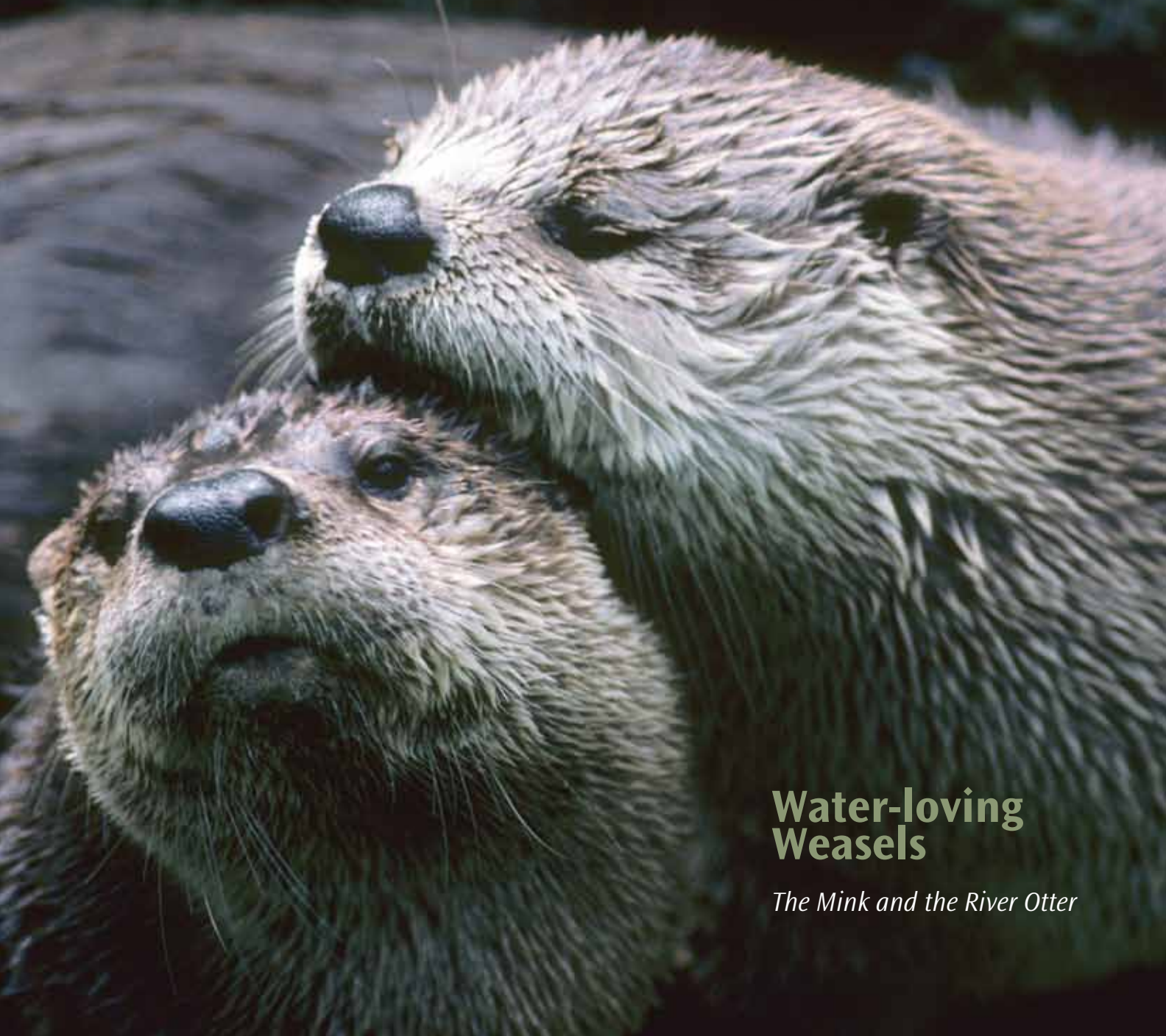
SPRING/SUMMER 2009, VOLUME 12

CONSERVATION

The official publication of the Alberta Conservation Association



Water-loving Weasels

The Mink and the River Otter

Pronghorn Survival

Navigating a Fragmented Landscape

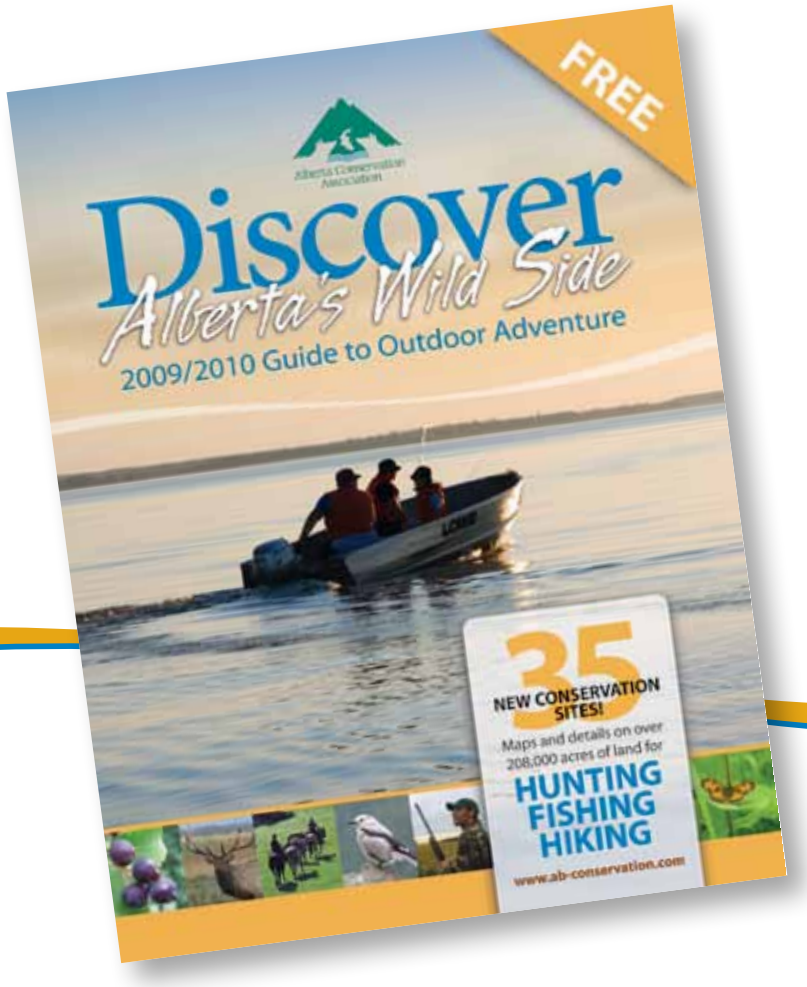
Catch & Release

Four Ways to Keep Your Fish Swimming

Healthy Water Bodies

The Answer is in Our Shorelines

Go wild.



The second edition of **Discover Alberta's Wild Side — Guide to Outdoor Adventure** is now available! Produced and published by Alberta Conservation Association (ACA), the guide promotes outdoor activities such as angling, hunting, wildlife viewing and hiking. The guide is linked to ACA's website where you can search each Conservation Site, locate it using Google Maps, read property profiles and download driving directions ensuring bountiful opportunities to discover Alberta's wild side. Copies of the guide are available through Visitor Information Centres, hunting, fishing, conservation and naturalist clubs as well as more than 400 registered fishing and hunting license retailers in Alberta. **Get one and go!**

Call toll free: 1-877-969-9091

Alberta Conservation Association

Conserving Alberta's Wild Side

www.ab-conservation.com

On the Cover

"The two otters were fishing and sharing an area of ice-free water between a pair of frozen lakes in the boreal forest. It was a clear cold day in early April and the temperatures were still well below freezing. I photographed the animals from a blind on shore with a 600mm lens."

Dr. Wayne Lynch

Alberta Conservation Association

Conserving Alberta's Wild Side

Our Mission

ACA conserves, protects and enhances fish, wildlife and habitat for all Albertans to enjoy, value and use.

CONTENTS

Contact us to receive your free biannual subscription of *Conservation Magazine*:

1. E-mail info@ab-conservation.com with "E-mail Subscription" in the subject line. You will receive each new issue until you inform us differently.
2. Download electronic copies online at www.ab-conservation.com.
3. Phone: 780-410-1999 or call toll free: 1-877-969-9091.

From the Editor

Fishing on Great Slave Lake (1975) with my sister Leah (left), my Dad (Dennis) and our dog, Ming aka "Captain Canoe." I was so proud of landing that fish, broken fishing rod and all.

Recently my sister and I were looking through old photographs and I was reminded of how much of our youth was spent on or by water. We spent most of the summer running back and forth to our favourite swimming hole. Getting there was a feat in itself, trying to outrun the mosquitoes and swarms of black flies. We would stay submerged for as long as possible, just to keep the deer flies from carrying away another chunk of our flesh. We explored, fished, chased frogs, watched waterfowl and canoed. We just couldn't get enough!

