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AWA

WILD LANDS ADVOCATE

THE ALBERTA WILDERNESS ASSOCIATION JOURNAL

Caw Ridge PHOTO: © S. D. CÔTÉ

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COVER PHOTO

For AWA, Caw Ridge is Alberta's Serengeti because of its importance to the health of many of our province's most treasured large mammals – such as mountain goats, caribou, and grizzly bears. Steeve Côté took this stunning photo of Caw Ridge and its surroundings during one of his recent summer research field trips there to study mountain goat ecology.

FEATURED ARTIST

We are very pleased to feature the artwork of Athabasca's Joan Sherman in the *Advocate*. Joan describes herself as "searching for ways to encourage others to care for nature. I have been a political and environmental activist; I have written about conservation and nature, and now I have turned to art as a means of informing myself and others about nature." She grew up in California and Washington and studied art and metallurgy at California College of Arts and Crafts. Aware of pressures on wildlife habitat and the importance of conservation, Joan focuses considerable attention on boreal species. She uses a suite of techniques to record her experiences on the land and to highlight aspects of nature that may seem ordinary. Her line of note cards enriches many of her images with text about these species or the land. Joan teaches drawing to adults and holds nature-drawing workshops for students in high schools. Many of her paintings and drawings are in private collections.

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Ian Urquhart

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ALBERTA WILDERNESS ASSOCIATION

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Shaggy Mane (Coprinus comatus), *Watercolour, 28 x 37 cm*

Troubling Gaps in Alberta Wildlife Research

One morning in late March as I walked to work the songs of chickadees seemed to fill more of the air than they had at the beginning of the month. I wondered if my impression was accurate and, if it was, why might that be? One block later a snowshoe hare bounded across my path, its mottled coat still showing much more white than brown. That sight led me to ask myself what specifically triggers a hare's coat to change colour? What might climate change mean for the future utility of this adaptation against predation?

These might be pedestrian questions to some but to me they underlined just how central wildlife research questions could be to my life – even when living it in the asphalt and concrete jungle of Edmonton. Several years ago Professor Mark Boyce, the Alberta Conservation Association Chair in Fisheries and Wildlife at the University of Alberta, prepared a report to the Alberta Conservation Association entitled *"Wildlife Research Needs For Alberta."* That 67-page report detailed some impressive initiatives that wildlife scientists in Alberta and elsewhere were engaged in. His report also, though, sketched a serious imperative; Alberta had pressing wildlife research issues that needed to be addressed. Today the situation remains the same.

Wildlife research figures prominently in the features section of the April *Wild Lands Advocate*. On the one hand our offerings underline the impressive efforts and contributions Albertans who are not members of the university community may make to our understanding of wildlife. Jonathan Wright's lifelong passion for snakes animates his article celebrating Alberta's snakes. Reg Ernst, concerned about the ecological health of the Front Range canyons of the Castle, offers his insights about the damage cattle grazing has inflicted on native plant communities there. He shared those insights with the provincial government last November; he is still waiting for a response from our public servants.

Other articles highlight various aspects of the "knowledge gap" that exists with respect to Alberta's wildlife. Nigel Douglas' article on wolverines underlines just how little we know about one of the province's most formidable species. Professor Steeve Côté, the leader of North America's longest running study of mountain goats, introduces readers to the goats of Caw Ridge. The Caw Ridge study, now officially about to enter its 21st season, tackled the gap characterizing our knowledge of mountain goat population dynamics. The understanding accumulated by Professor Côté and his colleagues has served as an important basis for improvements in the stewardship of this species.

One element of the Caw Ridge story also highlights a second type of research gap – the gap between knowledge and action. Knowledge's ability to improve wildlife stewardship often depends on political will. Without that will valuable research will remain in the "ivory tower" – divorced from the real world. There is no doubt that mountain goats are more sensitive to human activities than other ungulates. Yet, quad use on the ridge has increased exponentially over the past decade. Furthermore, as this issue of the *Advocate* goes to press, the ERCB is considering the expansion of coal mining and exploration in the vicinity of the ridge. Do we value and respect wildlife population research when decision-makers authorize activities that threaten wildlife?

Lindsey Wallis' look at woodland caribou underlines emphatically the seriousness of this "action gap." Our provincial leaders certainly are fiddling while some of Alberta's caribou herds are sliding towards extirpation.

I also am very pleased that Professor Shaun Fluker from the University of Calgary's Faculty of Law agreed to offer us an important follow-up to Christyann Olson's article in the last *Advocate* on provincial wildlife policy. Professor Fluker evaluates Alberta's *Wildlife Act* and emphasizes, from the perspective of identifying and protecting endangered species, just how crucial it is to insure that legal obligations, not simply policy commitments, are in place with respect to such species.

Updates – both on wilderness issues and the life of Skoki – plus our regular Recall of the Wild feature and a review of a new book on the challenges presented by population growth may also be found inside these covers.

We hope you will find the sum of our efforts enough to justify postponing your spring clean-up duties for just an hour or two more.

- Ian Urquhart, Editor

Understanding the Ecology of Mountain Goats: The Long-Term Study of Caw Ridge

By Dr. Steeve D. Côté

The mountain goat is one of the least-studied ungulates in North America. It is a unique species sensitive to harvesting and thus cannot be managed in the same manner as other large herbivores. A decline in mountain goat populations in west-central Alberta during the 1980s prompted the initiation of a long-term research program on the ecology, population dynamics, and management of mountain goats on Caw Ridge. Sport hunting of mountain goats was closed from 1988 to 2000. In 2001, following the recovery of some populations, wildlife managers re-opened the mountain goat hunting season in a few areas based on the population dynamics information provided by the Caw Ridge study. Almost 4,000 applications for three tags were received across Alberta the first year and the interest in this hunt has remained high since. In comparison, there are about 3,000 sheep hunters in the province.

Concerns persist about the causes of population decline and about whether or not goat populations have recovered to historic levels. Wildlife managers charged with the duty to be good stewards of Alberta's mountain goats have limited information on the basic biology of this species. Little is known about the year-to-year variability in mortality and recruitment and the factors that affect individual reproductive success are still not well understood. Moreover, for reasons that are also not well documented, mountain goat populations recover very slowly following declines and are much more sensitive to hunting losses than other big game species. Information on vital rates such as survival and reproduction is required to ensure the success of transplants and to minimize the impact of hunting through harvest regulations. The Caw Ridge mountain goat study set out to provide answers to these questions.

Following preliminary work in 1988, the study of the Caw Ridge mountain goat population began in June 1989 and has continued ever since. The study essentially monitors marked individuals; much recent research has shown that long-term monitoring of marked individuals is the most useful protocol to adopt to provide information useful for conservation and wildlife management. Long-term data from marked individuals are necessary to quantify the effects of individual variation, climate, predation pressure, population age-sex structure, density and other variables that may affect individual reproductive success and population dynamics.

A nursery group of mountain goats in June. PHOTO: S. D. CÔTÉ

Caw Ridge, about 30 km northwest of Grande Cache, Alberta, is ideal for intensive wildlife studies because of its accessibility and open terrain. It is home to the largest mountain goat population in Alberta outside of the National Parks. Alpine areas used by mountain goats range in elevation from 1750 to 2170 m. Goats on Caw Ridge have not been hunted since 1969 (Limited entry goat hunts now occur in three Wildlife Management Units (WMUs) in the Grande Cache area – outside from Caw Ridge – and one WMU in the Crowsnest region). Caw Ridge is located east of the Rocky Mountains; it is separated from the main mountain range by 10 to 30 km of coniferous forest. About 250 bighorn sheep also inhabit the ridge but they mostly use the eastern part of Caw Ridge and adjacent lands. Caw Ridge is on a major migration route for the Redrock Prairie Creek caribou herd; several hundred caribou are observed on the ridge annually. Carnivores known to prey upon goats in the study area include wolves, grizzly bears and cougars.

The first step in our study of the Caw Ridge mountain goats is to capture and mark them. We use remotely controlled box traps baited with salt blocks. Two blinds are used to monitor the traps so researchers do not disturb the goats. Captured goats are drugged except for yearlings and most two-year olds who are handled without drugs. Goats receive canvas collars or ear tags with unique colour and symbol patterns that allow us to identify the goats from a distance. Since 1988 we have marked a total of 427 mountain goats. In September 2009

Mountain goats are captured in box traps baited with salt blocks. PHOTO: S. D. CÔTÉ

there were 134 goats in the population, of which 120 were marked.

Body mass is one of the most important life-history traits so we weigh goats at capture using platform scales with remote indicators. In mountain goats, sexual dimorphism or distinctiveness in body mass develops post-weaning and increases gradually up to at least six to eight years of age (Fig. 1). Females complete their mass gain at about six to seven years of age, when males are about 35 percent heavier than females; mid-summer body mass is near 100 kg for males and 75 kg for females (Fig. 1). In contrast, horn length is similar in adults and this helps to explain why nearly half the animals harvested are females.

A very important applied result of our long-term study concerns adult sex ratio. The number of adult males in the population has consistently been much lower than the number of adult females, limiting hunting opportunities (Fig. 2). Recently, however, the sex-ratio bias in favour of females has decreased, concomitant with an increase in total population size (Fig. 2). The proportion of male kids born increases substantially with maternal age: young females (≤ six years old) produce approximately 35 percent sons while old females (≥10 years old) produce about 70 percent sons.

The survival of all age-sex classes has varied between years. Adult female survival (average of 89 percent) is higher than adult male (83 percent) survival. Kid survival averages 63 percent but varies widely from year to year, as is typical of ungulates. Sensitivity analyses comparing survival and fecundity estimates among age and sex classes revealed that adult females' survival has the greatest potential to influence changes in population size and suggest that harvesting adult females can have strong impacts on population dynamics. In addition, age at primiparity (first-time successful pregnancy) of female mountain goats at Caw Ridge is very late. It averages almost five years of age and thus has a strong impact on population growth rate. Goat mortality varies greatly from year to year, underlining the value of our long-term approach to the study of population dynamics. The causes of these yearly changes in mortality are unknown. But, because of the relatively small number of animals in a mountain goat population, stochastic (randomly determined) events could have drastic effects on population dynamics. For example, if just four additional males were killed in one year by predators or hunters, male mortality would increase by 15 to 25 percent depending on the year.

The author, with Goat #56, on Caw Ridge. PHOTO: C. HINS

Adult female mountain goat with her kid in September. PHOTO: S. D. CÔTÉ

The reproductive effort of polygynous (having more than one mate) male ungulates consists mainly of male-male competition and the courting of females during the rut. This competition and courting can incur substantial costs in term of mass loss. In mountain goats, very little is known about male reproductive strategies and the determinants of reproductive success. Based on field observations conducted during the rut at Caw Ridge in November and December, male mountain goats start to participate actively in the rut when they reach three years of age. The level of participation in the rut increases until about eight years of age when males reach their maximum mass (Fig. 1) and slightly decreases afterwards, likely as a result of reproductive senescence (old age). Mature dominant males defend oestrus females whereas subordinates attempt to obtain matings by pursuing females. Using molecular markers, we found that the annual reproductive success of males increased with age and peaked at eight years but declined afterwards in older males (Fig. 3). Mass was also a strong determinant of male reproductive success, as males with increased mass sired more offspring. As opposed to other polygynous ungulates such as bighorn sheep, horn length in males does not seem to affect reproductive success. This is not surprising because mountain goats show no sexual dimorphism for this trait. Our results showed that male mountain goats must survive to at least six years of age to

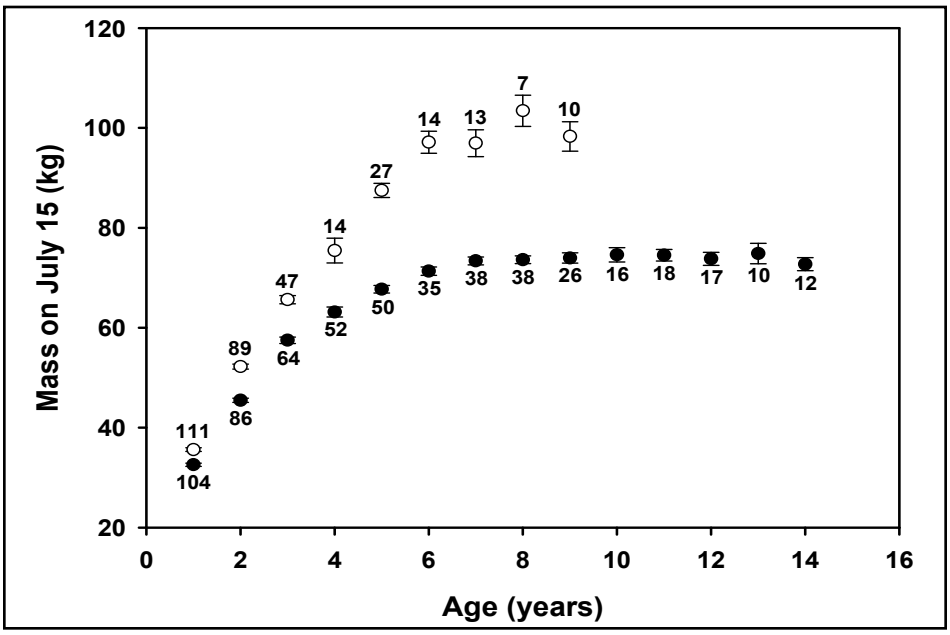


Figure 1: Development of sexual dimorphism in body mass of mountain goats from Caw Ridge, Alberta. Body mass was adjusted to mid-summer using the sex-specific growth rate of each age class. Mean body mass (± SE: plus or minus one standard error) for males (open circles) and females (closed circles) are accompanied by sample size. The last data point in each series shows the average for all males aged nine years and older, and all females aged fourteen and older.

increase their probability of contributing to future generations. They must also reach a high body mass and social rank to successfully compete with other males for access to females; only a few males achieve this. Out of 96 offspring assigned to a father only five males sired 51 percent of the 57 individuals tested; the mating system is highly polygynous.

