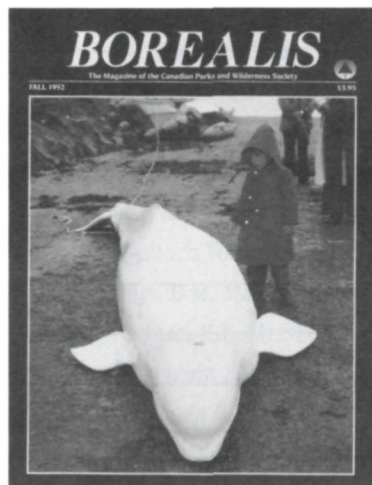
## Borealis Magazine

*Borealis*, The Magazine of the Canadian Parks and Wilderness Society, set another circulation record in 1992. After the release of our Spring 1992 issue, our circulation reached 15,591 copies. That represents a 48-per-cent increase over 1991.

Inside, we presented some fascinating and important work including Ed Struzik's definitive article, "The Rise and Fall of Wood Buffalo National Park," and "National Park Dreams," an article by Max Finkelstein on completing the national park system. But one of the most stimulating essays was photographic. Christian Autotte's photo essay, "Green Canaries," earned praise from many *Borealis* readers.

The task of preparing the magazine continues to be a challenge and the society owes a great debt to the few staff and many volunteers that bring you *Borealis*. Among them we would especially like to acknowledge: Daryl Benson, Rusty Brown, Lesley Brown, Phil Dearden, Barb McCord, Elaine Butler, Ellen Macdonald, Carol McKellar, Ted Mosquin, Elaine O'Farrell, Charles Truscott, Inge Wilson and Jim Butler for his continued guidance and inspiration.

The society also owes a sincere note of appreciation to Grant Kennedy at Lone Pine Publishing for donating office space and providing access to a variety of services at cost to *Borealis* for two years. □