Water is the essence of life. Our constant need of it only emphasizes how important our individual and collective actions are in maintaining a healthy and sustainable water supply. In this issue we take a look at various ways water fundamentally affects our lives and that of other creatures.

In *Water-loving Weasels: The Mink and the River Otter* on page 10, Dr. Wayne Lynch, Canada's wildlife specialist, provides us with interesting behavior comparisons and explains how they manage to coexist in Alberta's watery worlds. In *Healthy Water Bodies: The Answer is in Our Shorelines* on page 12, read about how partnerships and a newly developed Riparian Setback Matrix Model are changing the way we approach housing developments in aquatic areas, so that water quality and healthy aquatic systems can be preserved.

On page 15, you will find reasons why this summer project, *Build a Nest Box: Bring Waterfowl to Your Backyard* is good for the whole family and various bird species. Not only will you find the nest box plans on our website, you can watch a video of a Bufflehead hen hatching her chicks in a nest box.

If summer vacation is on your mind, check out our **Discover Alberta's Wild Side - Guide to Outdoor Adventure**. *Conservation Site Getaway: Lees Lake* on page 16 and *The Muir Lake Project: A Local Fisherman's Dream* on page 22, are great examples of fishing adventures that can be added to your vacation plans or just as a weekend road trip. In any event, if you plan to head out fishing any time soon, we provide you with some very important angling tips to practice on page 24, *Catch & Release; Four Ways to Keep Your Fish Swimming*.

ACA's role in many of the projects in this issue illustrates how levies on hunting, fishing and trapping licenses have a direct impact on conservation. Follow how some of these funds are used in science-based research, in *Pronghorn Survival, Navigating a Fragmented Landscape* on page 6 and *The Central East Slopes Cougar Study, Understanding How to Manage a Wilderness Icon* on page 19.

We are all drawn to water. If your summer travel plans take you near the water, take a moment to reflect on the wonderful role water plays in your outdoor adventures, and just how important it is to those other living creatures who reside in the great Alberta outdoors. — *Editor-in-Chief, Lisa Monsees*

Letters to the Editor: Address letters to *Conservation Magazine* Editor by e-mail, fax or mail. Include your name, address and daytime telephone number. Letters may be edited for clarity and length.

Conservation Magazine
Conserving Alberta's Wild Side

Publisher: Alberta Conservation Association

Editor-in-Chief: Lisa Monsees

Assistant Editor: Michelle Curial-Hébert

Contributing Editor: Tracey Feist, Ground Words Communications www.groundwords.com

Editorial Committee: Trevor Council, Lance Engley, Colin Gosselin, Ken Kranrod, Diana Rung, Robb Stavne

Contributing Writers: Aquality Environmental Consulting Ltd., Trevor Council, Michelle Curial-Hébert, Darren Dorge, Ducks Unlimited Canada, Paul Jones, Kyle Knopff, Peter Little, Dr. Wayne Lynch, Lisa Monsees, Don Myhre

Photo Credits: Aquality Environmental Consulting Ltd., David Bissett, Gordon Court, Maria Didkowsky, Darren Dorge, Dave Fairless, istock, Paul Jones, Aliah Knopff, Kyle Knopff, Randy Lee, Peter Little, Wayne Lynch, Lisa Monsees, Sherry Monsees, Photos.com, Jim Potter, Terry Thormin, Gerald Romanchuk

Design/Layout: Colin Eyo, Don Myhre

President & CEO: Todd Zimmerling

Vice President: Ken Kranrod

Advertising enquiries may be directed to
Ken Kranrod: ken.kranrod@ab-conservation.com
or call toll free: 1-877-969-9091.

Conservation Magazine
(ISSN 1488-6235) is the official biannual publication of Alberta Conservation Association.

Charitable Registration Number:
88994 6141 RR0001

Alberta Conservation Association
Conserving Alberta's Wild Side
www.ab-conservation.com

devon

Pursuit with Principle

To be a great company, we must first be a good neighbour. While our relationships and business practices are not always reflected on the balance sheet, we believe they eventually show up on the bottom line. As one of Canada's largest independent oil and gas producers, we pursue our opportunities with principle.

www.devonenergy.com

FORTUNE 100 BEST COMPANIES TO WORK FOR® 2009

GREAT PLACE TO WORK® INSTITUTE CANADA BEST workplaces 2009

Commitment Runs Deep

Pronghorn Survival
Navigating a Fragmented Landscape

Maria Didkowsky

The doe streaks across the highway at a blazing speed of 100 kilometres an hour, narrowly missing oncoming traffic. She continues on her way north, knowing that fences, highways and a fragmented Alberta landscape littered with wells and agricultural fields are just some of the obstacles she will face during the spring migration.

by Paul F. Jones, ACA

Terry Thornin

Pronghorn antelope in Alberta have made a tremendous comeback after nearly becoming extinct. With numbers approaching 20,000 strong, pronghorn are now seen throughout the province, from the Alberta/Montana border to the south, and as far north and east as the Edmonton International Airport and Provost. And even though the numbers remain steady, severe winters can cause large natural die offs for the pronghorn population. The magnitude of these events and the duration of the recovery period are likely influenced by the loss of or changes to pronghorn habitat.

A collaborative effort between Alberta Conservation Association (ACA), the University of Calgary and the Alberta Fish and Wildlife Division recently revealed new information on the ecology of pronghorn and how the Alberta landscape affects pronghorn migration. The program continues with the support of ACA, the Alberta Professional Outfitters Society, Alberta Fish and Game Association Zone 1, the two Alberta chapters of Safari Club International, Canadian Forces Base Suffield, Mountain Equipment Co-op, the World Wildlife Fund, and the Natural Sciences and Engineering Research Council of Canada.

Habitat use patterns in Alberta

For four years, Mike Grue and Paul Jones, ACA wildlife biologists, have been studying the habitat use patterns of pronghorn in Alberta.

"Previous studies in the province showed that pronghorn were tied very closely to native prairie grass and that the animals only used cultivated lands on a seasonal basis, mostly in the fall. What we found is that pronghorn can be grouped based on vegetation gradients," explains Jones. "We have a pronghorn group using native grasslands, a group in cultivated land (both annual and perennial crops) and a third using a mixture of grasslands and cultivated land. However, the number of


Paul Jones

"From our data we detected that most of the collared does spent, on average, four days moving parallel to Highway 1 before they were able to successfully cross the highway. One doe spent 10 days trying to cross the Trans-Canada Highway."

pronghorn in grasslands is significantly greater than in other gradients."

Grue and Jones found that 29 per cent of the collared animals used cultivated land as fawning ranges. "We don't fully understand how the survival and reproductive rates of the pronghorn living in cultivated landscapes compare to those animals living in a more natural grassland ecosystem," says Jones. "But we did find that some of our collared pronghorn were struck by vehicles. We even had one case of enterotoxaemia, a toxic condition caused by too much carbohydrate (grain) in the digestive system."

Another important element to the research is how pronghorn react to other man-made obstacles (highways, tributary roads, well sites) that get in the way of their seasonal range selection. "Ninety per cent of the winter ranges and 82 per cent of the fawning ranges did not include a highway. One hundred per cent of the winter ranges and all but one fawning range contained at least one well site," says Jones. "It's obvious that pronghorn in Alberta are adjusting their habitat use to address man-made features such as roads and wells. But we do not understand the thresholds where there are significant reductions in available habitat and consequences at the population level. Research is currently underway to address those questions."

Pronghorn movement and migration

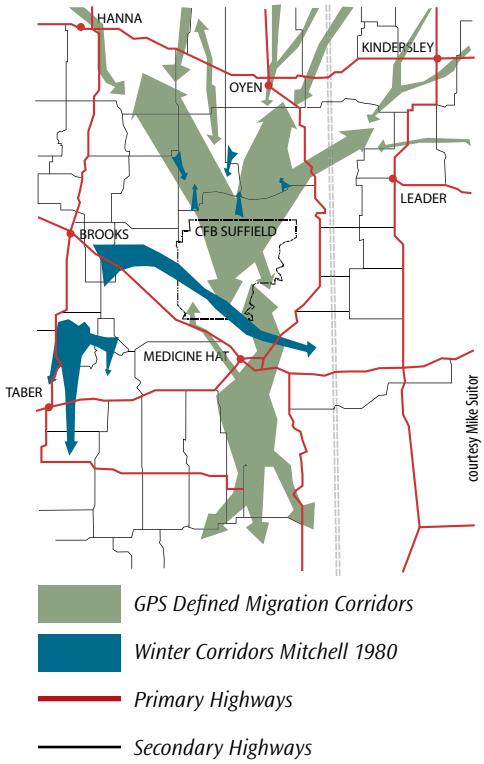
Although it has never been fully documented, previous research has shown that pronghorn often migrate as far south as Montana, in order to escape Alberta's severe winter weather. "Their natural defense is to move really far and really fast to escape the conditions," says Mike Suitor, a University of Calgary graduate student. "If the proper management is not in place to ensure safe travel for pronghorn, any pinching of the migration route from central Alberta into Montana could result in catastrophic die offs."