In alpine environments, the growth of animals is tightly linked to seasonality. We used the Normalized Difference Vegetation Index (NDVI) - a satellite-based measurement that correlates strongly with surface vegetation productivity and with the timing in the availability of high-quality vegetation - to explore how annual variations in the timing of vegetation onset and in the rate of change in plant production during green-up affected mountain goats. Yearly average kid mass differed by up to 16 percent between years with low and high maximal increases in NDVI. Rapid changes in NDVI likely led to a shorter period of availability of high-quality forage over a large spatial scale, decreasing the opportunity to exploit such high-quality forage. Our results suggest that attempts to forecast how warmer winters and springs will affect goat population dynamics and life histories in alpine environments should consider factors influencing the rate of changes in plant production during green-up and the timing of vegetation onset.

Our research has firmly established that mountain goats are more sensitive to anthropogenic disturbance than other ungulates. For example, helicopters flying within less than 500 metres of mountain goats elicited a strong reaction 85 percent of the time. In addition, we also recorded goat responses to quads because the amount of quad traffic on the ridge has increased dramatically since the mid-1990s. The numbers of people driving quads on Caw Ridge has increased from about 30 to 40 per summer in 1994 and 1995 to more than 400 per summer in recent years. Our preliminary analyses indicate that the probability of mountain goats being disturbed by quads increases with the speed of vehicles. At a speed of 35 km/h, there are >50 percent chances that goats would be alert for up to 10 minutes or move at least 100 metres. Another threat to mountain goats on Caw Ridge is coal mining and the unintentional helicopter harassment associated with exploration. Increasing resource exploration and exploitation poses a long-term threat to the habitat of many species in Alberta; the mountain goats on Caw Ridge are no exception to this threat.

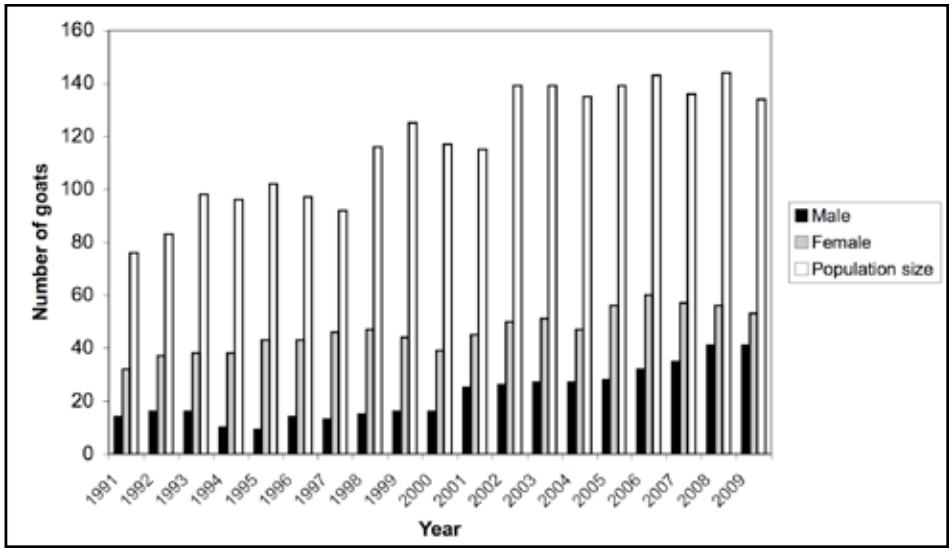


Figure 2: Total population size and number of adult (≥3-year-old) male and female mountain goats in September in the Caw Ridge population from 1991 to 2009.

This summer we will continue the monitoring of survival and reproduction of mountain goats on Caw Ridge. We will mark the new cohort of yearlings and focus our observations on maternal care behaviour and the influence of female characteristics on the development of kids. The results from the Caw Ridge project are essential. This is the only long-term study of mountain goats in the world and provides essential scientific data to better understand and manage mountain goats throughout the province and elsewhere.

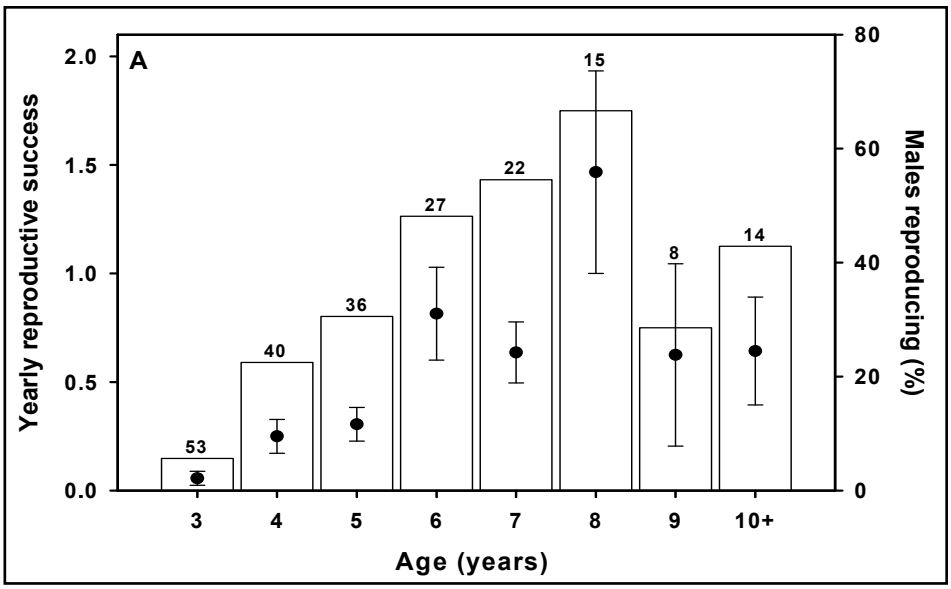


Figure 3: Mean annual number of kids sired (± SE) that survived to one year of age in relation to male age in mountain goats at Caw Ridge, Alberta. The percentages of males reproducing according to age (histograms, right Y axis) are also shown.

Acknowledgements. The Caw Ridge mountain goat study is funded mainly by Alberta Conservation Association and the Natural Sciences and Engineering Research Council of Canada. Many people have contributed to the study and I thank all of them, especially M. Festa-Bianchet, K. Smith, S. Hamel, and J. Mainguy.

Dr. Steeve Côté is a professor of ecology at the Université Laval. He also holds the NSERC – Produits forestiers Anticosti Industrial Research Chair.

Research Without Results

By Lindsey Wallis

As early as 1929 it was recognized that caribou range in Alberta was becoming limited and the species would require protection. But, after almost 100 years and decades of study, caribou numbers across the province are still in decline, with three herds at immediate risk of extirpation.

Caribou in Alberta are an example of how research can achieve very little if it is not backed by the political will to follow through on recommendations made by the experts. As the Canadian Parks and Wilderness Society (CPAWS) Boreal Campaign Director, Helene Walsh puts it, "We know what we shouldn't be doing but we'll do it anyway."

Driven by economic factors, the government has consistently chosen industrial development over caribou protection. Nowhere is this more evident than in the Eastern Slopes of the Rocky Mountains, home to the Little Smoky herd, the longest studied herd in Alberta and one of the most at-risk.

The Alberta government recognized, in a 1973 report, that pressures to expand development in the Eastern Slopes would only increase and, in 1978, approved a resource management plan for the Eastern Slopes which stated over 70 per cent would remain as wilderness or natural areas and critical wildlife habitat would be protected. Such action was needed, "to maintain those species presently found in the Eastern Slopes."

Research conducted on the Little Smoky herd, and other herds in Alberta, show again and again, that industrial development in critical caribou habitat is detrimental to herd numbers and, ultimately, the herd's survival. A 1980 report by Alberta Fish and Wildlife recognized the need for a ban on hunting caribou, but also stressed the importance of protecting critical areas such as wintering and breeding grounds, calving sites and essential travel corridors. The report stated:

"Further habitat alienation resulting from indiscriminate land development will exacerbate an already serious problem through loss of critical areas, range discontinuity, increased access, creation of barriers to movement, reductions in carrying capacity and disruption of normal patterns of social interaction and resource utilization. Although the hunting closure is urgently needed (and overdue) successful caribou management largely will be dependent on population and habitat studies, the subsequent development of a comprehensive management plan and implementation of guidelines for industrial and recreational activity in caribou range. **The technological and professional expertise is available. Therefore, all that is required is the resolve and inter-departmental commitment to solve the problem."** (my emphasis)

That resolve and commitment is still lacking 30 years later.

In 1984, the government ignored these recommendations and revised the land management strategy for the Eastern Slopes, allowing for expanded development. "Resource potentials and opportunities for development are identified with a view to assisting in the economic progress of Alberta. The policy is sufficiently flexible so that all future proposals for land use and development may be considered. No legitimate proposals will be categorically rejected."

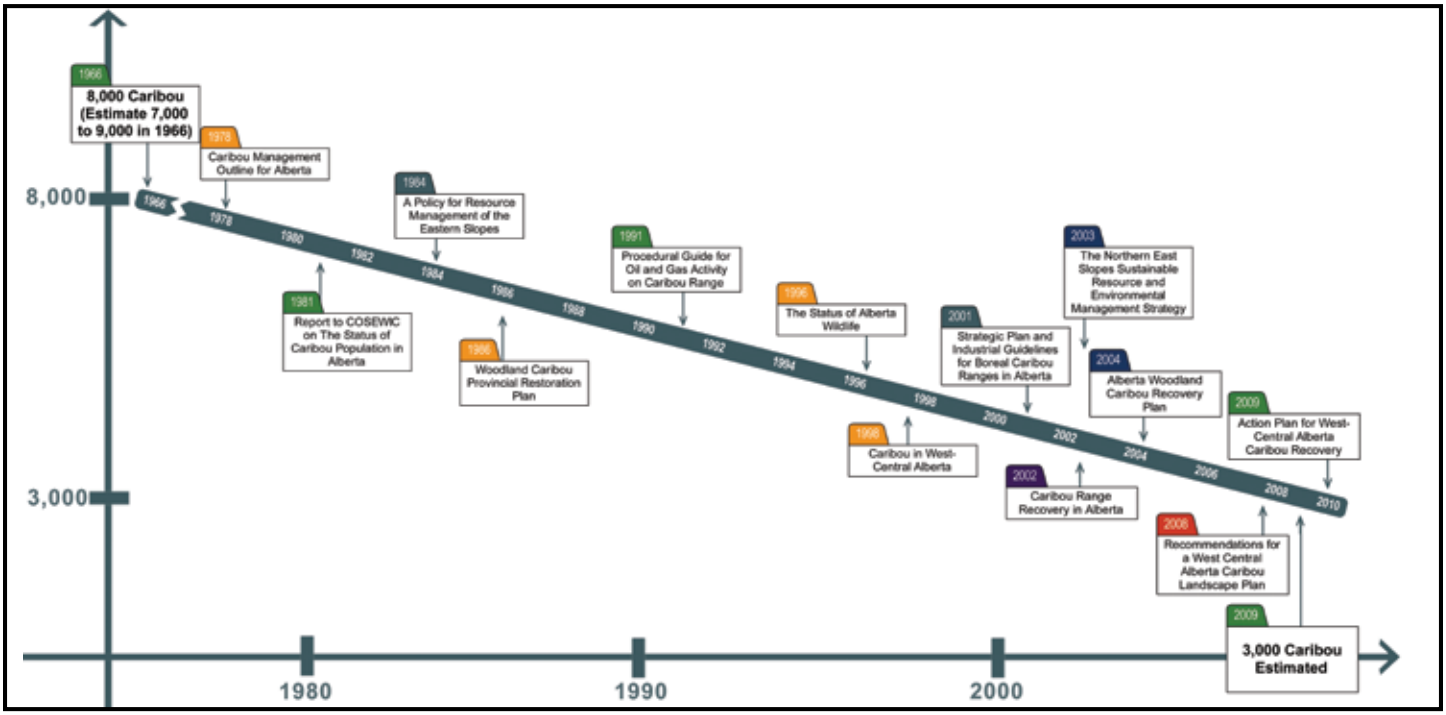
The Alberta government approved a *Woodland Caribou Provincial Restoration Plan* in 1986. It stated, in no uncertain terms, "Habitat protection is a key factor in maintaining viable caribou populations and is of primary importance for managing caribou in Alberta." Yet, three years later, the government granted logging rights to the Alberta Newsprint Company within the Little Smoky herd's range.

This strategy of research, followed by developing conservation strategies before

Alberta's remaining woodland caribou populations have yet to benefit significantly from research. PHOTO: R. BURGLIN

ignoring them altogether continued through the 1990s. The 1993 *Strategy for the Conservation of Woodland Caribou* specifically mentioned the logging industry as the biggest threat to caribou survival in Alberta. It stated:

"Of all impacts on woodland caribou, none are more severe than timber harvest...Logging removes old-growth forest, arboreal lichen food resources and terrestrial lichens are normally disturbed to a degree that requires a long



A steady slide to extirpation - must this be the future of Alberta's woodland caribou? © ALBERTA FOOTHILLS NETWORK

Calling All Treaty Eight First Nations

Few readers are likely to disagree with AWA and Lindsey Wallis that too little has been done to address the critical situation faced by Alberta's threatened woodland caribou. Last month a lifeline, in the form of a B.C. Supreme Court decision, may have been thrown to those caribou. On March 19th Justice Williamson released his judgment in a case brought against the B.C. government by the West Moberly First Nation. The West Moberly contended that the B.C. government had failed to fulfill its constitutional obligations with respect to consulting and accommodating First Nations.

The focus of the West Moberly's attention was the Burnt Pine caribou herd. This herd, reduced to just 11 members, faces extirpation in northeastern B.C. They argued that the government, by ignoring the cumulative effects of coal exploration and development and issuing exploration/development permits to First Coal Corporation, failed to respect the West Moberly's Treaty 8 right to hunt.