# 1992

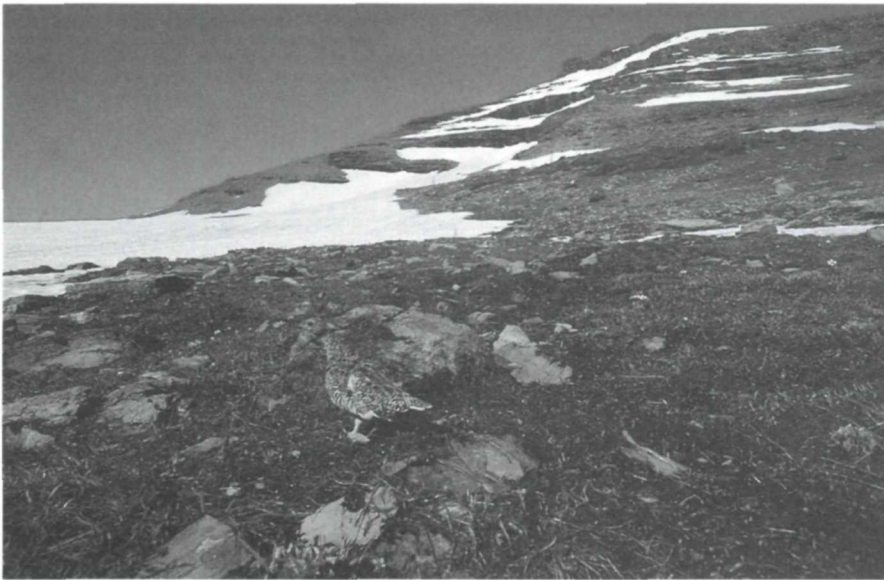
*FINANCIAL STATEMENT*

## Canadian Parks and Wilderness Society SCHEDULE OF REVENUE AND EXPENSES

[Combined National Office and Local Chapters]  
Year ended December 31, 1992

	National Office (audited) \$	Local Chapters (unaudited) \$	Total \$
	[in thousands of dollars]		
<b>REVENUE</b>			
Membership Fees	156	-	156
Less rebated to chapters membership costs	(33) (41)	33 -	- (41)
	82	33	115
Donations comprised as follows			
Membership	153	44	197
Corporations, foundations and other	128	235	363
Designated	10	-	10
Less rebated to chapters fundraising costs	(29) (90)	29 (208)	- (298)
	172	100	272
	254	133	387
<b>EXPENDITURES ON SOCIETY ACTIVITIES</b>			
Publications			
Expenses	202	55	257
Less Revenue	(88)	(41)	(129)
	114	14	128
Member acquisition mailings	222	-	222
Less fees and donations	(209)	-	(209)
	13	-	13
Education Initiatives and Advocacy	46	-	46
Travel and Meetings	30	6	36
General and Administrative	101	118	219
	177	124	301
	304	138	442
<b>Deficiency of revenue over expenditures for the year</b>	(50)	(5)	(55)

# 1992 DONORS



A ptarmigan high in the Akamina Kispiox alpine in southeastern British Columbia. CPAWS hopes the Crown of the Continent region will soon be considered a model of environmental sustainability.

## Major Donors (\$1,000 or more)

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## 1993 Planned Actions

### National Parks

- maintain pressure on the federal government to complete the terrestrial national park system by the year 2000 and to accelerate work to protect marine ecosystems;
- ensure that the proposed new National Parks Policy, due out in 1993, is strengthened and not weakened;

### Endangered Spaces Campaign

- continue our work to help provinces protect representative ecosystems throughout Canada by the year 2000;

### Threatened Wilderness

- campaign to seek the protection of the Tatshenshini wilderness in northern British Columbia;
- convince B.C. to have the Crown of the Continent Ecosystem recognized as a model of environmental sustainability;

### Raising Awareness

- deliver information and articles on critical national issues of wilderness, nature and the environment to more Canadians. □

## CANADIAN PARKS AND WILDERNESS SOCIETY

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# Words for the Land

CPAWS HENDERSON BOOK SERIES

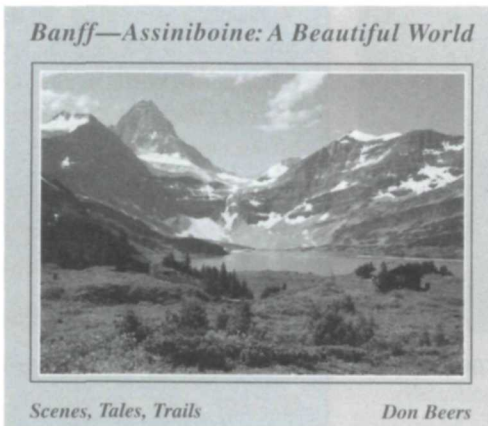
New Release

## BANFF-ASSINIBOINE:

### A BEAUTIFUL WORLD

A lavishly illustrated guide to trails in Banff National Park from Palliser Pass to Vermilion Pass, plus Mount Assiniboine Park's core area. Rich in stories of legendary people and natural history, the text will delight everyone who loves mountains. Author of *The World of Lake Louise*, *The Wonder of Yoho* and *The Magic of Lake O'Hara*. Don Beers draws on 45 years of hiking to produce the most detailed guide to the trails of the area ever written, including routes described nowhere else. 216 pp. 43 colour maps, 116 colour photos, 105 black and white photos. Published by Highline Publishing. CPAWS Henderson Book Series # 20

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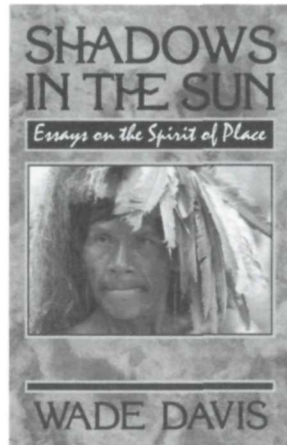


## Shadows in the Sun

"In truth, there are no lands untouched, and certainly no places or peoples still wet with the innocence of birth."

Drawn from his travels, these essays by Wade Davis, ethnobotanist and author of *The Serpent and the Rainbow*, are "about landscape and character, the wisdom of lives drawn directly from the land, the hunger of those who seek to rediscover such understanding and the consequences of failure." (CPAWS Pub. #19)

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Edited by Lori Labatt & Bruce Littelljohn. 288 pp. hardcover, 45 chapters, maps, 130 photos. Firefly Books/CPAWS Pub. #17.