During his studies, Suitor found that up to 40 per cent of Alberta pronghorn migrated annually, travelling between their seasonal ranges that were 200 kilometres apart. "One doe even traveled 515 kilometres from her winter range before arriving on her fawning range. Her combined migration path length totaled over 830 kilometres for the year," Suitor says.

Suitor also found that the remaining 60 per cent stay in an area year-round, except during those times of severe winter weather. He has identified several seasonal migration routes, along with two migration corridors that the pronghorn use to move south during extreme weather conditions (Figure 1).

But these annual migrations often prove to be perilous. Suitor identified several pinch points along the migration routes, noting one route in particular that was located east of Medicine Hat. "We recorded the exact location of several does with GPS collars every four hours. They passed through the Medicine Hat pinch point, heading northward from Manyberries in southeastern Alberta to CFB Suffield," says Suitor.

Figure 1. Seasonal migration routes and migration corridors for pronghorn antelope in Alberta.




Pronghorn males (bucks) and females (does) grow true horns like mountain goats and sheep. The females have very short horns, no more than an inch or two and never pronged, while the males horns can measure up to 25 centimetres. The outer sheath is shed in the winter and grows back.
Paul Jones

"From our data we detected that most of the collared does spent, on average, four days moving parallel to Highway 1 before they were able to successfully cross the highway. One doe spent 10 days trying to cross the Trans-Canada Highway. The bottlenecks are becoming tighter and tighter," says Suitor, "which could result in serious consequences for the distribution of pronghorn in the more northern portion of the province."

Fences are another difficulty pronghorn face, as most roads are fenced on both sides. Pronghorn prefer to crawl under fences to cross a highway, rather than jumping, as is the case with deer and elk. Suitor says if the bottom wire is too low to the ground the fence acts as a barrier and impedes pronghorn movement.

"Our results also showed that barbed wired fences remove hair and cause scarring of the tissue along the back. We all agreed that to assist with pronghorn movement, we need to examine fencing practices in Alberta. The bottom wire not only needs to be braided, smooth and barbless, it needs to be raised to a minimum height of 18 inches off the ground.

Northern Sagebrush Steppe Initiative

Thanks to these research studies, Grue says they understand that pronghorn management in Alberta expands beyond the border and is impacted by management in both Saskatchewan and Montana.

He gives an example of a pronghorn doe, collared near Wild Horse, Alberta during the winter of 2003-2004. After spending the winter in the southeastern corner of Alberta, when spring arrived, she seemed to disappear into thin air. "We assumed that her collar had failed, and she was likely still in the area but not detectable," says Grue. "However, last fall, a Montana landowner called us to let us know she had found the doe's collar in one of her fields."

The collar provided valuable information. During those spring months, the doe had moved southeast into Montana and had stayed there until her collar dropped off. "She was a unique animal in that she moved south in the spring of 2004 when the rest of our migratory pronghorn moved north," explains Grue. "But the key to the movement was that it showed us how connected our population is to Montana."

To help with the information exchange, a Memorandum of Understanding (MOU) was put in place between Alberta, Saskatchewan and Montana management agencies under the name of the Northern Sagebrush Steppe Initiative. Thanks to the efforts of University of Calgary professor Dr. Cormack Gates, and Alberta Fish and Wildlife Division biologist Dale Eslinger, both collaborators with the Alberta work, state that the MOU fosters collaborative initiatives and information exchange between the jurisdictions, even though the Initiative is not solely focused on pronghorn.

The expansion of the pronghorn work in Alberta is one such initiative. Similar work is being conducted in the two other jurisdictions. Twenty pronghorn does, located in northern Montana, were fitted with GPS collars in the winter of 2008, thanks to assistance from the World Wildlife Fund in the U.S, Montana Fish, Wildlife & Parks and Saskatchewan Environment. An additional 40 does were fitted with GPS collars in Montana and nine collars were deployed in southern Saskatchewan this past winter. Andrew Jakes with the University of Calgary is working on the study with support from Petro-Canada Sustainable Grassland Program. Mass migrations occurred because of the severe winter conditions experienced in December 2008 and January 2009. Several hundred pronghorn were even tracked moving south past the Milk River in Montana, to the banks of the Missouri River.

Grue says that collaborations such as the Northern Sagebrush Steppe and investigations into the ecology and movement will be the key to pronghorn management and conservation in Alberta. "Turning our results into positive, on-the-ground benefits for pronghorn, will be one of the key objectives in the future of the program." ■

Water-loving Weasels: The Mink and the River Otter

photos and text by Dr. Wayne Lynch

My first glimpse of the mink was a blur of brown fur slipping under a shelf of ice and vanishing into the cold, black water. Moments later, it surfaced again and climbed back onto the ice; its slender, supple body flowing like a ribbon of liquid satin. Clenched in its jaws was a small fish, but startled by my presence it dropped its meager meal and loped down the shore of the Elbow River, disappearing inside an abandoned beaver lodge.

The weasel family, collectively called mustelids, are small to medium-size predators with powerful jaws and sharp canine teeth. Typically, they kill their prey with a lethal bite to the nape of the neck and sometimes tackle victims much larger than themselves.

In Alberta, there are nine species of mustelid. All can swim well, but two in particular, the mink and the river otter, are water-loving and enliven the rivers, streams, lakes, and sloughs in many areas of the province. Anytime two predators overlap in their use of a habitat they may compete with one another until one is finally excluded. So how do the river otter and the mink share Alberta's watery worlds and continue to successfully coexist?

The river otter is the fish specialist, well adapted to dive and chase underwater prey. A strong swimmer, it propels itself with a flattened tail that comprises more than a third of its body length and large webbed feet. Its thick pelt traps an insulating layer of air next to its skin that keeps the animal warm even in the icy water of winter. As well, an otter can stay underwater for up to four minutes, although most of its dives last less than 60 seconds.

The river otter typically hunts along the shores of lakes and rivers, searching beneath overhanging banks, logjams, and in stationary pools for the fish that hide in such shadowed places. Otters generally target slow-moving species of fish such as suckers, minnows, and catfish rather than fast-swimming trout and pike. During the day, otters probably rely mostly on their eyesight to locate and catch prey, but at night or in murky water they are dependent upon the long whiskers on their snout. Their whiskers are sensitive to the underwater pressure waves created by escaping prey. When researchers shaved off the whiskers from a captive otter the hungry animal was 20 times less successful at catching fish in the dark.

The river otter often associates with another well-known aquatic mammal, the beaver, and for a number of reasons. The ponds that beavers create benefit the fish that otters like to eat, and vacant beaver lodges and bank burrows are used by otters as important birthing shelters and resting places. One study done in northeastern Alberta concluded that wintering otters frequently tore passageways through active beaver dams. This allowed the otters to move from one beaver pond to another without exposing themselves to the harsh winter weather above the ice. The researchers wondered if this behavior, which lowered water levels in adjacent ponds, might also increase the vital air space under the ice and concentrate the fish as well.

Unlike the specialist river otter, the mink is a generalist that scours the banks of shallow, slow-moving streams and rivers and the vegetated shorelines of sloughs, lakes and ponds searching for crustaceans, amphibians, insects and small mammals. In winter and early spring, however, mink sometimes prey heavily on fish even though they are not especially well adapted for underwater search and capture. A mink's underwater eyesight is poor, its feet are small and weakly webbed, its fluffy tail is not useful for diving, and it can stay underwater for less than a minute. To compensate, fish-hungry mink locate their prey from above the water then plunge-dive onto their victims using a strong push-off to add extra velocity. I once watched a mink in northern Ontario hunt for leopard frogs in just this way. The torpid frogs were overwintering on the bottom of a small river where the current kept the water well-oxygenated and free of ice. The mink caught three different frogs in less than 30 minutes. When it finished eating the last frog, it cleaned its face by sliding on the snow three times before it finally ran off.

The behavior and design of the mink are a masterful compromise. The animal seemingly sacrifices aquatic capability so that it can easily hunt on land as well, something the river otter rarely does. Although mink are tied to wetlands they may search up to 200 meters away from the water's edge. Mink commonly hunt nesting and newly hatched ducks, coots and pied-billed grebes, as well as frogs, tiger salamanders and small mammals. The number one mammal in their diet is the muskrat, and mink rely on them not only for food but use their abandoned houses and burrows for shelter.

The mink and the river otter have fascinating sex lives. In both species, males are heavier than their mates; as much as 20 per cent heavier in the otter, and up to 80 per cent more in the mink. The most common explanation for such size differences, called sexual dimorphism, is competition among rival males for access to females in heat.