Justice Williamson agreed. He did not believe the consultation with and accommodation of aboriginal peoples met the "honour of the Crown." He concluded: "…a balancing of the treaty rights of Native peoples with the rights of the public generally, including the development of resources for the benefit of the community as a whole, is not achieved if caribou herds in the affected territories are extirpated." To satisfy the Crown's obligations he ordered the B.C. government to proceed with "the expeditious implementation of a reasonable, active plan for the protection and augmentation of the Burnt Pine herd." Expeditious here meant 90 days.

This decision, according to West Coast Environmental Law, is the first time aboriginal constitutional rights have been used to force the state to protect a threatened species.

Since Alberta already has a caribou recovery plan why might this decision matter to Alberta's caribou? The hope rests in the fact that the Court was prepared to assess, not just the adequacy of the consultation process, but also the actual adequacy of the accommodation offered by government to aboriginal peoples. In that respect the Court went further than just saying that the government needed to develop a recovery plan. It called for the implementation of an "active" plan. This may open the door to future litigation if the West Moberly First Nation is not satisfied that the details and implementation of the recovery plan satisfy the Crown's obligation to accommodate their members' aboriginal right to hunt.

Could Alberta's Treaty Eight First Nations use the precedent set by Justice Williamson's decision to challenge the way Alberta's caribou recovery plan has been implemented? It is an interesting possibility and we hope their leaders are considering that strategy. We also hope that the spectre of this type of litigation and the Pandora's box it might open will push Alberta to implement its caribou recovery plan in a more active and assertive fashion.

- Ian Urquhart, Editor

regeneration period. Openings created by logging receive greater amounts of snow and it is more likely to become hard when compared with closed-canopy forest. Hard snow reduces access by caribou to remaining terrestrial lichens and may enhance the terrain for predation by wolves. Logging creates new access to formerly inaccessible ranges. Logging removes calving and winter ranges. Logging interrupts migration routes and isolates small segments of caribou populations. Habitats are fragmented... **No approach has been demonstrated to be effective in maintaining caribou populations in association with timber harvest in the long term.**" (my emphasis)

Though years of research provide absolute clarity about the problems associated with allowing logging in caribou habitat, the government continues to approve projects, and today there are multiple companies logging within the range of the Little Smoky herd.

The 1996 *Alberta's Woodland Caribou Conservation Strategy*, although largely approved by government, was not implemented. Perhaps the main reason for this is that the strategy recommended: "No significant new clearing of coniferous forests beyond existing commitments should be considered until caribou habitat supply analyses are completed," a recommendation not in keeping with the government's "foot-off-the-brake" approach to industrial development and not backed by the Minister of Sustainable Resource Development. Subsequent ministers have been unable or unwilling to stop mineral sales, forest management agreement renewals and road building. This refusal to slow industrial development for conservation reasons has been seen by critics as a lack of commitment to the health of caribou in Alberta.

The 1996 strategy was the first to mention wolf culls, but only as a last resort. Today, wolf culls are the principal means for managing caribou in the Little Smoky area and, according to Walsh, logging companies are content with this strategy because it is cheaper than developing other, more meaningful methods of protection. More than 300 wolves have been killed to mitigate the effects of industry in the Little Smoky.

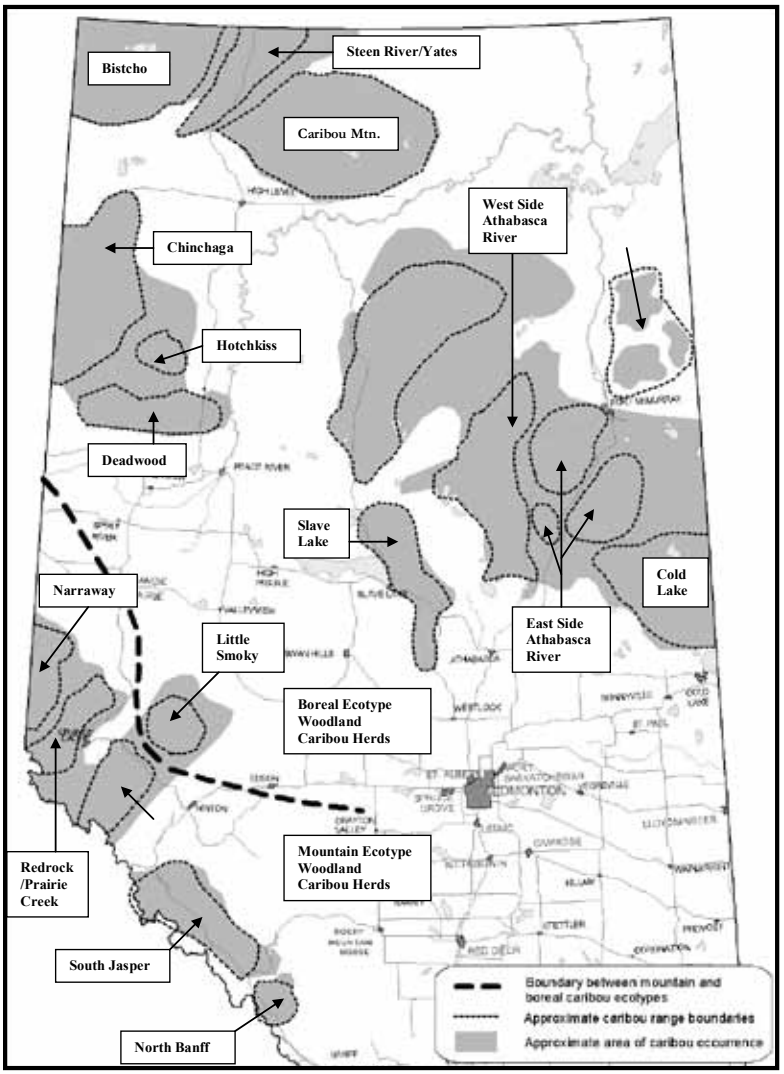
With caribou listed as threatened under the provincial *Wildlife Act* and by the federal *Committee on the Status of Endangered Wildlife in Canada*, the Alberta government was forced to develop a recovery strategy. That strategy was completed in 2005. But, despite the fact that almost three decades worth of research shows that industrial activity – especially logging – threatens caribou, the government chose not to approve the recommended moratorium on all resource development allocations in range areas of caribou populations at immediate risk of extirpation.

And, while research shows caribou prefer large, continuous tracts of old growth forest, Walsh says maps developed by industry scientists to identify critical habitat in the Little Smoky leave out a number of areas fitting this description. Though the government has admitted that the maps need "further refinements," a new, 20-year logging plan will be approved based on these incomplete maps.

Environmentalists are concerned that while maps are drawn and more research is being conducted it will still be "business as usual" in critical caribou habitat; government will allow more industrial development and further fragmenting of what little remains of the range of herds such as the Little Smoky. Walsh says the government is more than happy to continue doing research and studying caribou. Allocating money for caribou research improves its public image, without generating the political unpleasantness that would result from hampering industry and offering any meaningful protection.

For the 80 remaining members of the Little Smoky herd, 30 years of research means very little. Without immediate action to stop the habitat destruction and start recovering the ecosystem on which their survival depends they will literally become ghosts of the boreal.

Lindsey Wallis is a freelance writer based in Calgary.



Woodland Caribou ranges in Alberta. CREDIT: ALBERTA SUSTAINABLE RESOURCE DEVELOPMENT

Wolverines: Putting the Wild into Wilderness

By Nigel Douglas, AWA Conservation Specialist

"Picture a weasel … picture that scrap of demoniac fury, multiply that mite some fifty times, and you have the likeness of a Wolverine."

These evocative words were used in 1909 by Ernest Thompson Seton to describe the mysterious wolverine. It is one of our most formidable wildlife species, yet one which few of us have ever seen, and one about which surprisingly little is known.

Alberta's wolverines have a lot in common with their fellow wilderness denizens, grizzly bears, though they seem to get considerable less attention. Their provincial population is unknown but estimated to be somewhere around 1,000; their numbers are probably declining too. Like grizzlies wolverines are vulnerable to habitat disturbance and they are presumed to be experiencing population declines because of industrial access into their wilderness home.

Like most Albertans, I've never encountered a wolverine in the wild. Actually that's not quite true: I've encountered one, but I didn't notice it at the time. It was on Castle Mountain, between Banff and Lake Louise. We had stopped for lunch on the way up to the top and looked up at the ridge above to see another group of hikers waving at us. So we waved back in a cheerful sort of way. Later, when we got up to the ridge, we met up with them and they asked us excitedly: "Did you see the wolverine?" "Er…no," we replied. "It was stalking you from behind a rock. It was probably after your lunch."

The wolverine is clearly an elusive beast. The largest member of the weasel family, the wolverine has a beautiful thick, dark coat, which has made it the prize of trappers for centuries. It is defined in Alberta as a "fur-bearer." According to the website for the federal *Species at Risk Act* (SARA), wolverines are omnivorous; they consume "a wide variety of scavenged or fresh food items ranging from large ungulates such as moose, caribou, and mountain goats, to smaller animals such as beavers, porcupines, ground squirrels, and fish, to roots and berries." Douglas Chadwick, writing in *Patagonia* magazine in 2009, paints a slightly more colourful picture: "Wolverines sometimes force grizzlies away from a kill which, we can all agree, is a bad-ass thing to do when you weigh 25 to 35 pounds."

The Alberta Wolverine Working Group - www.albertawolverine.com - studied wolverines between Cadomin and Grande Cache, concentrating on the Willmore Wilderness. Wolverines are attracted to meat hanging in trees. Barbed wire on the tree trunk collects hair samples which later yield DNA information to identify individual animals. PHOTO: ALBERTA RESEARCH COUNCIL/ AITF

The SARA website notes: "The Wolverine has long held a place in folklore as a beast of great ferocity, cunning, and extraordinary strength. First Nations mythology describes the Wolverine as a trickster-hero, and a link to the spirit world."

Wolverines are usually solitary, so AWA director Vivian Pharis' surprise encounter with four individuals near the Bighorn Pass in the 1980s was highly unusual. "Two dogs, two humans and four wolverines stood in their tracks and stared," recalls Pharis. "Fortunately all involved were too surprised for any side to get aggressive. It was over in an instant and suddenly all involved made haste in directions away from that auspicious meeting place." Pharis speculates that, although all four seemed to be full sized, it may have been a mother and three grown pups."

Alberta's Wolverines

Surprisingly little is known about the status of wolverines in Alberta, or indeed, in Canada as a whole. In the 1800s, wolverines were thought to be widespread throughout Alberta. Using trapping records (of course), the 1997 *Status of the Wolverine in Alberta* report by S. Petersen, suggested that their range then extended north from a line between Cold Lake and Edson, and along the Eastern Slopes of the Rocky Mountains.

Provincially the wolverine, like the grizzly bear, is listed as "may be at risk". The *General Status of Alberta Wildlife 2005* report adds a major qualifier to this designation: "An uncertain provincial estimate of less than 1,000 has been proposed. Trends in distribution and population unknown, but populations may be declining." It goes on to add: "Human disturbance and associated habitat fragmentation may negatively affect this secretive animal." Interestingly, 1,000 individuals is the figure used by Alberta's Endangered Species Conservation Committee (ESCC) as the cut-off, below which a population should be considered for "threatened" status.

In 2008, the ESCC, tasked with providing recommendations for legal designation within the province, reiterated that the wolverine was a "data deficient" species. In their recent book, *Wolverines on the Edge of Alberta's Rockies*, Jason T. Fisher et al write: "There has never been a scientific study of population size, distribution, demographics or habitat relationships in the Province. If wolverines have declined in Alberta as suggested by historical data, the ecology of wolverines suggests a quick recovery may be unlikely."

Earlier work by Fisher done under the auspices of the Alberta Research Council and funded by the Alberta Conservation Association suggested "a very low density of wolverines" in the northern eastern slopes. Mark Boyce, in his 2004 assessment of wildlife research needs in Alberta, cites Kyle and Strobeck's 2001 work when commenting that "southern peripheral populations, e.g., in the southern Rocky Mountains, contain greater genetic structuring suggesting that they may require careful protection to avoid extirpation."

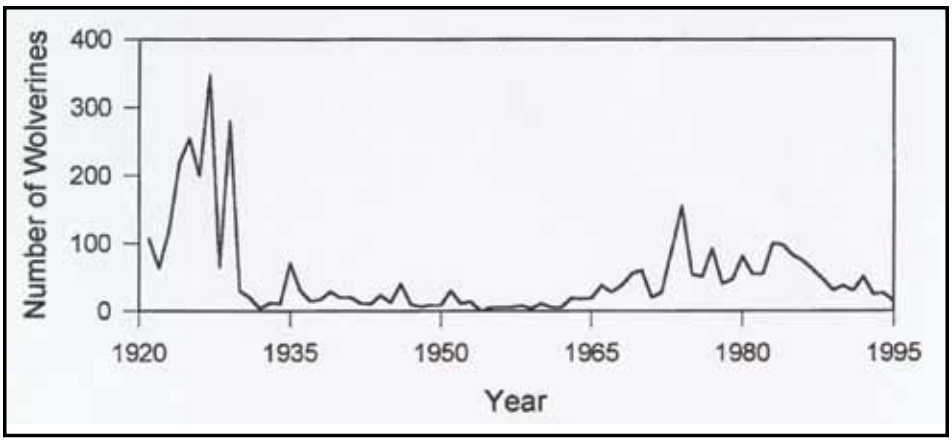
So given a species whose population is unknown, but believed to be less than 1,000 and probably declining, it might seem odd that wolverines are still trapped in Alberta. They are currently managed as a fur-bearing animal under Alberta's *Wildlife Act*, with a limited harvest of wolverines for pelts. What proportion of the province's wolverines are harvested each year is unknown.

A wolverine is attracted to a carcass left hanging on a tree. Individual wolverines can often be identified by the distinctive pale markings on their chest and throat. This female, named Xray, was singled out by researchers as "the most beautiful animal we photographed." PHOTO: ALBERTA RESEARCH COUNCIL/ AITF

Information about wolverines in Alberta's National Parks also seems thin. Parks Canada's *Wolverine Research Update 2004*, describing three years' worth of wolverine monitoring in Banff and Yoho National Parks, noted that "the presence of wolverine was confirmed, along with the fact that they occur at a low density in the study area." The study also related human use of trails to wolverine presence: "Human use of winter trails was generally high and predictable. It was highest on easily accessible trails, and increased on all trails over weekends. Above a certain threshold of trail users, wolverine presence was not detected. This suggests that one of the factors that influence their distribution and abundance may be human use on the landscape."