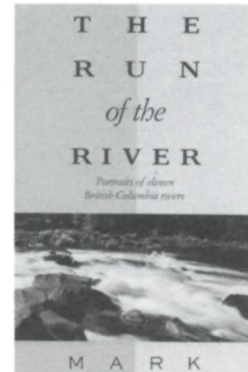
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Mark Hume celebrates 11 of BC's most exciting rivers, but also raises questions about the cost of development and the cost of wilderness. Is it possible to have industry and still maintain the rivers and wildlife that support them?

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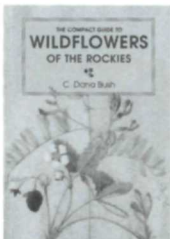
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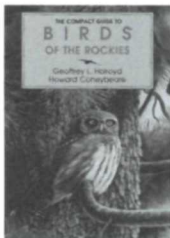
### 2nd Printing



### The Compact Guide to Wildflowers of the Rockies

By Dana Bush. This guide describes and celebrates 100 wildflowers commonly found in the Rocky Mountains. The text is anecdotal – there is a discovery waiting in every description. 144 pp. 120 colour ill. 4.25"x5.75" (CPAWS Pub. # 15)

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### Marine Parks And Conservation: Challenge and Promise:

Volumes 1 and 2. Edited by Jon Lien & Robert Graham. Everything you need to know about marine ecosystem conservation in Canada is found in this compilation work. 1985. 440 pp. maps, photos, illus. (CPAWS Pub. #10.)

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### Snow War

An illustrated history of Rogers Pass, Glacier National Park, BC. By John Woods and John S. Marsh. 1982. 52 pp. maps, photos. (CPAWS Pub. #7.)

\$8<sup>50</sup>

### The Park Buffalo

Describes the history of the conservation of the bison. By S.C. Ogilvie and R.C. Scace. 1979. 69 pp. maps, photos. (CPAWS Pub. #5.)