To produce the strongest offspring, females unconsciously want to mate with the healthiest male available. A small female cannot prevent a male from mating with her without starting a fight in which she might be seriously injured or even killed by her stronger partner. Her solution is to mate with whichever male corners her, and then let her internal physiology determine whether he has the "right stuff" to sire her offspring. How does she do this? By induced ovulation. Both the male mink and the river otter are marathon mating machines, sometimes staying coupled for an hour or two, and they repeat this strenuous feat numerous times over several days. In the world of the mink and river otter only a healthy, virile male can sustain the frequency and vigour necessary to induce ovulation. However, only the females have the final word. ■


© Wayne Lynch

Healthy Water Bodies

The Answer is in Our Shorelines

by Aquality Environmental Consulting Ltd.

The quality of life, and life itself, depends on having a healthy and sustainable water supply. Canada's freshwater supply is an immensely valuable national resource. Recent estimates of water's measurable contribution to the Canadian economy range from $7.5 to $23 billion annually. To put this figure into perspective, these values are comparable to the gross figures of annual Canadian agricultural production.

Nearly 20 per cent of the planet's freshwater resources are in Canada. These resources include rivers, lakes, ponds and reservoirs, groundwater aquifers, glaciers and ice fields. At the most fundamental level, freshwater also comes from the liquid and solid precipitation that feeds and replenishes all other sources; however, only 7 per cent of these freshwater resources are renewable. To complicate matters further, many of Canada's major river systems flow northwards, away from the regions of highest population density and greatest land development.

Many municipalities are realizing the importance of developing water policies in light of heavy development pressures and growing domestic requirements. It is becoming a common goal for municipalities to find a healthy balance between developing rural areas, recreational needs, drinking water quality and a preservation of healthy aquatic ecosystems across the landscape. All are linked and are critical to maintaining a healthy and sustainable water supply.

As much as 80 per cent of the wildlife in the province relies, in whole or in part, on riparian areas to survive.

Lisa Monsees

The Government of Alberta's *Water for Life* strategy (www.waterforlife.alberta.ca) recognizes that a healthy and sustainable water supply is good for our communities, our environment and our economic well-being. The strategy, which was renewed in January 2008, is based on three basic outcomes: safe and secure drinking water supplies, healthy aquatic ecosystems and reliable and high-quality water supplies for a sustainable economy.

Sustaining freshwater needs requires a delicate balancing act though. When reviewing *Water for Life*, the Alberta Water Council (AWC) noted the challenge of assessing and managing for healthy aquatic ecosystems. The needs of municipalities, agriculture and industry must balance adequate in-stream flow needs and water quality in rivers to support important aquatic ecosystems and fish and wildlife populations.

Identifying important riparian areas

Most aquatic habitats are characterized by a prominent vegetation community along their shores, constituting the riparian area. Since the turn of the century, healthy riparian areas have declined dramatically in many areas of Alberta and North America. Human activities, including road construction, resource exploration and extraction, agriculture, urban and rural development and recreation, all greatly affect the health and functioning of these areas. Perhaps the biggest reason for this decline is a misunderstanding of the roles and functions of riparian areas and the substantial benefits they offer to both landscapes and societies.

The riparian zone is the transitional area between a stream and its aquatic habitat and the surrounding upland area. Prominent vegetation along a stream's shoreline is a sign of a healthy riparian zone. These areas stay greener longer and produce more biomass than upland regions, thanks to soil type and an elevated water table. That vegetation also helps reduce erosion and ease flood water.

Healthy riparian areas are able to intercept contaminants or human-made pollutants found in the area and absorb them. The contaminants or pollutants are transformed by soil microbes into less harmful forms or they are taken up by vegetation. As a result, the water quality in that area improves due to a reduction in excess nutrients or contaminants.

Riparian areas offer numerous other benefits. The shade from the vegetation in the riparian area helps to cool water temperatures. Extensive root systems help to stabilize the banks along the shoreline, which in turn, decreases sediment loads into streams. All of these factors assist in the maintenance of healthy fish habitat and spawning areas. Many fish species cannot survive in higher temperature waters, and high sediment loads can reduce oxygen content and smother fish and amphibian eggs. Deadfall also attracts fish and offers them a safe area for spawning.

In addition to protecting surface waters, riparian areas are valuable habitat for wildlife and plants. They provide nesting sites for many bird species and habitat for reptiles and amphibians. Deer, moose and other mammals can travel safely along riparian corridors.

Great partnerships make for sustainable riparian areas

Although riparian areas make up only a small fraction of Alberta's landscape, they are disproportionately important to fish and wildlife, recreation, agriculture and society in general. As much as 80 per cent of the wildlife in the province relies, in whole or in part, on riparian areas to survive.

In addition to protecting surface waters, riparian areas are valuable habitat for wildlife and plants. They provide nesting sites for many bird species and habitat for reptiles and amphibians. Deer, moose and other mammals can travel safely along riparian corridors.

The Alberta Riparian Habitat Management Society, also known as Cows and Fish, was established in 1990 as a non-profit society and has a simple mission: to promote the improvement of riparian areas and to maintain their ecological processes and functions. The group has worked diligently for nearly 20 years with landowners in the province, showing how improvements in grazing and other management of riparian areas can enhance landscape health and productivity, for the benefit of landowners, agricultural producers, communities and others who use and value riparian areas.

This is accomplished through collaborative partnerships and voluntary, proactive community-based actions that use education and awareness about management options

for producers, other landowners and their communities. Since its inception, the society has conducted riparian health assessments throughout Alberta, each based on a comprehensive set of environmental and landuse variables (www.cowsandfish.org). Many of these health assessments are carried out with Alberta Conservation Association (ACA).

Partnership projects: Bearberry Creek and Moose Lake

ACA has participated in many watershed-scale projects across the province. Bearberry Creek flows west of Sundre, Alberta, and is a tributary to the Red Deer River. Once a popular destination for anglers, sport fish populations have declined drastically along with changes in habitat within the drainage.

Riparian and aquatic habitat degradation along Bearberry Creek has resulted from land-use practices, including intensive livestock grazing and the construction of a weir in Sundre. Streambanks that were once densely covered by willows are now sparsely vegetated, dominated by tame grasses or completely bare. Fish populations consisted mainly of non-game fish species throughout the drainage.

The Bearberry Creek Conservation Working Group was formed as a result of several agencies coming together with the same vision: to develop a conservation project that will improve watershed health and to assist with the re-establishment of a recreational fishery in Bearberry Creek. Together the group and ACA established three riparian protection and enhancement demonstration sites. They include a riparian pasture, a solar powered off-channel watering system and a bank stabilization project using bioengineering treatments (www.ab-conservation.com).

Another project at Moose Lake, Alberta, is using a unique technique called aerial videography. ACA, ASRD and Cows and Fish performed a riparian health assessment along the entire shoreline of Moose Lake. This helped to identify priority areas in their Watershed Management Plan. These assessments have also been completed around Lac La Biche, portions of the Red Deer River, Ivan Lake, Bonnie Lake, Pigeon Lake, Lake Wabamun and countless other streams and water bodies within the province. This is a very economical and effective way for watershed stewardship groups and other conservation organizations to get a picture of the overall health of Alberta's riparian areas.