Wolverines in Canada

The federal SARA website makes it clear that "(t)he Wolverine needs vast



Wolverine harvest in Alberta, 1921 to 1995.
CREDIT: S. PETERSEN, *"Status of the Wolverine in Alberta."*

undisturbed areas to maintain viable populations because it has a low reproductive rate, low population density, and large home range."

Federally, wolverines are listed by The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a *"species of concern"* in Western Canada while the Eastern population is "endangered." The website for the federal *Species at Risk Act* cautions that "(t)he Wolverine occurs in such low numbers across most of its remote habitat, and is so mobile, that it is extremely difficult to study."

COSEWIC's 2003 assessment estimated a total Canadian population size exceeding 13,000 mature individuals. It noted though that: "Declines have been reported in Alberta and parts of British Columbia and Ontario." The COSEWIC report makes it very clear why there are concerns for the future of wolverines across Canada, and particularly in Alberta. "This species' habitat," concluded the report, "is increasingly fragmented by industrial activity, especially in the southern part of its range, and increased motorized access will increase harvest pressure and other disturbances. The species has a low reproductive rate and requires vast secure areas to maintain viable populations."

The language in COSEWIC's assessment of wolverines could just as easily apply to grizzly bears or woodland caribou. "The Wolverine's habitat, particularly in the southern part of its range, is subject to loss, degradation, and fragmentation from oil, gas, and mineral exploration and extraction, forestry, roads, agriculture, and urban development… Increased access of motorized vehicles into remote areas may also increase harvest pressure on the Wolverine and on its ungulate prey."

Even without habitat disturbance and harvesting, wolverines face an uncertain future. Matt Walker of the BBC describes a recent article from the journal *Population Ecology* that claimed that wolverine numbers are falling across North America. "Their decline," he reported, "has been linked to less snow settling as a result of climate change." Dr. Jedediah Brodie of the University of Montana and Professor Eric Post of Pennsylvania State University gathered data on snowpack levels across six provinces or territories of Canada:

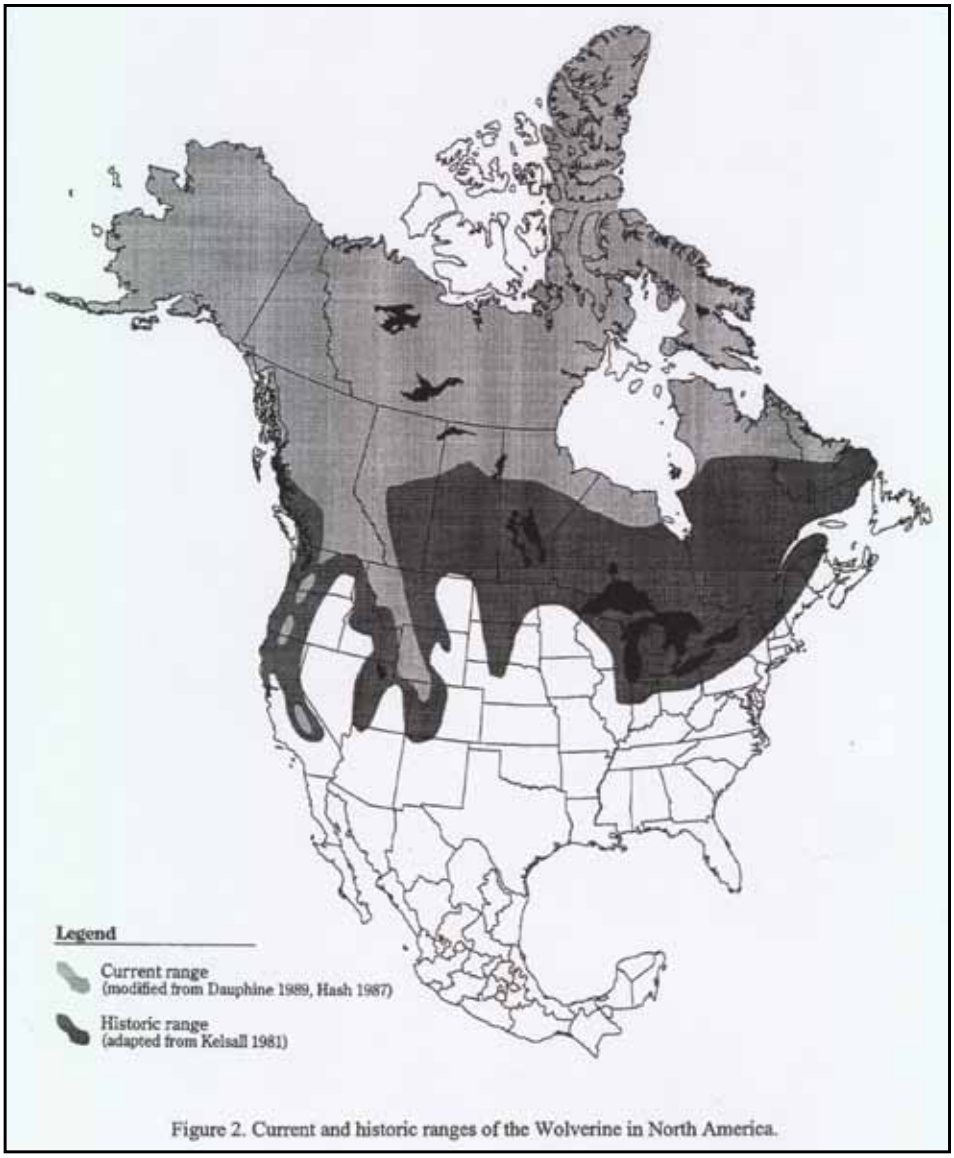


Figure 2. Current and historic ranges of the Wolverine in North America.

CREDIT: S. PETERSEN, *"Status of the Wolverine in Alberta."*

Alberta, British Columbia, Saskatchewan, Manitoba, the Northwest Territories, and the Yukon Territory. In all jurisdictions except the Yukon, they found that snowpack depth declined significantly between 1968 and 2004. When they then looked at records of wolverine numbers caught by fur trappers over the same period, they found a striking correlation between declining snowpack and falling numbers of wolverines. "In provinces where winter snowpack levels are declining fastest," they wrote, "wolverine populations tend to be declining most rapidly."

The mechanism for this relationship was unclear. The authors speculated that milder winters might mean less mortality of ungulates such as deer and moose and so provide less food for scavenging wolverines. Shallower snow pack might also mean less cover for rodents, another important food source for wolverines. Whatever the mechanism, they suggest that, as climate change worsens, we should reduce trapping levels and also disturbance to boreal forest habitats. "Reducing the impact of these anthropogenic stressors could help 'offset' the impacts of climate change on wolverines."

The last word goes to Douglas Chadwick, writing in *Patagonia*. "As the wolverine becomes better known at last, it adds a fierce emphasis to the message that every bear, wolf, lynx and every other major carnivore keeps giving: If the living systems we choose to protect aren't large and strong and interconnected, then we really aren't conserving them. Not for the long term. Not with some real teeth in the scenery. We're just talking about saving nature while we settle for something less wild."

Celebrating the Snakes of Alberta

By Jonathan Wright

Although my family's roots in Alberta date back to 1905 – the year Alberta joined Confederation – my Albertan citizenship began in 1992, when I arrived here in my 28th year. Being a herpetologist from birth (my very earliest memories involve chasing garter snakes), I began my field studies of Alberta's snakes almost immediately after I unpacked my bags. For the past 18 years I have assisted and been assisted to this end by both the Canadian Wildlife Service and Alberta Fish and Wildlife. But most of my studies have been done "on my own time." This article will outline some highlights and insights from what I have been able to glean from the nearly 20 years I have spent studying and celebrating this amazing life-form.

Alberta may only have seven snake species but the ones we have are spectacular. We are blessed with three separate species (not subspecies) of garter snake, a large rattlesnake, North America's largest constrictor, a fat little viper-in-waiting with the nose of a hog and a threatened species … more than enough to intrigue me for at least one lifetime!

Alberta's Garter Snakes

For some reason (unknown to me), I believe many types of snakes are at their most beautiful at the northern limit of their ranges. Certainly this can be said of our plains garter snake *(Thamnophis pulchrilatus)*. I have no idea why any reptile inhabiting such a sere and tawny place should glow like a multi-hued neon tube, but our plains garter snakes in many cases certainly do (they are often quite drab over the bulk of their range further south). In fact, I would rate certain examples of our plains garters to be among the most beautifully hued of all the world's serpents. Vivid orange vertebral stripes adorn a background of deepest velvet green-black, and there are yellows, paler greens, and turquoises in there, too. I am always awe-struck at the beauty of this snake in Alberta.

Prairie rattlesnake along the South Saskatchewan River. PHOTO: J. WRIGHT

The plains garter snake may turn up pretty much anywhere south of Cold Lake and east of the Rockies. The biggest, most vivid ones seem to occur on the grasslands proper, in my experience, rather than the parkland. In fact, while extremely abundant in the parkland areas south of Cold Lake, the ones I have seen from this region seem almost dwarfed, not just smaller than the ones further south, but proportionally less robust as well, with lighter skull structure.

I have encountered this snake on grain-belt lands of western Alberta in and outside of Calgary (where dens containing all three species of garters occur along some of the creeks), and just about everywhere else I have spent any time. I have even found a very large one killed on the road right in downtown Strathmore. I expect that the massive physical and chemical devastation of the prairie affected by industrial agriculture has taken a staggering toll of this reptile. Old timers speak of its abundance over our grain belt but, to find it in numbers today, you have to enter the parkland or head into the range country of southeast Alberta where there are still more than remnant natural conditions. There the waters and soils have not been quite so thoroughly drowned in farmers' poisons.

More than any of our other snake species, this is the one you may see on a gravel road – with any luck alive – in the middle-of-nowhere, far from any coulee or significant water source. They must be very tough, somehow holding on in very compromised habitats such as ditches surrounded by hostile monocultures and forced to hibernate in rodent holes in some cases. They are liberal in their diet, but more oriented towards cold-blooded prey than the catholic wandering garter

snake. I expect the demise of the northern leopard frog had an impact on this snake.

The wandering garter snake is doubtless our most abundant snake, at least on the plains, although it is more restricted in its habitat than the plains garter snake. It is more limited to coulee systems and drainages and their environs. They can be found within the City of Calgary where I have seen them regularly at Edworthy Park both right along the Bow and higher up on the tablelands of the park. They also may be found around Glenmore reservoir. More generally, they prefer the semi-deserts of the badlands and smaller coulees. Here they are sympatric with our other prairie snakes and they greatly outnumber the plains garter in most places where the two are found on the same patch of turf. I sometimes wonder if the wandering garter snake – a catholic feeder of cold-blooded prey to the point of being an ophidiophage (eater of other snakes) – out-competes the plains garter in such situations by eating them! Certainly I have never seen them in the middle-of-nowhere locales of our western grainlands occupied by the plains garter and it is rare to see a plains garter where wanderers are abundant. This is how these two sympatric garters seem to separate themselves according to niche - wide-open spaces for one and drainages, coulees and badlands for the other.

I expect that one of the reasons the wandering garter has persisted in far greater numbers than the plains garter in the south of the province is due, in part, to a diet that encompasses anything that moves and can be swallowed. I once located one through the open window of my truck when I heard a mammal squeaking. I stopped to investigate, and there on the verge was a wandering garter swallowing a meadow vole. They even will eat horned lizards! Their persistence also may be due to their liking for a habitat niche that has better escaped the plow.

The wandering garter snake is often very drab although certain individuals – especially the clean grey ones with reduced spotting and a warm cream coloured dorsal stripe – are very attractive. One day on the Lost River in the vicinity of Onefour I came upon one with such a bright yellow stripe that I was dumbfounded for a moment because I thought I had come across an eastern garter snake very far from home! It was nearly identical to certain eastern garters I have seen along Ontario's Welland Canal. I have never seen a single other snake of the wandering species so adorned.

Alberta's "Big Three"

I do not have much experience with the red-sided garter snake; it is the same species as the eastern garter and more a denizen of the north and northwest in Alberta. I can say the same about the eastern yellow-bellied racer; this threatened species occurs here only very marginally in the southeast border country. So I will use the space here to say a few words about Alberta's "Big Three."

Ironically, the first of the Big Three is rather small. It is in the Big Three by dint of looming large in herpetological legend, and by sheer personality. It is the plains hognose snake. I think of this snake as a "viper-in-waiting." It has the build, heavy scalation, and markings of a pit-viper, perhaps most notably the western massassauga with which it shares range farther south, and may mimic. Interestingly, some eastern hognose snakes in Ontario, especially young ones, look much like the eastern massassauga. (I did a double-take on one occasion!)

It is often said that only one of our six primary provincial snake species is venomous. In actuality, only one of these six (the bullsnake) is not venomous. The others, other than the prairie rattlesnake, are not dangerously venomous under normal circumstances. But some children who have held garter snakes for fifteen minutes or so eventually have been bitten and hospitalized with the symptoms of being envenomized from toxins in the garter's saliva. Children take note – do not give garter snakes such marathon opportunities to show you that their venom may harm you!

The plains hognose snake not only has toxic saliva (all snake venom is modified saliva); it also has fangs. These are located about halfway back in the upper jaw and are plainly visible when the mouth is open. This snake is closer than the garter snake, then, to becoming a dangerously venomous snake like the rattlesnake. Perhaps it will eventually develop the latter's relatively massive glands, glands holding copious quantities of toxin and retractable hypodermic fangs for delivery. Certainly I have friends who have been bitten by captive plains hognose snakes in a feeding response when they were held for less than fifteen seconds; they exhibited symptoms similar to *"a massassauga bite!"*

But this is about the only way you will ever be bitten by one of these snakes. A hognose will puff, bluff, spread a hood and hiss and then play dead in self-defence; it will virtually never bite humans knowingly. Its venom and fangs appear to be there to help subdue toads (the venom stuns them, the fangs pop the air out of them). This adaptation is undoubtedly how our dangerous snakes became so poisonous as well – not *primarily* for defence, but to better and more safely acquire food. Why are some snakes so deadly, then? Because it will not do them any good if their prey runs a mile after being bitten before it dies. It needs to drop nearby! The poison must be potent.