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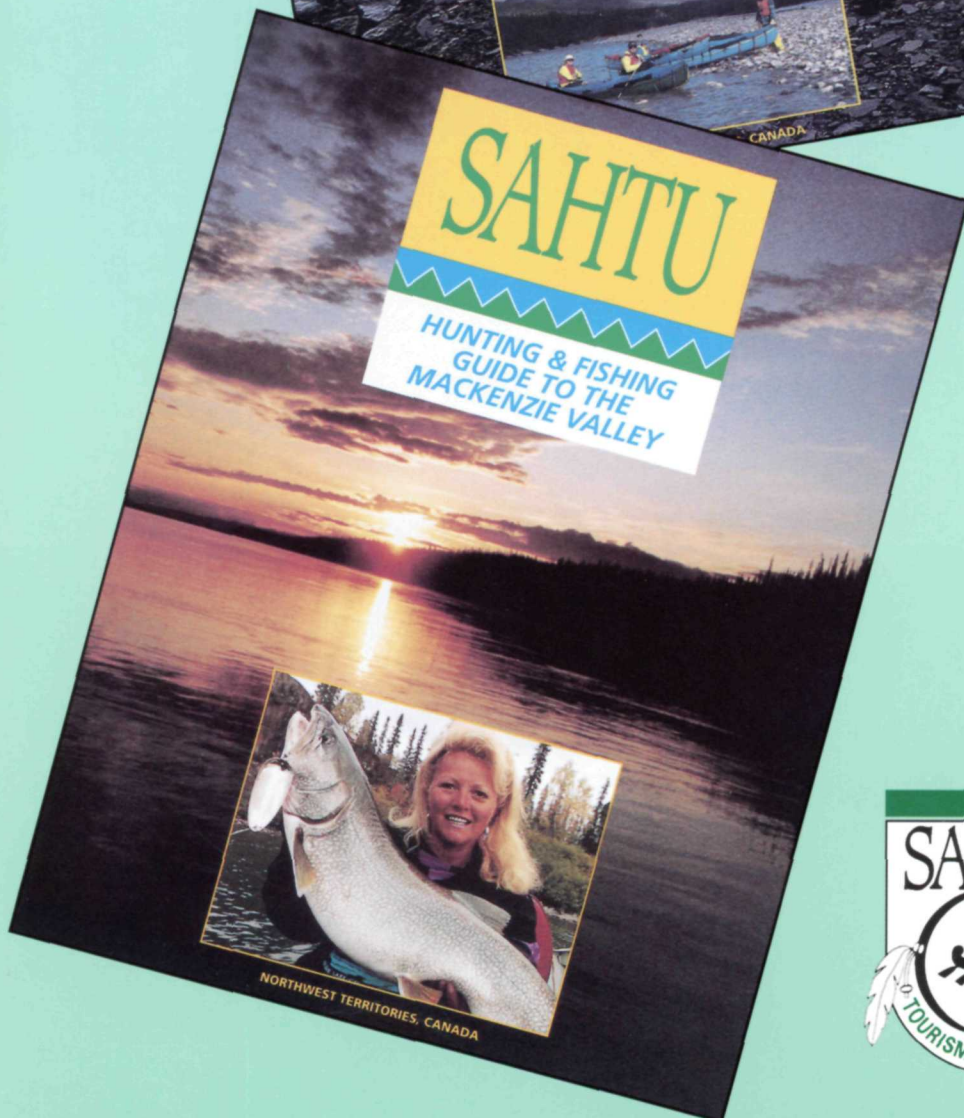
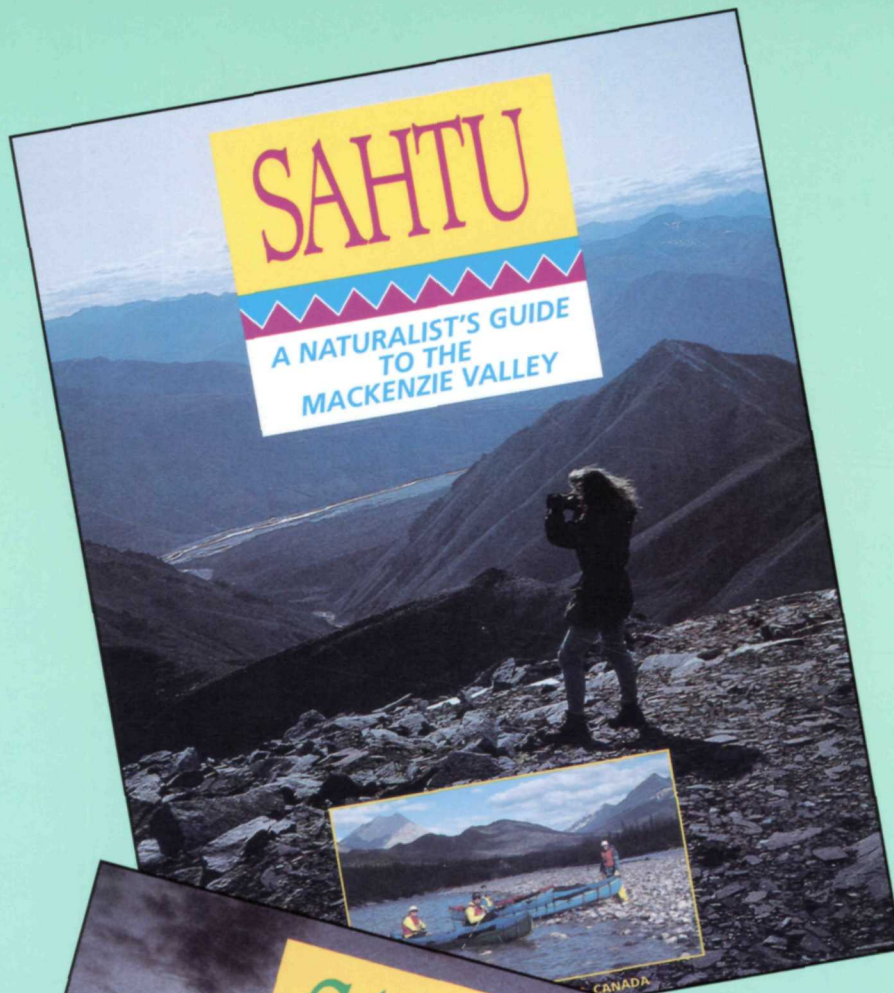
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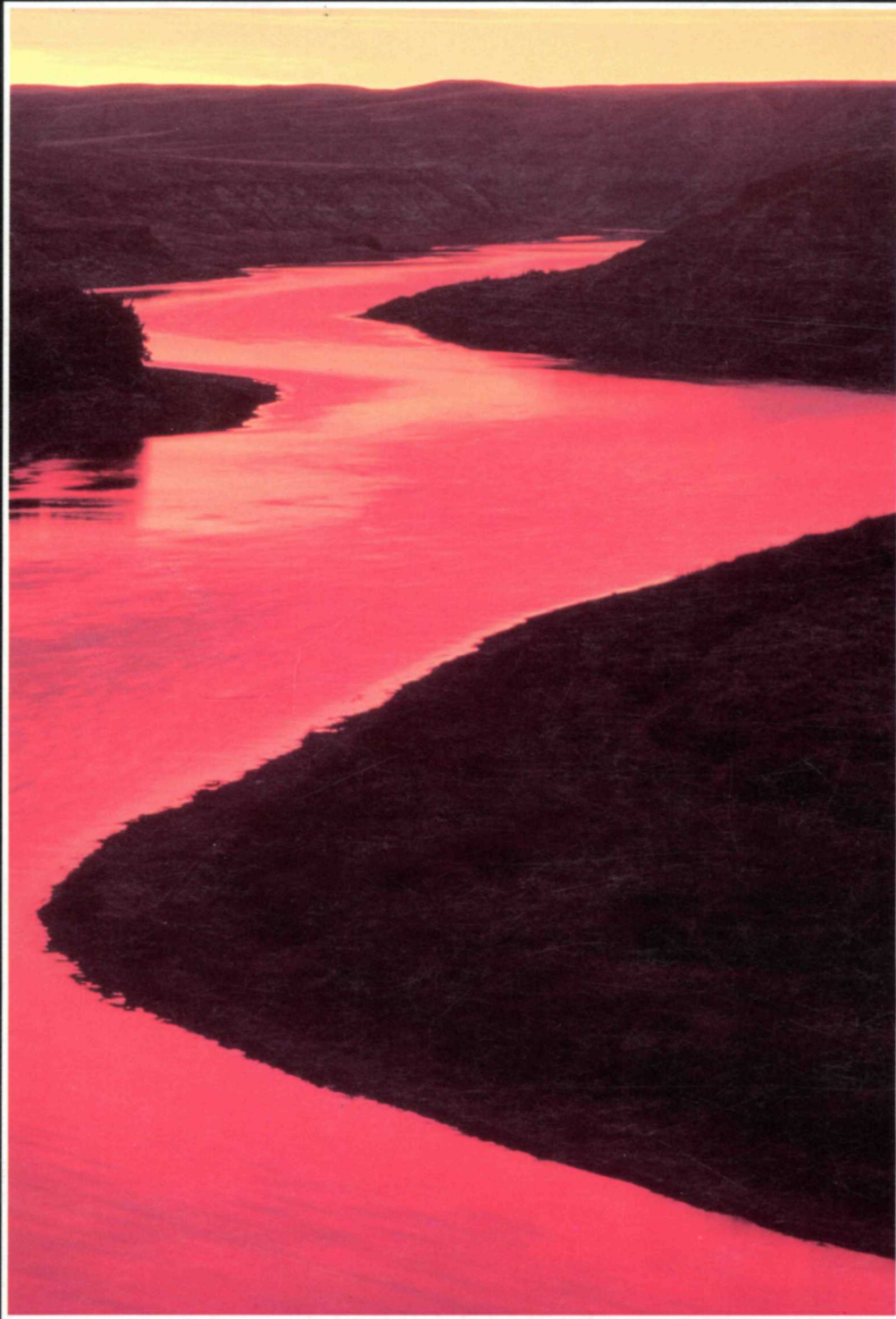
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**CPAWS Edmonton Chapter is pleased to sponsor our special report on Alberta's Endangered Spaces. We would also like to acknowledge the support of the Recreation, Parks and Wildlife Foundation and the Environment Council of Alberta.**



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