A healthy shoreline along Moose Lake, MD of Bonnyville.
Aquality

Establishing guidelines for riparian areas

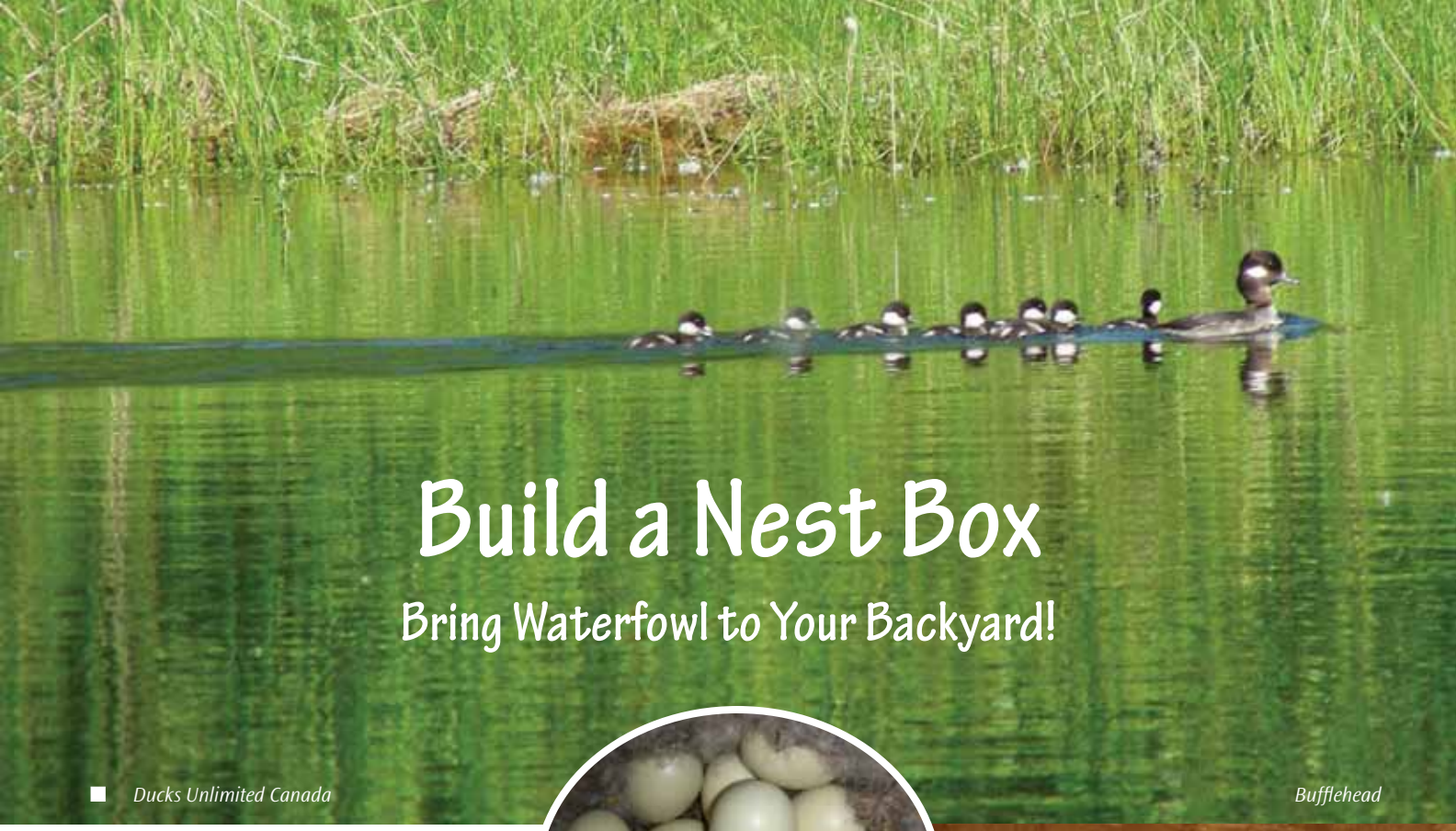
Defining a riparian area of sufficient width adjacent to a water body to effectively protect the water and the aquatic ecosystem has been the subject of much debate. A *one-size-fits-all* approach has traditionally been used by provincial regulators and is still being used today; however, it is becoming increasingly apparent that water bodies require a unique set of guidelines to define appropriate riparian buffer widths and development setbacks.

Recently, *Aquality* Environmental Consulting Ltd. in Edmonton (www.aquality.ca) developed the Riparian Setback Matrix Model. This scientifically-based and legally defensible model can be used by municipalities to determine appropriate riparian buffer widths to maintain healthy aquatic resources. The model is based on easily measured physical variables found along shorelines, such as vegetative cover and composition, bank height, slope and groundwater influence.

The model has been officially adopted by Lac La Biche County and the MD of Rocky View. Rocky View is also developing riparian and wetland policies to protect shorelines within its municipality. This powerful tool can be adapted for use in any area of the province, around any water body, and has the ability to calculate buffer widths for everything from the prevention of pollution, to the protection of wildlife corridors and habitat.

It is essential that municipalities establish appropriate land uses adjacent to bodies of water, including wetlands, to avoid or minimize development impacts of valuable water resources, as provided in the provincial *Land Use Policies*. The importance of establishing and protecting a properly-sized riparian area is extremely important for sustaining nature's greatest resource.

ACA provides funding to qualified landowners for riparian restoration. Please visit Alberta Conservation Association's website at www.ab-conservation.com or call toll free 1-877-969-9091 to find out how you qualify. ■



Build a Nest Box

Bring Waterfowl to Your Backyard!

■ *Ducks Unlimited Canada*

Bufflehead

Jim Potter (Photos)

Although most species of ducks in Alberta nest on the ground, there are some species of waterfowl that nest in holes or cavities high up in trees. Some of these cavities are formed naturally, but many have been previously excavated by woodpeckers. Unfortunately, cavity-nesting species are among the most threatened birds in North America. This may be related to the loss of wetlands and old growth woodlands. In Alberta, over 60 per cent of our slough/marsh wetlands have been lost, along with their adjacent woodlands. Through the Nest Box Program, Ducks Unlimited Canada (DUC) and Alberta Conservation Association (ACA) have been working together to provide nesting cavities for waterfowl, with the long-term goal of conserving habitat. Natural habitat remains the most beneficial environment for waterfowl, but nest boxes provide an inexpensive, easy and family fun way to provide nesting sites for such waterfowl species as the Common Goldeneye and Bufflehead.

Build a nest box and see how easy it is to help a duck family in your own backyard! Click on www.ab-conservation.com for more information. Not only will you find the nest box plans on our website, you can watch a video of a Bufflehead hen hatching her chicks in a nest box!

Conservation Site Getaway

Lees Lake

Darren Dorge

by Darren Dorge, ACA

S63

Nothing sets an angler's heart aflutter like a well-stocked lake that can be easily accessed. Alberta Conservation Association (ACA) manages a total of 38 fisheries access sites across Alberta. These sites provide a variety of angling opportunities on many rivers and lakes where access to fisheries is difficult or non-existent. In certain areas where angling opportunities have been limited, lakes have been created and stocked with a variety of different trout species. Most lakes where access sites have been developed are typically stocked with species such as rainbow trout (*Oncorhynchus mykiss*). The majority of these sites are equipped with washroom facilities, garbage disposal, picnic areas and parking lots to provide a quality experience for anglers.

Located approximately 16 kilometres southeast of the Crowsnest Pass, Lees Lake is an example of a fisheries access site that ACA manages to enhance angling opportunities in the foothills of southwestern Alberta. The land surrounding Lees Lake is privately owned and 1.6 hectares (four acres) is leased by ACA to allow for public access. The lake is considered a high-use fisheries access site; it's not uncommon to see 10 to 15 vehicles parked there at one time. The shoreline surrounding Lees Lake also provides valuable nesting habitat to a variety of waterfowl species during the spring.

Lees Lake is stocked annually with approximately 45,000 rainbow trout courtesy of Alberta Fish and Wildlife Division. Stocking first began back in 1934 with 5,000 rainbow trout. Fish were not released again until 1951; stockings were then sporadic through the 1950s and 1960s. In the 1970s, stocking became more of an annual event. Stocking rates in past years were much higher, ranging anywhere from 10,000 to 79,000 with 10 to 15 centimetre rainbow trout. Since 2004, stocking rates have been gradually reduced in attempts at trialing whether reduced stocking will increase growth rates of stocked trout. Assessments will be required in the future to determine if reduced stocking rates are resulting in increased growth rates by balancing stocking with the available food source.

Lees Lake fisheries access site is only one example of the many Conservation Sites that are available for anglers to enjoy. Before you plan your next outdoor adventure, visit our website at **www.ab-conservation.com** and click on Conservation Sites or pick up your copy of the 2009/2010 *Discover Alberta's Wild Side – Guide to Outdoor Adventure* at most outlets that sell hunting and fishing licenses. Introduce your family, friends and others to Alberta's abundant natural resources, and show them how to enjoy and respect the outdoors.