The plains hognose snake is common in Alberta on the wide-open rangeland east of Highway 884 (and no doubt somewhat west of it as well) and south of the Red Deer River. But it is cryptic - a troglodyte - and seldom seen. Other than toads, it eats rodents and is, along with the wandering garter snake (and the racer), another species with a taste for other snakes.

The bullsnake is truly reptilian big game, not just in Alberta, but continentally. It is the largest snake in Canada (larger on average than the black rat snake of Ontario) and some notable herpetologists say the largest in North America. One day I documented a male bullsnake in the Drumheller area that was likely a Canadian record. Carefully measured and weighed, it was 2.03 metres long and weighed 2.4 kilograms.

The Canadian bullsnake is similar in many respects to the U.S. pine snakes, as well as British Columbia's gopher snake, although herpetologists who lump the bullsnake with the gopher snake are wrong to do so – they are quite obviously not the same reptile, as anyone who has spent any time with both forms can readily discern. The bullsnake may be viewed perhaps best as an intermediate form between these snakes in the morphological sense and, not surprisingly then, in range too. Yet the bullsnake's distinctive skull, designed for burrowing, is identical to that of the eastern pine

Alberta hognose snake playing dead in the author's hand. PHOTO: J. WRIGHT

snake's, and quite different from that of our gopher snake which has a skull more typical of a generalist snake.

The bullsnake's potentially very large size is suggestive of its many talents. Thanks to an erectile filament of cartilage in front of the opening of the windpipe it has the loudest hiss of any snake. It can climb with skill to raid bird nests, swim broad rivers, dig its own burrows for egg laying as well as to hunt pocket gophers (very few snakes dig their own burrows). It may also lay up to a record of 26 hen-sized eggs in a clutch, as did a two-metre female briefly in my care, and survive in a place where, as you well know, the climate is less than welcoming to such a large reptile – or any reptile. Aside from that, they are beautiful, and some of our Alberta examples are again among the prettiest over a range that extends from the plains down into Mexico. They are common in Alberta, if you know where to look, but like the hognose are cryptic and spend much time underground. They are found west to Rosebud in the Calgary area and, like the wandering garter, require coulees and drainage systems to survive. Those habitats provide the microclimatic conditions necessary to incubate the eggs they lay in holes, self-dug or otherwise, on south-facing slopes.

So much has been written about the prairie rattlesnake – North America's most studied snake species – that I will keep it brief here although I have handled well over a thousand of them and observed them thoroughly. Again, like the bullsnake, the prairie rattlesnake is a quintessential plains species with a vast range, south into Texas and New Mexico. And, again, our Alberta examples eclipse their more southerly brethren not only in beauty, sometimes exhibiting a subdued yet velvet green-yellow overall seldom seen elsewhere, but also in size. Some of the snakes I have seen have dimensions more typical of average examples of the massive southern diamondbacks. This is, relatively speaking, a large rattlesnake species. They can be like reptilian wolverines in their range requirements, with one we tracked journeying over 24 linear kilometres out on to the plains from its den. It still made it back to the same hole in time to hibernate, for a round trip of more than 48 kilometres in one active season. In areas where they occur with the bullsnake, the bullsnake tends to focus on pocket gopher prey; the rattlesnake preys largely on deer mice and, to a lesser extent, voles. In this way they seem to avoid competition and often hibernate in the same dens.

Rattlesnakes are not out to get you. While they are excitable your biggest danger lies in stepping on one. Standing quietly near dens, I have allowed masses of them to crawl over my feet as they made their exodus. Unthreatened, they offered no threat. I would say "don't do this at home" but that would be ridiculous. Even *I* don't have a rattlesnake den at home! As for numbers, they appear to be diminishing. Certainly the oil and gas industry has devastated them in some areas, notably on and around the Suffield National Wildlife Area, where vast numbers were killed on the roads the snakes have no choice but to cross (slowly as is their way). Between 1996 and 2000 industrial convoys swarmed the area during critical migration periods at a rate of at least one truck every two minutes or so all day long, for weeks on end. I know this because I counted the trucks.

Carnage of this sort goes on, and some key dens that held over a thousand individuals in 2000 now hold just hundreds. But, there is good news. If you have ever seen how fragmented and degraded our best snake country in southern Ontario is you realize that western Canada, in comparison, still has very little to worry about snake habitat-wise. I expect we will always have significant, if dwindling, numbers of our snake species if only because Alberta contains a great deal of land that is too marginal to be turned into pasture or crops. I also would not be surprised if we witness dwindling numbers of our own species in Alberta from here on in. Despite our belief that many of our skyrocketing crises today are just temporary I think we may be witnessing the beginning of the acute phase of collapse that has been inevitable since the dawn of industrialization, a system best defined as being incompatible with life. We may be on the brink of an economic collapse, then, that will have no end and that will leave *Homo industrialis consumerensis* greatly diminished. This will only have positive repercussions for the rest of life on earth, snakes included. I think so, at any rate. But I'm an optimist.

But how then will snakes deal with climate-change? No one knows. I have noticed at the communal nesting sites that the bullsnakes at least may not be looking as healthy as they once did. They appear overly thin, and the nests do not seem to contain as many eggs as would be expected. Is this a climate-induced trend or a temporally isolated phenomenon of relative brevity? It is just too early to say.

Get out and enjoy Alberta, the snakes included. It is all so *impossibly* beautiful.

Jonathan Wright has held a lifelong fascination with natural history. He currently runs a draft-horse powered farm with his partner Andrea Thompson. They grow produce in season for Calgarians.

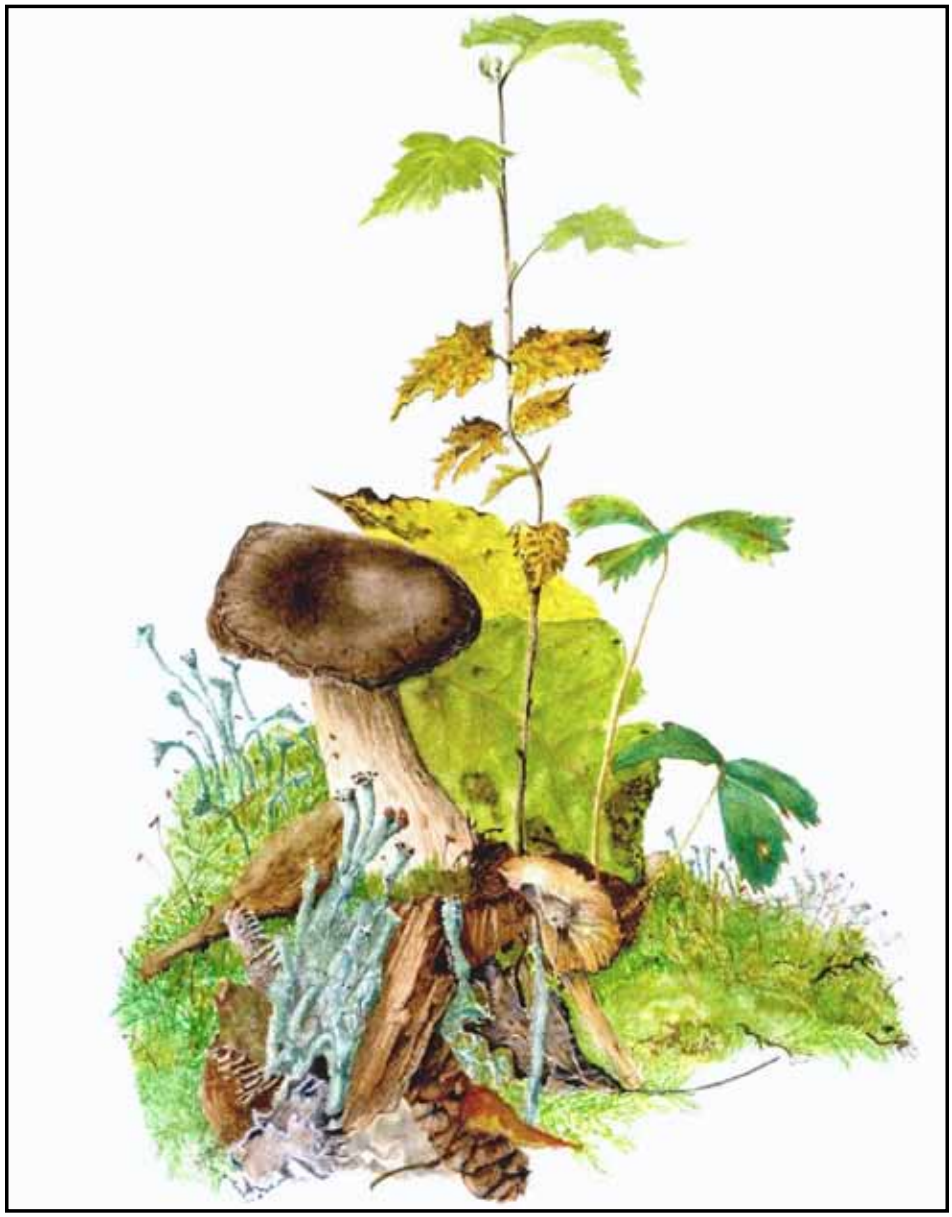
Endangered Species Under Alberta's Wildlife Act: Effective Legal Protection?

By Shaun Fluker

On March 23, 2010 Alberta's Endangered Species Conservation Committee renewed its 2002 recommendation that the Minister of Sustainable Resource Development designate the grizzly bear as a threatened species under the *Wildlife Act* (Alberta). The legal implications of such designation could be few or many under Alberta's legislative framework for endangered species. This article explores these implications in more detail.

My focus here is on provincial legislation. In my opinion, anyone who seeks effective legislative protection for endangered species in Alberta must advocate for provincial legislation. This is because wildlife and its habitat are by and large property of the provincial Crown and it is a general principle of constitutional law in Canada that the federal government cannot in substance legislate over provincial property under the guise of a regulatory scheme. This is why the habitat protection provisions contained in the *Species at Risk Act* (Canada) for listed species are generally limited in application to federal lands within a province (eg. national parks). So, while federal legislation is welcome, any meaningful attempt to protect an endangered species will impact provincial property and necessarily requires effective provincial legislation.

As most readers will know, Alberta's endangered species legislation is far from effective. The most glaring sign of trouble is perhaps this: the legal status of the grizzly bear as a threatened species has been under consideration by the Alberta government for eight years and yet, during this time, the government has issued a species recovery plan (*Alberta Grizzly Bear Recovery Plan 2008*) and an update (*Status of the Grizzly Bear in Alberta: Update 2010*). Why introduce a recovery plan for a species yet to be designated as threatened with extinction? And, if the grizzly bear is so threatened such that a recovery plan is necessary, what is left for the Minister of Sustainable Resource Development to consider before making the designation? That the provincial legal framework is silent on these questions is perplexing to say the least.



Mushrooms and Lichens with Birch Saplings, Watercolour, 28 x 37 cm © JOAN SHERMAN

Endangered species legislation in Canada (federal and provincial) is the result of Canada's ratification of the UN Convention on Biodiversity in 1992 and the subsequent Federal-Provincial Accord for the Protection of Species at Risk signed in 1996. Alberta's 1996 commitment to legislative protection for endangered species led to amendments in the *Wildlife Act*. Unlike the federal government and several other provinces,

however, Alberta has yet to enact stand-alone endangered species legislation but this is under consideration (*See Alberta's Strategy for the Management of Species at Risk 2009 – 2014*).

Endangered species legislation can be evaluated on the following components: listing categories, listing process, protection and recovery measures. What follows is an evaluation of the *Wildlife Act* in relation to these components.

Listing categories

The *Wildlife Act* provides no substantive definition of an endangered species other than stating in section 1(1) that an endangered species is that "prescribed as such" in schedule 6 to the *Wildlife Regulation* (Alberta). More troubling is the absence of any reference to the designation of threatened species in the *Wildlife Act*. The legislation purports to affix the designation of threatened to a species by virtue of a footnote to schedule 6 in the *Wildlife Regulation* which states in reference to listed endangered animals: "These organisms are further categorized as "threatened" by the Department."

The only legal designation applicable to protecting a species in Alberta is that of 'endangered', since that is the only category mentioned and defined in the *Wildlife Act*. I don't quite know what to make of the footnote designation that 'endangered' also means 'threatened', except to say that they are perhaps legal equivalents if the latter has any legal status at all. Yet government policy defines them as distinct categories: (1) An endangered species is one facing imminent extirpation or extinction; (2) A threatened species is one likely to become endangered if limiting factors are not reversed. (*See Alberta's Strategy for the Management of Species at Risk 2009 – 2014*) So while government policy dictates that a species cannot be both 'endangered' and 'threatened', for the purposes of the *Wildlife Act* the two designations are arguably equivalent. The policy is, of course, simply guidance for the Minister and is of no legal consequence in making an endangered (or threatened) designation under the *Wildlife Act*.

With the absence of any legal rules pertaining to what constitutes an endangered (or threatened) species in Alberta, an endangered species is, for all intent and purposes, that which the Minister prescribes as such.

Listing Process

Section 6(1) of the *Wildlife Act* requires the Minister to establish and maintain an Endangered Species Conservation Committee (ESCC) which functions as an advisory body and makes recommendations to the Minister on matters pertaining to endangered species, including: (1) which species should be listed as endangered; and (2) the preparation and implementation of recovery plans for endangered species. Section 6(2) requires the ESCC to appoint a subcommittee of scientists to assess the status of species and report to the committee as a whole on whether the species should be listed as endangered.