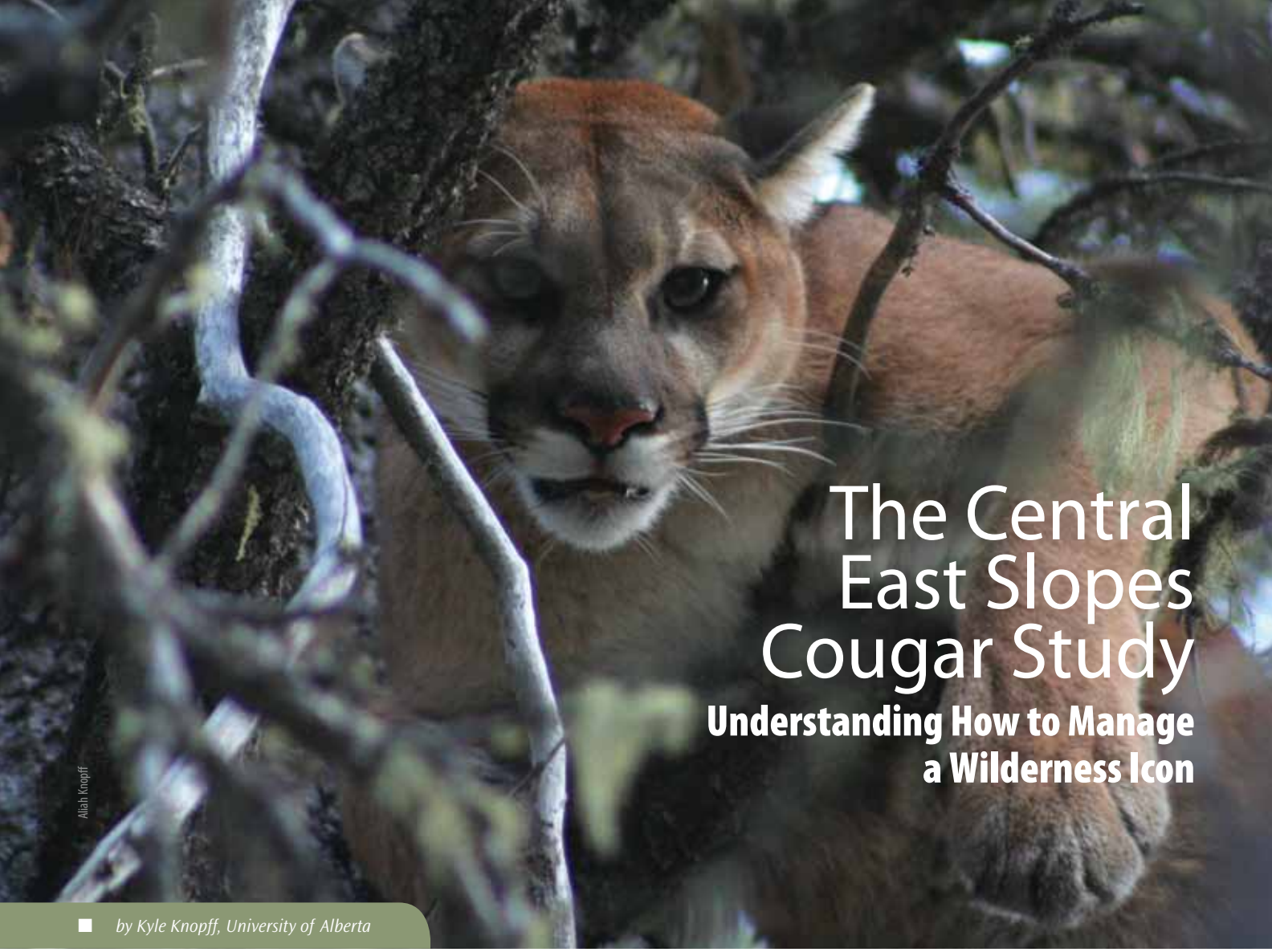
Lees Lake is considered a "pothole" lake that is classed as eutrophic, meaning the lake has high primary productivity resulting in high nutrient content. The result of being eutrophic often causes deficiencies of oxygen that leads to winterkill. There have been sporadic reports of years where low levels of dissolved oxygen resulted in partial winterkills. In the past, other issues existed with increasing numbers of longnose suckers and illegal introduction of redside shiners. These species are considered to be competitors for food and space, resulting in poor growth rates of rainbow trout. Chemical rehabilitation was successfully used to reduce these competitors, positively impacting stocked rainbow trout and this fishery.

Currently, Lees Lake experiences a considerable amount of fishing pressure. The average size of fish caught is in the range of 30 to 35 centimetres (12 to 14 inches). What's exciting for anglers who frequent Lees Lake is the possibility of catching rainbows that weigh in excess of five kilograms (more than 10 pounds). On occasion, older and larger brood stock from the Allison Creek Brood Trout Station is released in various water bodies in southern Alberta, and Lees Lake is one of them. Lucky anglers who manage to hook and land one of these lunkers are ecstatic, which makes Lees Lake one of their favorite fishing destinations. ■

Fishing Lees Lake

Size: 37 hectares (92 acres)
Mean depth: 2.7 metres (8.8 feet)
Maximum depth: 14.6 metres (48 feet)
Fish stocked annually: 45,000 rainbow trout
Average fish size: 30 to 35 centimetres (12 to 14 inches)
The big one: in excess of five kilograms (more than 10 pounds)

Darren Dorge



Aliah Knopff

The Central East Slopes Cougar Study

Understanding How to Manage a Wilderness Icon

by Kyle Knopff, University of Alberta

Some stakeholders would like to see cougar numbers increase, some want those numbers to stabilize, and some would rather not have cougars around at all.

Hunters, anglers, and trappers conserve wildlife and wild places for the enjoyment of future generations. One important way these outdoor enthusiasts contribute to conservation each year in Alberta is through the purchase of their hunting and fishing licenses. Every year Alberta Conservation Association (ACA) receives a portion of those proceeds, which in turn, helps support its Grant Eligible Conservation Fund (GECF).

Last year, over $1.2 million was distributed through the GECF, funding a variety of independent conservation initiatives that conserve and enhance our wildlife and fisheries as well as their habitats. One recent project that benefitted from GECF support is the Central East Slopes Cougar Study, which was initiated in response to a number of important questions regarding cougars and their management. I conducted this research as part of my PhD program under the supervision of Dr. Mark Boyce, ACA Fisheries and Wildlife chair at the University of Alberta

A diversity of roles

Cougars (*Puma concolor*) in Alberta pose a unique challenge for Alberta's wildlife managers, largely due to the diversity of roles they play, both within ecosystems and in human society. In addition to being an iconic symbol of wilderness, cougars are indicators of ecosystem health. They are also efficient predators capable of limiting populations of their ungulate prey, a pest species when they prey upon livestock, a valued big game animal, and an object of fear for many concerned about their personal safety.

Not surprisingly, this creates conflict over how to best manage cougars. Some stakeholders would like to see cougar numbers increase, some want those numbers to stabilize, and some would rather not have cougars around at all. Collecting the right kinds of data will go a long way towards making the job of managing cougars in the face of this diversity of opinion easier. We need to know, for example, how many cougars there are and whether their populations are increasing or

decreasing. In addition, while we know cougars can have important influences on populations of their prey, we do not know enough about what drives cougar predation to manage it effectively. Lastly, oil and gas, forestry, and residential development are increasingly influencing Alberta's landscape, but we do not know how cougars are responding to these changes.

The Clearwater County study area

We selected a 16,000 km^2 portion of the Clearwater County (bordering Banff and Jasper National Parks in the west and Rocky Mountain House and Caroline to the east) as our study area. An incredible diversity of large carnivores and ungulates live in the region (wolves, cougar, black bear, grizzly bear, white-tailed deer, mule deer, elk, moose, bighorn sheep, feral horses, mountain goats and caribou), creating a fascinating range of potential interactions among predator and prey.


Cougars tend to bury their prey with available debris.

Kyle Knopff

The number of human-cougar conflicts was increasing when the study began back in 2004. This included both an increase in cougar sightings and complaints of livestock and pets killed by cougars. We noted that both industrial and residential activity were extensive in parts of the study area and yet almost completely absent in places, such as the Bighorn Backcountry. Such a gradient proved useful for examining the effects of humans on cougars. Cougar hunting quotas had increased dramatically since the early 1990s, but populations of sheep, elk and caribou were declining. The decline of bighorn sheep populations at Ram Mountain was blamed on cougars, which made the Clearwater County the ideal place to study cougars.

A total of 44 cougars were captured and radio-collared between December 2005 and August 2008, some more than once, totaling 57 deployments. Most cougars were collared with Global Positioning System (GPS) radiocollars. Nearly twice as many females (29) were captured as males (15). The GPS collar technology allowed us to keep track of the cougars closely, regardless of the season or the location of a cougar's home range. The collared cougars were monitored for a total of 12,080 days and we obtained 47,866 cougar locations

In addition to increasing conflicts with people, the number of human-caused cougar mortalities (hunting, accidental snaring, vehicle strikes) has also been rising since the early 1990s, and there is a general impression that cougar populations have increased in Alberta over recent decades. This may very well be the case.

I found a density of 2.9 cougars for every 100 km^2, within an intensively surveyed 294 km^2 portion of my study area near the town of Nordegg. A 20-year-old provincial management plan suggested one cougar per 100 km^2 in the same region. Either the cougar population has gone up, or the original density estimate was too low. Whether or not the population has changed, cougar hunting quotas have increased substantially in response to the perception of change caused by increased sightings and depredation.

The majority of the collared cougar mortalities during my study were caused by hunting. However, accidental snaring at wolf bait stations accounted for one-third of the deaths. Since the survival of the radio-collared adult cougars was low (67 per cent annually), hunting and snaring rates may be limiting the cougar population in west-central Alberta.

Cougar interactions with prey

Another important element of the study was to gather information on how cougars interact with their prey in areas that had several other species of prey and predators. We know that predation is often implicated as a major factor driving population declines. Some stakeholders have called for predator control to protect these ungulate populations. And in some cases, predator control is being implemented as an ongoing management strategy. One example is the annual wolf cull near Grand Cache, which occurs to protect the Little Smokey Caribou herd.

By carefully studying cougar predation, we hope to better understand when, where, and how cougars impact their prey. This knowledge will help us find better strategies for managing cougar predation. Clusters of the GPS collared cougars were visited to monitor the number and kinds of prey taken. This provided us with a total of 7,823 monitored cougar days and led to more than 1,400 predation and scavenging sites. As a result, we have the most extensive dataset on cougar predation anywhere in the world.

Deer proved to be the prey of choice for the cougars in the study area. But individual animals appear to focus on certain types of prey, such as moose, feral horses, elk or bighorn sheep. Males killed larger prey than their female counterparts. One large collared male, weighing over 180 pounds, killed 17 feral horses, eight moose, five elk, five deer, three beaver, and one other cougar between February 18 and December 4, 2006. Clearly he focused his predatory efforts on larger prey, particularly feral horses.