Apart from these legal requirements, the composition and functioning of the ESCC is wholly within the discretion of the Minister or the committee itself. Why might this be of concern from a species protection perspective? First, there is no legal requirement that members of the ESCC have any qualifications related to species conservation. While in practice ESCC members may be so qualified, there is no legal process by which to ensure this. Current members of ESCC include representatives from groups not commonly thought of as experts in protecting endangered species such as: Alberta Association of Municipal Districts and Counties, Alberta Beef Producers, Alberta Irrigation Projects Association, Alberta Energy, Canadian Association of Petroleum Producers and Western Stock Growers Association. Second, there is no legal process to direct how and on what basis the ESCC decides to assess the status of a species in Alberta. There is no legal process to enable a concerned citizen to petition for an assessment of whether a species is at risk.

Trees of the Boreal Forest, Graphite, 28 x 36 cm © JOAN SHERMAN

Perhaps most troubling with respect to the functioning of the ESCC is that its recommendations can remain under consideration by the Minister indefinitely. While section 6 of the *Wildlife Act* empowers the ESCC to make an endangered listing recommendation to the Minister there is no corresponding legislative obligation on the part of the Minister to even respond to the recommendation, let alone agree or disagree with it. In other words, ESCC recommendations on their own likely have no legal effect.

Protection and Recovery Measures

The legal effect of an endangered species listing under the *Wildlife Act* is twofold: (1) It is an offence pursuant to section 36(1) to "wilfully molest, disturb, or destroy a house, nest or den" of an individual listed as an endangered species; and (2) penalties for certain offences are elevated when committed in respect of an endangered species. A listing under the *Wildlife Act* however creates no legal obligations in relation to measures more commonly associated with protecting endangered species, such as recovery strategies and critical habitat protection.

There is no legal obligation on the Minister under the *Wildlife Act* to prepare or implement a recovery plan for a listed endangered species. Nor is there any legal requirement as to what a recovery plan must include if such a plan is prepared by the Minister. Section 6(3) of the *Wildlife Act* states that a recovery plan may include the identification of critical habitat but the legislation does not require it. Given the absence of legal obligations here it is surprising to read what *Alberta's Strategy* for the *Management of Species at Risk 2009 – 2014* has to say in this regard (at page 9):

A recovery plan must be produced for *Endangered* and *Threatened* species. A recovery plan contains three elements:

1. A summary of current biological status of the species and an evaluation of the factors which have contributed to its decline.

2. A strategy indicating recovery goals and the strategies necessary to mitigate limiting factors and maintain or recover populations.

3. An action plan that lists the specific activities (including costs, schedules, and participating agencies) that will be completed to achieve the goals of the recovery program.

The obligation to produce a recovery plan with action items is at most an internal directive based on permissive authority; there is no legal obligation in the sense that a judicial review application could be filed to require the preparation and implementation of a recovery plan under the *Wildlife Act*.

The absence of any legal requirements with respect to critical habitat protection for endangered species is likely the reason why the Grizzly Bear Recovery Team limited its recommendations to identifying and designating "Grizzly Bear Priority Areas" wherein significant constraints on human land-use would be implemented to reduce human-caused bear mortalities (identified as the primary culprit adversely impacting the grizzly population in Alberta). Without any legal requirements to make such critical habitat designations (assuming that is what was intended by a 'priority area'), it is of no surprise that the 2010 status update reports little progress towards the implementation of any human access restrictions in the habitat areas identified by Alberta Sustainable Resource Development.

In short, the *Wildlife Act* neither precludes effective legal protection for endangered species nor requires effective legal protection. The legislation sets a minimalist process for identifying endangered species and developing strategies for their recovery but stipulates very few obligations in this regard such that most of the Alberta endangered species regime is governed by policy. It is not the case that effective legal protection for endangered species under the *Wildlife Act* isn't possible – and, indeed, a casual read of species at risk policies on the Alberta Sustainable Resource Development website suggests that effective protection isn't just possible but is in fact taking place. However, the absence of legal rules governing endangered species under the *Wildlife Act* means there is little transparency, no predictability, and no accountability in government decisions pertaining to protecting endangered species in Alberta. So while effective legal protection might be possible, it isn't very likely either. The grizzly bear is case in point.

Shaun Fluker is an Assistant Professor in the Faculty of Law at the University of Calgary. His teaching and research interests include environmental law and natural resources regulation. His recent work has examined the principle of ecological integrity and its application in provincial energy and federal parks legislation.

Livestock Grazing in the Castle's Front Range Canyons

By Reg Ernst

The following article is from a report sent by botanist Reg Ernst to government Land Management staff in November 2009. It discusses some of the implications of grazing on public land in the Castle region of southwest Alberta. He is still waiting for a reply from the government.

The Front Range canyons of the Castle are located in the sub-alpine and alpine sub-regions of the Rocky Mountain Natural Region. Because alpine and sub-alpine systems did not evolve under intensive, season-long grazing, they are particularly vulnerable to the damage caused by a disturbance against which they have little or no defence. Over many decades of cattle grazing, the plant communities along all of the grazed stream corridors and valley bottoms in the Castle area have been altered to a mix of non-native grasses, weeds and other invasive plants, and native forbs and shrubs. Some native grasses are still present but they are now just a minor component in the community. Relatively pristine native plant communities are still present in areas away from the stream corridors (i.e. slopes) where cattle are reluctant to venture.

My view of the problems associated with cattle grazing in the upper sub-alpine and alpine natural regions follows.

A loss of native grass species

Non-native plant species are detrimental to native plant communities because they displace desirable native species and result in a loss of wildlife habitat. For example, rough fescue *(Festuca campestris)*, the dominant native grass species on climax plant communities in the Front Range canyons, provides nutritious winter forage for a variety of wildlife including elk and bighorn sheep. Conversely, tame forage species make very poor winter forage because they have very low nutritional value after they die back in mid to late summer.

Watershed damage

Weeds have poor soil-binding properties compared to native species. These non-native intruders increase soil erosion which degrades the watershed and damages fish habitat. Most of southern Alberta depends on healthy mountain watersheds to provide water for both the urban and agricultural communities.

Weeds

Noxious and other weeds are particularly damaging to native plant communities because they have little nutritional value, they are invasive and readily displace valuable native species, and because their inferior soil-binding properties allow erosion to occur.

Unfortunately, most cattle grazing in the Front Range canyons takes place along the narrow linear stream corridors. Riparian areas receive a disproportionate amount of use by cattle, degrading the streamside environment and the local fishery. The bare soil generated by trampling, hoof puncturing, and from the proliferation of trails along the stream corridor and into the adjoining forested areas, allows weeds to invade and increases soil erosion.

Cattle spread weeds both by "producing" bare soil and by physically transporting weed seeds to uninfected areas. Inputs of nutrient rich manure in high elevation systems is another invasive factor that is detrimental to native plant communities and aquatic systems.

Rare plants

A large proportion of the rare plants in the Castle area, such as yellow monkey flower *(Mimulus guttatus)*, are found in the upper sub-alpine and alpine natural regions. Grazing threatens these species because it increases the density and distribution of competitive non-native plants and because of the physical damage caused by hoof trampling, particularly along riparian habitats where cattle have a tendency to congregate.

Cost/benefits of grazing in the upper sub-alpine and alpine

As outlined above, there are many external costs associated with grazing in vulnerable natural systems such as the Front Range canyons. A further cost is the degraded experience people have when they recreate in these areas. Slip sliding around in wet, smelly cow manure certainly may spoil a hiking experience. Losing biological diversity is another cost that I do not think government factors into whatever cost/benefit calculations they make about the value of cattle grazing in such regions. I think a comprehensive cost/benefit analysis would show that the costs of cattle grazing in sensitive ecosystems far outweigh the benefits.

Looking ahead

Notwithstanding my concerns, I don't think prohibiting livestock grazing in heavily impacted areas that have already undergone plant community changes would result in positive change. Sadly, it is likely those areas have crossed a threshold and have little likelihood of ever returning to the original climax plant community. All areas, however, should be managed to avoid causing further damage and to improve heavily impacted areas wherever possible.

Some grazing in the Castle area seems to be well managed while other areas are not; it probably has much to do with the attitude of the leaseholders. If leaseholders recognize that grazing on public lands is a privilege and not a right, I think we can work with them to try and mitigate some of the problems. Several years ago, we were able to resolve a problem with grazing in South Drywood canyon through cooperation with the leaseholder. Ideally, we can use that experience as a template to develop a suite of "best" ("least damaging" may be a better phrase) practices to affect positive changes in Yarrow and Spionkop canyons.

Recommendations to Provincial Land Managers

1. When calculating stocking rates, include only the area actually utilized

Volunteers pulling invasive weeds in the Front Range canyons of the Castle. PHOTO: E. KNOX

by the cattle. Including areas that cattle won't use (i.e. slopes and other areas away from the riparian corridor) inflates the number of Animal Unit Months (AUMs) available and leads to overgrazing in the areas they actually use.

2. Implement a long-term weed control plan. If weed control on any given area is treated as a one-time event, it may exacerbate the problem. Research has shown that one-time treatments of infestations can increase weed density because the disturbance caused by hand pulling and applying herbicide favoured the weedy species. If, instead, control is applied annually over several seasons it can eliminate the target weed species.

3. Review the grazing situation along the riparian corridor in Yarrow Canyon. The existing bare soil produced from cattle trampling along the stream corridor and from the extensive trail system into the forested areas will inevitably lead to an increase in weeds and non-native plants. A review of season of use, class of livestock, or stocking rates may reveal how management of the area can be improved.

4. Fence off the upper portions of Spionkop Canyon and Yarrow Canyon to exclude cattle permanently from entering the upper sub-alpine and alpine areas in these canyons. Review other areas in the Castle to assess whether grazing is occurring in sensitive high elevation systems.

Summary

Over the past several decades, disturbance caused by human activities including livestock grazing has allowed non-native and weedy species to become established in the Front Range canyons. Currently, these species are restricted mainly to the areas below the upper limit of cattle use. Appropriate stocking rates may help to limit further damage to this system but cattle must be excluded from the upper sub-alpine in order to protect those sensitive systems from undesirable changes. The current management goals for livestock grazing in the Castle should be to protect watersheds, conserve wildlife habitat, improve heavily impacted areas wherever possible, and protect high elevation sensitive systems from grazing.

Reg Ernst is a botanist who lives in Lethbridge. He plays an active role in acquainting AWA members with the wonders of the Castle area. He is reputed to be the person you will recognize as the one carrying Moss's Flora of Alberta *under his arm.*

2010 Update on Skoki

By Colleen Campbell

Now 22 years old, Skoki has been at the Calgary Zoo for 14 years. There his life has followed a very different course than it would have had he remained in the wild. In his home territory he would have lived quite a solitary life. He only would have sought out other grizzlies for breeding. He would have spent most of his life avoiding humans, foraging and sleeping alone in a den every winter. *If* still alive in the wild, he would be several years past his prime.

In contrast to a wild life, Skoki has lived socially and well with other grizzly bears in the same enclosure. He was introduced to Louise and Kutzeymateen soon after his arrival at the Calgary Zoo in 1996. By then, Louise, 20 years old, was a long-term resident at the zoo. She had previously been in the company of Curly and Florence, two older grizzly bears. One winter, Florence, from the Northwest Territories, moved into a den on the hillside of the grizzly enclosure and to everyone's surprise, emerged in the spring with a cub sired by Curly. That cub is Kutzeymateen. Curly and Florence both died before Skoki's arrival. Louise died in 2008.

For a short time another adult grizzly shared the enclosure with Louise, Skoki and Kutzy. In 2000 Nakiska an unmarked bear from the eastern slopes south of Canmore, was removed from her home range – habitat that had been dramatically degraded during her life because of residential, recreational and resort development. As an 18-year-old bear, Nakiska fared poorly with the dramatic change in her life and sadly she died during the summer of 2001.

The Calgary Zoo has housed all three North American bear species. Almost always, other bears may be seen in nearby enclosures. There are four resident black bears just across the hill from Skoki's enclosure. For a couple of years there were two orphaned polar bear cubs 'next door', waiting for a facility to be built for them in Quebec. Mistaya, the single surviving cub of Banff's well-known grizzly #66 was housed at the Calgary Zoo until a suitable home was found for him. The Calgary Zoo requested that Koda, a grizzly orphan from the Valley Zoo in Edmonton, join Mistaya for company. Cubs spend little time alone. Both orphans benefited from and seemed to love each other's company. They were kept together at the Calgary Zoo until an exhibit was built in Saskatoon.

Now they serve as ambassadors in Saskatchewan, representing a species that once roamed the prairies.

Skoki's keepers do their best to insure that his days are filled with variety. The bear habitats are changed regularly. Sometimes the bears are moved into different enclosures. Skoki is visited regularly and always he is a centre of attention for various groups enjoying and learning from the Zoo's programs about bears. Two keepers offer educational programs to visitors; one speaks with the participants, while the other is attentive to the bears. Some of

the special programs occur in the service area; it is a quiet and very special way to visit with the bears. The keepers provide enrichment for the bears at unpredictable times and occasionally visit for a little training session to encourage certain kinds of behaviour. Sometimes they simply stop by to sit, sip a cup of tea and visit with the bears — what we might regard as a social visit. Food is delivered in different ways to promote the natural curiosity and creativity that bears in the wild use to find food.

Skoki's health is good. He hovers around 400 kilograms and on occasion he is immobilized to have his teeth and general physical condition checked. Three fulltime zoo veterinarians supervise his care to insure that he does not have a tooth abscess or the tumours that the aged in any mammalian species are more likely to develop.

Each bear is as distinct as each human. Skoki accommodated to life in the zoo with the same ease that he accepted tourists on the Bow Valley Parkway. Ultimately his unique personality has rendered him a "star" in educational programming at the Calgary Zoo; Zoo staff and visitors alike love him.

Too often the norms of our society dictate that grizzly bears like Skoki should be removed from the wild. Unfortunately only a few Skokis can find homes in captivity. While arguably Skoki has had a relatively good life at the Calgary Zoo the fate of many other orphaned grizzlies and victimized bears is uncertain and darker. There are only 250 accredited zoos in North America and many fewer have suitable bear enclosures. The experience of Skoki underlines that we must treat grizzlies well; most importantly, we must be proactive and protect intact and connected wild habitat so that grizzly bears continue to survive in wild Alberta.

Nearly 1.5 million people visit the Calgary Zoo every year. Skoki is an influential ambassador for bears and other wild animals and a source of inspiration for humans. Skoki helps tell the story of why we need to protect wild habitat. With the attentive care he is given by his keepers, the Zoo veterinarians and other staff, Skoki may live to 40 years or more. May he live that long and may Alberta be blessed with more grizzlies in the wild then than we have now.

Colleen, Victoria-born, has lived in Canmore since 1982. In 1991 she expanded her enjoyment of the Rockies from climbing and skiing to start work as a wildlife researcher. The knowledge gained there informs her artwork and writing.

Skoki. PHOTO: C. CAMPBELL

AWA Financial Update

By Christyann Olson, AWA Executive Director

You may recall that in the December *Wild Lands Advocate* article about AWA's revenues and expenses two graphs were changed accidentally by our designers and misrepresented our financial situation. This note follows up on that article to focus once more on how much AWA depends on members and supporters for our success. We thought this update about how we are doing in these challenging economic times would be important to you.

Like all charities, we have heard from some of our faithful donors and supporters that things are tougher for them; some have had to discontinue monthly donations and others just cannot donate this year. None the less, many members and supporters have sent what their budgets allow, and our Fall Campaign, which ended in March, achieved donations of $149,390.58. I want to express sincere thanks on behalf of myself, AWA staff and the AWA Board to every contributor.

We are very optimistic that our Earth Day Event, the Climb and Run for Wilderness, will be successful in this, its 19th year. We have budgeted a net cash receipt of approximately $100,000. This, together with the donations from the Fall Campaign, will fund almost one half of our annual operating expenditure budget ($574,755). The balance will come from annual gifts, monthly donations, memorial and other celebration gifts along with bi-annual casino participation and various grant applications to foundations. All of these funds are critical for our work defending wilderness, the habitat and protected areas needed for species such as the iconic grizzly bear and healthy abundant water for all.

In setting our expenditure budget we remain very conscious that funding is limited and we run our operations on the leanest possible basis.

Longer term we want to try to make AWA less dependent on year-to-year donations and fundraising and be able to self-generate some of our funding. We believe this could come over time from bequests made by members and supporters. Amounts received would be invested so that the annual income would fund AWA's operations. Please consider including a legacy to AWA in your will. The paperwork is normally very simple and I can assist you with this if you wish.

If I can be of any assistance to you with more details or answers to questions, I would be pleased to hear from you.

Sincerely,

Christyann Olson,
Executive Director

Red-eyed Vireo Nest, Gouache, 22 x 29 cm © JOAN SHERMAN *Joan found this vireo nest bound with spider silk to a willow.*

Al-Pac's FSC Certification Should Not Be Renewed

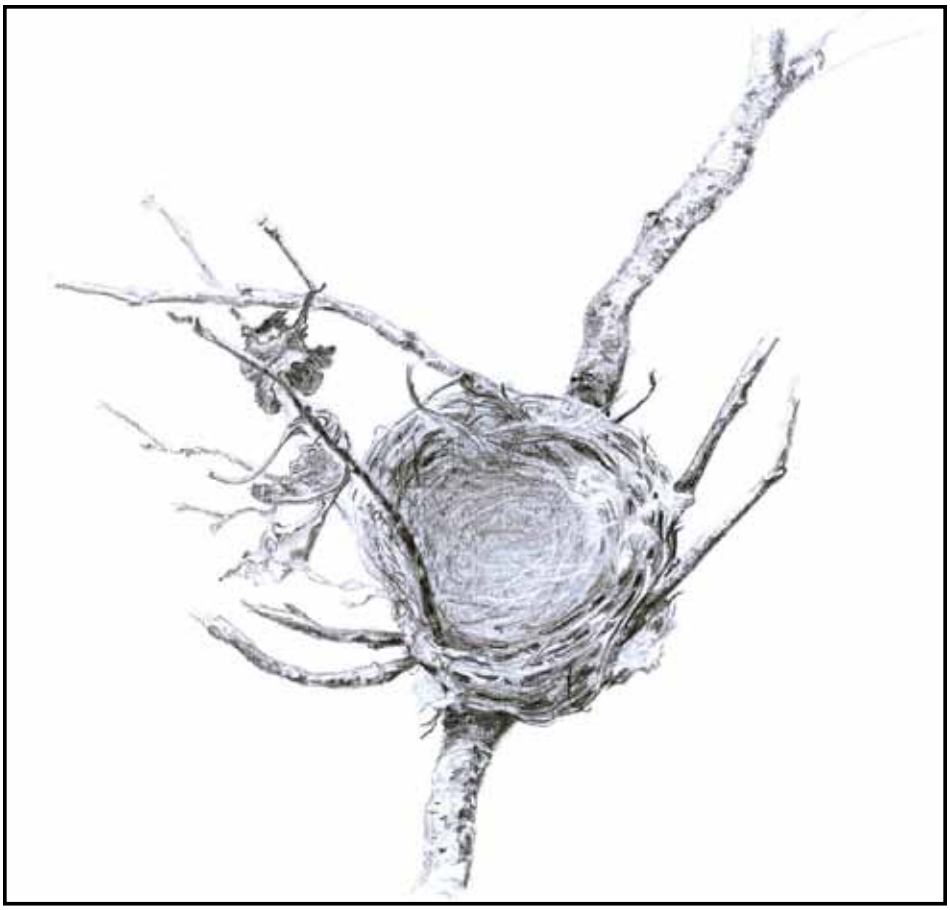
Five years ago, Alberta Pacific Forest Industries Inc. (Al-Pac) received Forest Stewardship Council (FSC) certification for 5.5 million hectares of its Forest Management Agreement area (FMA) in northern Alberta. This was the largest forested area in the world to be approved by FSC, the organization widely considered to have the best environmental criteria of any forestry standards/certification program. This February Alberta Wilderness Association, Canadian Parks and Wilderness Society Northern Alberta and Nature Alberta sent a joint letter to FSC certifiers and to Al-Pac opposing Al-Pac's FSC re-certification at the 5-year comprehensive review mark (AWA opposed what FSC approved in 2005 – certification of the entire Al-Pac FMA).

Our main objection is that insufficient action has been taken with respect to protected areas. FSC Principle 6.2 states "safeguards shall exist which protect rare, threatened and endangered species and their habitats … Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources." Despite declining populations of threatened woodland caribou in the Al-Pac FMA, there has been no move towards adoption of the Alberta Caribou Committee's Athabasca Landscape Team May 2009 recommendations for caribou protection and recovery.

In addition, FSC Principle 6.4 states: "Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps." Al-Pac is a member of the Canadian Boreal Leadership Council, which holds that at least 50 percent of Canada's boreal forest should be protected. However, particularly in the south of its FMA, Al-Pac has resisted designating sufficient representative forest for protection. Even in areas it has deferred from logging for the purposes of long-term protection, it has not pursued significant opportunities to secure legislated protection. For example, rather than advocate for permanent protected areas in the regional municipality of Wood Buffalo, where much of Al-Pac's FMA is located, in May 2008 Al-Pac went on record as opposing "a very large (20 to 40%) protected area" that a multi-stakeholder group of which it was a member had recommended. Al-Pac was also not interested in working with environmental groups on a joint map for recommended protected areas for the Lower Athabasca regional planning process. AWA will continue to follow the FSC process and insist on meaningful action on caribou habitat and other representative forest protection.

AWA takes no pleasure in seeing our earlier suspicions about the merit of the original certification confirmed by the lack of action over the past five years. We are pleased to see other environmental organizations join us in questioning the merits of the "green" label Al-Pac enjoys courtesy of the FSC.

- *Carolyn Campbell*



Least Flycatcher Nest, Graphite, 22 x 24 cm © JOAN SHERMAN

Athabasca River at Risk in Winter

Despite good progress by a multi-stakeholder group in understanding issues around Athabasca River water withdrawals, AWA is concerned there will still not be genuinely protective water rules for low winter flows. AWA believes oilsands mine river withdrawals must cease during low winter flows.

AWA was a member of the recently-concluded Lower Athabasca water management committee. The committee's mandate was to recommend long-term or 'Phase 2' rules to Alberta Environment and Fisheries and Oceans Canada for river water withdrawals by oilsands mines.

Flowing north of Fort McMurray, the

Lower Athabasca River provides habitat for 31 species of fish – half the total fish species found in Alberta – and flows into the Athabasca Delta, an internationally significant wetlands area for migratory birds. Due to tar sands development, the river is already suffering from ongoing loss of tributary streams used for fish spawning and rearing habitat. In addition, the destruction or fragmentation of surrounding landscape disrupts water flows; cumulative toxic air emission deposits, spills and tailings ponds leakage degrade water quality. Indeed, these other effects are likely far more harmful environmentally today than the water withdrawals issue the committee's work was confined to. Nonetheless, water withdrawals are still a concern, especially given that our knowledge of aquatic ecosystems in winter ice-covered conditions is still very limited and that climate-change affected river flows may be substantially lower over the mines' duration.

There are four main points to emphasize from this committee's work. First, and contrary to some media reports, there was no consensus reached on a specific set of water withdrawal rules. While there was agreement on the principle of an Ecological Base Flow (i.e., when river flows fall below a certain threshold, withdrawals should cease), there was disagreement over its exact point of implementation and priority over existing water license rights. AWA and other environmental organizations believed that a suitable rare low flow level for full withdrawal cut-off was on the table and argued that regulators have legal powers now to achieve this. Others disagreed.

Second, the process had some serious limitations that impeded its effectiveness. There was little aboriginal participation. As well, there was an overly narrow analysis of exactly how river water demand should be reduced if, as expected, rules require industry to reduce water withdrawals during sensitive seasons. Only off-stream storage ponds were modeled and costed as solutions. AWA pressed for 'deferred production' and 'water conservation measures such as dry tailings' as preferable measures to be analysed and costed – but they were not.

Third, despite the lack of consensus on specific rules and process limitations, in AWA's view many aspects of the process were good, and should be applied to instream flow needs assessment of other Alberta rivers. There was a deadline for the committee driven by a regulatory backstop date. There was transparency in costing the off-stream storage options. An important precedent was to evaluate how various proposed regulations perform under a range of climate change-affected river flow rates. Significant new field research was conducted and the expertise of many fishery biologists was called upon to improve knowledge of how winter flow levels affect fish species.

Fourth, important research and monitoring gaps remain and need to be filled. There were consensus recommendations on the need for transparent, peer reviewed monitoring and research, and the importance of stable funding to improve our understanding of this ecosystem.

Alberta Environment and Fisheries and Oceans Canada have started First Nations consultation on the Phase 2 committee report, and will shortly announce general public consultation opportunities. After receiving comments on the committee report, the regulators will release draft regulations which also be subject to public feedback. Then regulations would be implemented for January 2011. AWA will inform members when exact consultation details are announced.

- *Carolyn Campbell*

Nature Needs Water

At the Southeast Alberta Watershed Alliance's recent conference in Medicine Hat (March 11-12), keynote speaker Bob Sandford of the United Nations Water for Life Decade spoke eloquently on Alberta water management and allocation issues. Alberta Environment Minister Rob Renner was in the audience and his presentation the next day also reflected these themes.

According to Sandford, while we don't have a water crisis yet in Alberta, we have all the makings of one. When droughts come, we should be able to act, without problems of our own making that we could and should have avoided. Sandford stressed that we must ensure we provide enough water to 'nature' to sustain planetary life support. Healthy ecosystems make water available to us. In particular, wetlands have a vital role to play in water provisioning and in biodiversity. 'Nature' cannot be where we send water only after we have taken what we want.

Needles and Cones Jack Pine (Pinus banksiana)*, Graphite and Watercolour, 18 x 29 cm* © JOAN SHERMAN

Sandford outlined key aspects of improved water research and management, including reforming the 'First in time, First in right' (FITFIR) allocation system, integrating energy and water use policies, and taking climate change seriously. Looking at other jurisdictions, Sandford credited market forces with positive effects of discouraging water waste and assigning water to higher value economic uses. But nowhere have markets been able to restore enough water to nature for life support – and Alberta lacks policies to stop chipping away at those services of nature that markets fail to appreciate. We need to manage land uses to generate as much water as possible. We must enlist the help of the agricultural community in particular so that we don't deprive nature of the water it needs; this should include urbanites paying producers to manage for clean water provision. If Alberta can integrate nature, urban, industrial and agricultural water use to support ecosystems and our society together, everything we need to do to address water challenges, including those from climate change, will fall into place.

Alberta Environment Minister Rob Renner noted that the Land Use Framework will shift Alberta Environment's work to a cumulative effects focus rather than dealing with development effects in isolation. Renner said that regional "protective" thresholds would be established – not just for water, but also for air, land and "above all, biodiversity." Renner stated that the upcoming review of water allocation will ensure that water sharing doesn't just include water users but nature itself. He stated that some priorities have to be in place before "fine tuning" the water allocation system, including protecting water for healthy aquatic ecosystems. Later this summer, he expects to proceed with public engagement. AWA will advise its members when this occurs and encourage you to advocate for making nature, not senior water diversion licenses, the top priority when it comes to water use.

- Carolyn Campbell

No More Grizzlies Campaign: Let Satire Be My Song

"Fools are my theme, let satire be my song." Lord Byron

As Meatball, the *Wild Lands Advocate's* exceptional new correspondent, reported in February's *WLA*, AWA's spoof *No More Grizzlies* campaign hit the road running in March 2010. March 20th saw a *No More Grizzlies* rally in Edmonton, complete with 35 enthusiastic anti-grizzly "protesters" waving placards and yelling slogans.