This specialist behavior has important implications for management. We know that if an isolated ungulate population of bighorn sheep is declining as a result of specialist cougar predation, simply removing cougars from the vicinity might not have the desired effect. If the individual responsible is missed, the cougar population would have been unnecessarily

We found that less than one per cent of the radio-collared cougar in the Clearwater County killed domestic animals.

reduced with no net benefit to the sheep population. The appropriate management solution in such cases would be to identify and remove the specialist predator.

While I am still analyzing the predation data, cougar kill rates are reasonably high. They average 43 ungulates every year; that translates to one ungulate kill every eight to nine days. There is also a substantial variation in kill rates among cougar age-sex classes. Sub-adults kill least often, while adult females with kittens can kill over 60 deer a year. Most importantly, we found that less than one per cent of the kills made by radio-collared cougars in the Clearwater County were domestic animals, despite the fact that several collared cougars lived in highly developed areas.

Human infringement on cougar habitat

The change in industrial landscape and its effect on cougar populations and predation patterns was a third component of the study. Alberta's economy depends on oil and gas extraction and large scale timber harvest. There are two hypotheses about how this affects cougars. The first suggests that clear-cutting negatively impacts cougar populations because they avoid


Aliah Knopff

open habitats and have poor hunting success when there is little cover. The second suggests that timber harvest benefits many populations of ungulate prey, ultimately translating into larger cougar populations. As a result, these two opposing scenarios require very different management prescriptions. The data we gather on habitat selection, predation rates and kill-site selection will help us identify which hypothesis is most accurate.

As Alberta's population continues to grow, traditional cougar habitat is increasingly dominated by residential development and recreational activities. This is a familiar theme throughout western North America. The conservation of cougars and other large carnivores requires both an understanding of their ecology in human-dominated landscapes, and of the degree to which humans will tolerate their presence. In order to address these issues in Alberta, Aliah Adams Knopff is examining habitat selection and predation data for cougars living in human-dominated landscapes (towns, acreages, and working ranches), and has surveyed the opinions of Clearwater County residents.

We are currently in the final stages of analyzing our results and the full details of the study will be available in late fall 2009. We are grateful to ACA and to the Alberta hunters and anglers who ultimately provided the financial support to help us start this research. While we have much left to learn, the results of our research will give wildlife managers the information they need to more effectively manage cougars and their prey.

For more information on projects funded through the Grant Eligible Conservation Fund, visit www.ab-conservation.com. ■

Walk the lakeshore or fish for rainbows with your kids or grandkids from your boat or the dock. It's all about the experience of fishing for quality trout in a quality environment, all within a short drive from Edmonton.

The Muir Lake Project

a local fisherman's dream come true

by Peter Little, President, Fisheries Enhancement Society of Alberta

Imagine a peaceful blue lake with herons, red-winged blackbirds, geese, ducks and the occasional pelican along the shoreline. Birds sing in the surrounding aspens and poplars. Loons call out while rainbow trout rise to feed on the small midges hatching across the lake. Luckily, this fisherman's dream exists, not in some distant place but only a forty minute drive from downtown Edmonton, well within reach for a fishing trip with the kids or for some relaxation after work.

Muir Lake, located north of Spruce Grove in Alberta's County of Parkland, had long been considered an excellent location for a recreational trout fishery. It's an ideal home for growing rainbow trout, with its large lake surface area of 32 hectares (78 acres) and depths that range to six metres (20 feet). But with the majority of the lake being less than 3.5 metres (12 feet) deep, it was prone to winterkill as the oxygen content in the water would quickly deplete under the ice.

Introducing aeration

In 2002, the Edmonton Trout Fishing Club had been looking for a way to celebrate its 50th anniversary. On the initiative of Tim Doskoch, the Club President at that time, members of all the Edmonton fishing clubs - Northern Lights Flytiers and Fishers, the Edmonton Chapter of Trout Unlimited, the Edmonton Oldtimers Fishing Club, as well as the Edmonton Trout Club—worked together to plan, fundraise and promote the restocking of the lake with rainbow trout. These plans included an Education Centre and Walk of Fame and the installation of two aerators to introduce sufficient oxygen into the water to allow the fish to survive the winter.

These volunteers formed the Fisheries Enhancement Society of Alberta (FESA), and registered it as a non-profit society in order to fundraise for Muir Lake and similar projects. Its stated mission is *"to enhance sport fishing opportunities for the benefit of all Albertans through public education regarding sport fishing and the development of fisheries habitat."* The County of Parkland and Alberta Sustainable Resource Development provided the necessary permissions and support for the project and Alberta Conservation Association (ACA) donated the money for the two aerators. Volunteers from the fishing clubs worked hard to clear brush and install the necessary aeration cables and equipment. They also ran auctions and fundraisers to cover the costs for information displays and signage.

The stocking of 14,300 eleven centimetre (cm) rainbow trout took place in May 2003. With help from the Woodland's area fisheries biologist, special regulations were planned for the lake in order to create a fishery with high catch rates and larger fish. Anglers could only keep one fish over 50 cm per day from May 1st to October 31st; the lake would be closed the rest of the year. Only artificial lures would be permitted to reduce hooking mortality.

Muir Lake's education centre features information on fish habitat, food sources and fishing methods. Kiosks provide photographs and information on the species, along with fly patterns that are used to imitate it. Offering an explanation of the relationships between trout food and its imitations, gives anglers a chance to improve their fishing strategies and catch rates. And at the end of the day, everyone gains a greater appreciation of the need for stewardship.

Driving directions

Go north from Spruce Grove on Campsite Road; 6.5 km from where the road crosses over Highway 16 turn left on TWP 540. Muir Lake is approximately 1.3 km, on the left side of the road. There's ample parking, sanitary facilities and a great experience waiting.

Changes result in significant benefits

By 2007, the fishery began producing fish that met the 50 cm benchmark. In 2008, fish up to 60 cm were reported. Anglers valued the experience of fishing for large trout and supported a catch and release philosophy. Today, Muir Lake is one of the highest quality still water trout fisheries in the province, attracting anglers from all across the province. The Muir Lake project also received the 2007 National Recreational Fisheries Award from the Federal Minister of Fisheries and Oceans.

Aerating the lake resulted in significant benefits in fish growth rates and overall health, but it also improved the local environment, something that's been observed in other aeration projects across North America.

Aerating the lake resulted in significant benefits in fish growth rates and overall health, but it also improved the local environment, something that's been observed in other aeration projects across North America. Aeration prevented winter fish kills and helped clean, oxygenate and improve the water quality in the lake. This resulted in other biotic components increasing, such as aquatic vegetation and insect life. Local residents have seen an increase in the number of songbirds, bats, osprey, loons, pelicans, herons, and other waterfowl. The County of Parkland has upgraded the facilities at the lake and increased maintenance of the pathways and trails. It's also expressed an interest in creating additional recreational opportunities at the lake such as cross-country ski trails.

Partnerships have been instrumental to the success of projects such as Muir Lake. FESA and ACA entered into a Partnership Agreement in December, 2008. ACA now undertakes liability associated with aeration of the lake, while FESA continues provide volunteers to run the aeration, including the annual installation and removal of warning signs and aeration equipment. Recently TransAlta has agreed to support the project by paying the annual $2,000 electricity bill for operating the aerators. The fishery will undoubtedly collapse without aeration and the water quality and local environment will be significantly negatively affected.

Anglers and their families in the Capital City region are fortunate to have this cooperative project so close to home. Other projects are in the works as the Alberta Government is now planning to create more quality stocked trout fisheries, especially near urban centres. So, drive out for a visit to learn more about trout, their food sources and different angling methods. Walk the lakeshore or fish for rainbows with your kids or grandkids from your boat or the dock. It's all about the experience of fishing for quality trout in a quality environment, all within a short drive from Edmonton.

Further information on the Muir Lake Project can be found in an article by Duane Radford written for the October 2007 edition of Alberta Outdoorsman and reprinted with permission on the Edmonton Trout Club website at edmontontrout.ca/muirlakearticle.php. Mike Monteith's website at www.fishalberta.com/muir/muirlake.htm also includes an excellent history of the project. ■

catch & release

by Trevor Council, ACA

Over the past several decades, catch-and-release angling has become a common practice and an effective method for anglers to conserve fish. The concept of catch-and-release promotes the safe return of fish to the water unharmed, thereby providing additional recreational opportunities for other anglers and an opportunity for the fish to grow even larger. A key assumption of catch-and-release angling is that all released fish actually survive and are unaffected by the experience. This assumption is based on anecdotal observations of captured fish that generally swim away, apparently unharmed after release. However, studies have shown that some fish die because of catch-and-release practices and that mortality is delayed after release. Fish that appear healthy may later succumb to injuries or distress caused by the hook and the stress of being captured.

Fishing gear type, angling methods and release techniques are important factors to consider, in minimizing mortality in catch-and-release angling.

The impact of injuries and stress on individual fish caused by catch-and-release is often underestimated by anglers. From a review of 118 studies, the average mortality associated with catch-and-release angling was as high as 16.2 per cent. While many anglers may assume that by practicing catch-and-release they are having no impact on a fish population, the truth is that a significant number of released fish may die if not handled properly. Fishing gear type, angling methods, and release techniques are important factors to consider, in minimizing mortality in catch-and-release angling.

Four Ways to Keep Your Fish Swimming

1 *Minimize stress after hooking*

Hooking location and physiological stress are two important factors related to fish mortality. Hooking location studies have shown that deep hooking (in the gills or esophagus) causes relatively high mortality, up to 35 per cent when accompanied by bleeding; whereas shallow hooking (lips or jaw) consistently causes minimal mortality, less than 5 per cent. The level of physiological stress that a fish may experience is determined by the duration of fighting time during a catch event, as well as air exposure. Anglers should retrieve the fish as quickly as possible with the goal of landing the fish before the signs of exhaustion appear. The fishing equipment should also be appropriate for the species captured to allow for quick retrieval.

2 *Avoid fishing in deep water*

Anglers should avoid fishing in deeper water. Fish caught in deep water (greater than 7 m or 23 ft) and brought to the surface are susceptible to a swollen air bladder caused by rapid depressurization. The swollen air bladder prevents the fish from submerging and causes internal damage that reduces the chance of survival. Anglers have been known to "fizz" or puncture the swollen air bladder to allow the fish to sink. This practice increases mortality by causing additional injury and stress to the fish and is not recommended under any circumstances.

3 *Use barbless hooks*

Another catch-and-release guideline that minimizes stress and reduces mortality is the use of barbless hooks. Barbless hooks reduce injury and handling time, increasing fish survival. Some anglers object to fishing with barbless hooks because they believe that they will lose too many fish. Anglers lose just as many fish with barbed hooks as those who are fishing with barbless hooks. If you watch carefully, you'll observe that the successful angler is one who can set the hook well and keep the line tight while playing the fish, regardless of whether the hook is barbless or not.

4 *Limit your handling time*

If using a landing net, ensure it is soft mesh or rubber to avoid removing the protective slime from the fish. Limit the amount of time the fish is out of the water, and whenever possible, unhook the fish without removing it from the water. If you must handle the fish, completely wet your hands or wear soft cotton or wool gloves that have been soaked in water. Damage to fish scales and mucous layers by nets and dry hands can leave fish vulnerable to fungal infection; also, keep your fingers out of the fish's gills and away from its eyes. Support the fish and gently remove the hook with a pair of pliers. Revive the fish by gently holding the tail and cradling the fish's belly. Do not release your fish prematurely. It is important to wait until the fish is completely revived and ready to swim on its own out of your hands.

Your reward

What a reward it is to see a healthy, revived fish swim off like a rocket back to its natural habitat. Saying goodbye isn't nearly as hard when you know that you have released the fish correctly so that it will be around for you and your children, or other anglers to catch. *Remember that for catch-and-release angling to be effective at conserving fish resources, the fish must be able to recover from the catch event and survive after release.* ■

Conservation in Action

featuring David Bissett

interview by Lisa Monsees • story by Michelle Curial-Hébert

photos courtesy of David Bissett

Ask David Bissett what he considers a perfect day, and he may tell you a number of different things—but all have to do with being outdoors! With unconditional love, he describes his property near Devil's Coulee as "an eerie kind of place, not the most beautiful in the world; although treeless, it has a curious attractiveness about it, partly because the nearest neighbour is a mile and a half away. It's got that wonderful feeling of wilderness in the middle of the province!"

As a hunter, David has a very strong opinion when it comes to hunting access: "The easier we make it—through having a number of publicly managed hunting places—the more likely we are to get people interested and enjoying hunting." He's a firm believer that buy-in from landowners would make it easier for hunters to access land. This buy-in could be encouraged by government granting a financial incentive to landowners for this purpose. David says it's a win-win for everyone. He should know—David's purchase of the Devil's Coulee property is only one example of land purchased for the sole purpose of providing access to hunters on private land.

Pheasants are David's favorite hunt, the product of a youthful interest generated by an uncle while in Nova Scotia in the 1950s. David moved west and settled in Calgary in 1977, on the tail end of what some consider to be the glory days of pheasant hunting in Alberta. Cattle grazed the foothills; grain covered the prairie. The situation has evolved where cattle now graze heavily on the land once used by pheasants for habitat. This loss of habitat prompted David to be proactive in rural environmental issues.

David played a major role in springboarding the Calgary chapter of *Pheasants Forever* from a small organization with a yearly budget of only $35- to $40,000, to possibly one of the largest chapters in all of North America. *Pheasants Forever* has been David's vehicle for getting things done. But one program he is most proud of is the *Partners in Habitat Development* (PHD) program, a grassroots initiative designed to create, enhance and restore wildlife habitat throughout the cultivated regions of southern Alberta, primarily on privately-held land. The PHD was co-founded in 1998 by the Eastern Irrigation District and the Calgary Chapter of *Pheasants Forever.*

David feels that as much as the general public doesn't think that hunters are a good thing, the reality is that hunters and anglers are the ones who spend the money to do the kind of conservation work that needs to be done. He hopes that over time people will begin to recognize the esthetic, recreational and tourism benefits of hunter-sponsored conservation. David uses the example of hunting season being a great source of tourism in some of the northern US states; Alberta could easily capitalize on the related benefits as well.

Having represented *Pheasants Forever* on the ACA Board for more than four years (2002 – 2006), David is very pleased with ACA's connection between conservation and hunter activities. He is delighted with ACA's successful launch of *Guide to Outdoor Adventure* and feels that it is an effective tool in assisting hunters in finding places to hunt.

When speaking about the future of conservation in Alberta, David is somewhat less reassuring because of mounting pressures on habitat due to population increases and poor regional planning. He uses the example of mini-ranches or acreages being built on two-acre parcels for fifty miles on the outskirts of Calgary. David feels the perimeter of the city should not be turned into "ranchettes;" it's inefficient and counterproductive from a conservation point of view.

David's next step as an individual who has made significant contributions to conservation is to acquire more land in the south with a view of leaving it to *Pheasants Forever* or the Province. As a managed wildlife area, the public would have access to it and its every kind of upland bird and waterfowl imaginable: ducks, geese, pheasants, Hungarian partridge and sharp-tailed grouse just to name a few. And then there's that lone moose David met on a trek across the vast prairie. Astonishingly, as they eyeballed each other, each could only imagine what the other was doing there. "That," remarked David, "was kind of fun!" ■

Devil's Coulee

Randy Lee

Corporate Partners in Conservation

Alberta Companies are Leading the Way

In 2007, the Corporate Partners in Conservation (CPIC) Program initiative was established to provide corporate donors with the opportunity to play a vital role in protecting Alberta's natural heritage.

There are two funds within the program, which corporations can select from to best meet their business and environmental objectives. The CPIC program goes beyond conventional partnerships by offering employees an opportunity to be directly involved in conservation by getting out of the office and into the field—whether it's planting trees, installing or removing fencing or conducting wildlife surveys, it is coupled with the feeling that they are making a difference.

Alberta Conservation Association
Corporate Partners in Conservation

Albian Sands Energy Inc.

Canadian Natural Resources Ltd.

Compton Petroleum Corporation

Daishowa Marubeni International

Devon Canada Corp.

Petro-Canada

Sherwood Park Toyota

Suncor Energy Foundation

Total E & P Canada Ltd.

Read more about our corporate partners at www.ab-conservation.com.

To become a *Corporate Partner in Conservation*, contact Cindi Webster at 780-410-1998.

Bufflehead (*Bucephala albeola*)

Buffleheads are one of the smallest ducks in North America. They are found throughout Alberta, with the highest concentrations occurring in the Parkland and southern Boreal Forest natural regions. Although most ducks nest in vegetation located near water, buffleheads nest in naturally occurring cavities in mature trees near small lakes and ponds. They are considered secondary cavity nesters, meaning they don't excavate their own nest cavity. Instead, these small ducks rely on old decayed trees or other species, such as large woodpeckers, to create their nesting cavity. Buffleheads feed by diving, and their diet includes mostly aquatic invertebrates such as snails, shrimp, and larvae of insects like dragonflies. They will also eat seeds from aquatic plants.

Many of the old mature trees that would normally provide nesting cavities for these small ducks have been removed through urban and acreage development, farming and logging. In the central parkland of Alberta, ACA has been delivering a duck Nest Box program for the past 10 years. ACA installs nest boxes at select sites, which then provide a suitable nest cavity where naturally occurring cavities are in short supply. These boxes are used by buffleheads, along with other cavity nesters like common goldeneye and saw-whet owls.

Alberta Conservation Association

Conserving Alberta's Wild Side

www.ab-conservation.com

PUBLICATIONS MAIL AGREEMENT NO.41260556
RETURN UNDELIVERABLE CANADIAN ADDRESSES TO

101-9 Chippewa Road
Sherwood Park, Alberta T8A 6J7