Media folks seem quite taken by the innovative quality and spirit of the 'campaign': "This is one of the wittiest campaigns I've seen come out of Alberta's non-governmental sector, and certainly the funniest," blogged the *Calgary Herald's* Kelly Cryderman. "It is likely to make you chuckle whatever your position on the issue of grizzly bears." *The Edmonton Journal's* Capital Notebook blog described the website as "the most fun part of my day so far." *No More Grizzlies* made the news from Vancouver to Montreal to Idaho.

AWA's *No More Grizzlies* campaign is animated by a growing realization that, when it comes to grizzlies, the Alberta government is not listening. It is deaf to its own scientists who have been making it amply clear for years that the province's grizzlies are in trouble, and deaf to Albertans who want the province to stop dithering and start moving to recover our great bears before it is too late. When the government is tuning out the opinions of voters, and pro-grizzly voices are just treated as so much background noise, we have to look at other approaches. Thus *No More Grizzlies* was born!

AWA and other environmental groups have been running a concerted coordinated campaign around grizzly bears for years and *No More Grizzlies* is the latest part of AWA's contribution to that campaign. Two recent developments show that some progress is being made. On March 11th the Government of Alberta announced that the spring grizzly hunt would not be going ahead in 2010 and, a week later, the province's Endangered Species Conservation Committee recommended once again that grizzlies should be designated a threatened species (the same recommendation was made in 2002 only to be ignored). These may be positive steps along the path to recovering Alberta's grizzlies but there remains a long way to go if grizzlies themselves are going to feel the benefits.

The need to protect more grizzly habitat was underlined by the March 2010 release of a new government report, *Status of the Grizzly Bear*. Written by Marco Festa-Bianchett, the report synthesized current knowledge about grizzlies, including their population numbers, habitat needs, and mortality rates. The report gave a long-awaited official grizzly population estimate: 691 bears in Alberta, of which 359 are "mature individuals capable of reproducing." The report underlined much of what we already knew. Grizzlies are struggling throughout most of Alberta: "A large area of grizzly habitat, particularly south of Highway 16, currently appears to be a population sink." But the good news is that we know what the problem is and we know how to fix it: "To reduce mortality, motorized access to bear habitat must be minimized and human activities that lead to conflicts with bears must be mitigated."

So, the scientists are clear about what needs to be done and, according to a recent *Calgary Herald* online poll, Albertans are right behind them. In response to the question, "With a population count of 691, should grizzly bears be designated a threatened species in Alberta?" a resounding 81 per cent of respondents said "yes." Now all we need is for the politicians to catch up and join the parade.

- Nigel Douglas

Eastern Phoebe Nest, Coloured Pencil, 18 x 23 cm © JOAN SHERMAN

Letters to the Editor

Dear Reader:

Over the past several months Vivian Pharis and I have corresponded on several occasions about one of the issues she feels passionately about. That issue is what Vivian calls uncontrolled growth – with respect to both population and consumption. Vivian has had the opportunity to read *Growing Pains: A Planet in Distress* by Valorie M. Allen. Her review of the book follows this note.

Growing Pains is a self-published book on the subject of population growth available through Chapters, Amazon and other booksellers. Because this book is self-published I have decided that Vivian's views are best presented here, as a letter to the editor, rather than in the Reader's Corner section of the Advocate. Its inclusion here in no way should be construed as my judgment on the book's merits (since I have not read it I am in no position to comment); the publisher (iUniverse) has given *Growing Pains* its editor's choice designation, a designation reserved for its high-quality titles.

- Ian Urquhart

Valorie M. Allen, Growing Pains: A Planet in Distress, (iUniverse: 2010).

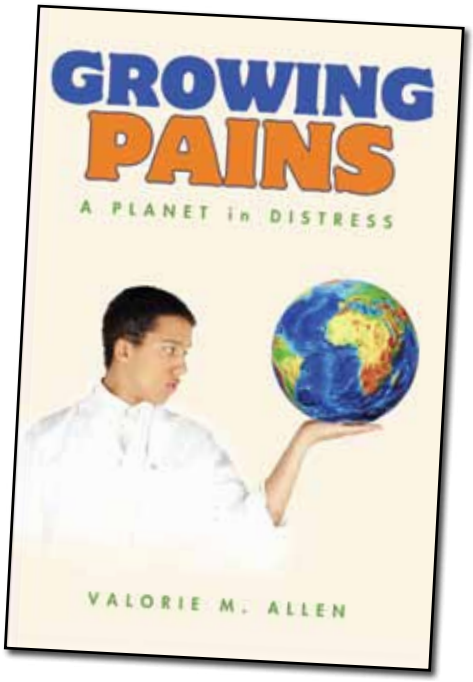
Reviewed by Vivian Pharis

Some books are known to change people's lives. Rachael Carson's *Silent Spring* was one such book that changed many. Now, out of southwest Alberta comes a book by Val Allen that could and should be another life changer. *Growing Pains* is an extremely timely compendium of logical, reasonable thoughts made by those who have clearly considered where the human obsession with growth has come from and where it is pushing us to go. Her work is designed to galvanize people's actions on what I believe is clearly the single most critical issue facing humankind, and the one underlying and under scoring most of the world's intractable problems – that being too many of us demanding too much from our small planet. Anticipating a new global movement, *Growing Pains* points to possible, rational routes through the morass of growth that can lead the world to a stable future, but time is critical. Val's book is not a doom and gloomer; rather, it's an eye opener, and a very readable and compelling one too.

Through her book, Val delves into each of the major issues confronting global stability, including poverty, endless wars, brinksmanship and fear, climate change, failure of our economic model, failure of feminism, man's inhumanity to man, and the loss of biodiversity, fresh water and wilderness. She relates how each is being driven by uncontrolled growth, particularly of our own numbers and of our insatiable appetite for resources. While many of us realize we cannot continue to ride this escalator where we now seem trapped on always needing more, most of us have no idea how to get off. Val knows though and her ideas for change, gleaned from extensive research into the ramifications of growth, are logical, understandable and doable. *Growing Pains* is a book of fact, explanation, hope and practicality.

She builds a compelling argument that entreats people to divert attention and efforts in a gargantuan way towards the most fundamentally vital of causes – the reduction of population and consumption. As you read *Growing Pains* the realization sets in that the long and good fights by environmentalists, anti-poverty groups, world aid groups, and so on, are all for naught as every gain is soon overwhelmed by pressures from more growth. If population and consumption levels could fall towards sustainability, almost all of the other major world problems would diminish correspondingly. Only recently the Optimal Population Society of Britain made the point that the most efficient and cost effective way to stem climate change is to increase contraception. In the words of Sir David Attenborough, "Instead of controlling the environment for the benefit of the population, maybe we should control the population to ensure the survival of the environment."

Growing Pains is full of apt quotations, but none better sums the crux of what Val Allen has achieved through the distilling of many thoughts on a matter so convoluted, controversial and crucial as growth, than Victor Hugo's "Nothing is as powerful as an idea whose time has come."



What Val Allen has done is expose the myths and explode the taboos about our own devastating fecundity and bring logic and reason into play to counter them. She shows it is possible to take hold of the population juggernaut and wrestle it into reasonable order. Yes we can! This idea has legs that will carry it around the world! Yes, it must!

Fred Schroeder: A jack-of-all trades, master of more than one

By Norma Ruecker

Born in Calgary, Fred Schroeder grew up on 17th Ave, just opposite the Stampede grounds. He joined the CPR as a car-man in 1952. When asked "What does a car-man do?" Fred laughed and replied: "A car-man is a jack-of-all trades and a master of none." Fred always wanted to enter the Forest Service and he fulfilled that dream in 1960 when he became an Assistant Ranger. His time with the CPR was very valuable as it gave him the experience needed to join the Forest Service. Gone were the days when the only prerequisites for being a Forest Ranger were two horses. Over his career his job titles suggest the variety of tasks assigned to him: Assistant Ranger, Ranger, Land-use Officer, Park Officer, Timber Auditor and Aircraft Coordinator. Fred might call himself a jack-of-all trades but I suspect that, over his 33-year career in the Forest Service, he was a master of more than one.

Fred began his Forest Service career as an Assistant Ranger in the Castle River area, southwest of Pincher Creek, where he, his wife Donna and their two children lived at the Castle ranger station. In 1965 he became a full Ranger and moved to the Willow Creek ranger station (west of the Chain Lakes) for five years. He then spent a few months in the Porcupine Hills. His duties in Willow Creek and Porcupine Hills were typical for a ranger on the eastern slopes of the Rockies. He tended to the grazing leases, maintained the telephone line, provisioned the fire lookout towers, submitted weather reports, maintained campgrounds and issued permits and licenses. Although he was provided with official Forest service vehicles, a four-wheel drive truck and a tote goat (3hp motorcycle), Fred still preferred to perform his duties on horseback.

Nature delivered more than a few memorable moments in these areas. Foremost was the April 1967 record snowfall – 88 inches fell in 3 days and left the Schroeders stranded at the Willow Creek ranger station for two and a half weeks. Army helicopters were brought in to drop food to the station and hay to the cattle in the area. Another time they endured 13 inches of rain in 72 hours – so much rain fell in that deluge that it literally shot out of gopher holes! These events changed the river course and did no favours for Fred's fishing paradise. He points out that the fishing, although still pretty good, is not like it used to be. Overfishing and habitat loss are, in his opinion, the likely culprits.

Castle Mountain ranger station 1962

After his years in southwestern Alberta, Fred and his family were transferred to Fort McMurray. This was at a time when the population was less than 7,000, Suncor (called Great Canadian Oil Sands then) was just starting up and the Hudson Bay Company still operated a fur trading post in the area. Fred was Ranger for the Embarras district, consisting of a "mere" 5,000 square miles of forest stretching south of Lake Athabasca between Wood Buffalo National Park and Fort McMurray. Here there were no roads; pretty much all work was done by either helicopter or boat as the Athabasca River had been dredged to move barges up to Fort Chipewyan and Uranium City. For a ranger, Fort McMurray was all about fire. This area is known for its dry lightning (lightning without precipitation) and the caribou moss on the forest floor ignited like gasoline under dry conditions. On a 50-fire night they would mobilize 250 men, seven helicopters, a small fixed-wing plane and a water bomber fleet. One such night, Fred and his crew were off to fight fire along the Firebag River; in error they fought a fire on Marguerite Creek instead. They were proud of their efforts and thought their night was done, but they soon found out they missed their target and that there was still much fire fighting to do along the Firebag. This adventure earned him the nickname Firebag Freddie, a moniker that has stuck with him since the 1970s.

While still in Fort McMurray, Fred became a Land-Use officer, with the primary job of inspecting reclamation projects. He then spent a short time as a Park officer for Saskatoon Island west of Grande Prairie and finally to head office in Edmonton, first as a timber auditor and then as the aircraft coordinator for many years. The aircraft coordinator was responsible for hiring fire-fighting aircraft. Typically this work went to long-term private contractors but during bad fire seasons he would have to hire out-of-province or out-of-country. Responding

Assistant Ranger, Fred Schroeder (left) and Ranger, Fred Facco (right) with Alberta Forest Service truck at the Pincher Creek parade in 1962.

to fires today is so much faster than it was in the early days. Then Fred remembers the bombers only carried 90 gallons; now aircraft commonly carry 2,500 gallons of retardant.

Fred firmly believes in sustained-yield forest management. He admits that a newly regenerated forest may not look like much, but give it 20 years. To him the forests are no use at all if they get overgrown or if you let fire and bugs destroy them. In the 1980s, Fred worked on the early mountain pine beetle problem. Beetle bait traps were set; nets were raised on some sections of the continental divide in an attempt to prevent beetles from spreading. Deadfall was burned, prescribed burns were carried out and certain wood shipments were prohibited. For a time these efforts were considered successful as the beetle did not spread north of the Porcupine Hills.

There was always a job to do and Fred tried to focus on getting a job done rather than getting involved in the politics of the job. He was pleased government accepted his recommendations to remove grazing in the Livingstone area in order to conserve the rough fescue grasses. He also spent considerable time and effort on the issues of erosion control and timber inspections. He also was very pleased when ATVs finally were prohibited along Willow and Timber Creeks. These areas are among his favourite places and Fred still visits these old stomping grounds and yearns for the day, years in the future, when these damaged slopes will be reclaimed.

Protection and conservation in these areas is important and Fred believes this can only be accomplished through strict regulation. We need to regulate how many people are using the parks and forests and we need to restrict their activities. He notes that the single biggest change he has observed in the last 40 years is simply the number of people who use these areas. He feels that overall population growth has less to do with this than access. Access means more than just more roads; by increased access Fred means the increased use of four wheel drive vehicles that now take people places where they wouldn't dare take the family car of thirty years ago. He also believes more restrictions need to be placed on lease-holders and that leases in the headwaters regions should be phased out given their significance to water quality and quantity. In a related vein he also feels the headwaters regions need to be better managed allowing for optimum recharge of water.

Fred sees one significant obstacle to his ideal regulatory environment. Staff and enforcement – this regulatory philosophy needs people out in the wilds enforcing the law. Traditionally, rangers were the guardians of the parks and forests; now there are too few out there "on the ground." Government is centralized; the employees have offices in town; families don't want to live out in the bush anymore. Fred understands that because, as we have seen throughout this series of articles, it was not an easy life. But, his kids had fun out at the ranger station and to this day think it was "the best place there ever was". In the summers, all the cousins visited and there would be four kids on the back of Old Blue, his swaybacked packhorse. They were out all day catching frogs or playing any game their imaginations could invent. But it was not all fun and games. During the school year Fred got the kids up at 5:00 am and had to drive them 15 miles to catch the school bus into Nanton. They were gone at least 12 hours per day and had a 100 mile round trip each day. With chores and homework, there was no time for anything else during the week – forget about any extracurricular school activities. The life and times of the children of rangers, as well as the forest rangers themselves, certainly have changed dramatically.

Fred served in the Forest Service until 1993. He and Donna have been married more than 50 years and currently reside in Calgary, the city where they both grew up. Although retired for many years now, Fred admits he still gets up at 5:00 am each morning, a habit from the days of sending the kids off to school. In his retirement Fred has mastered yet another skill, being a grandparent.

AWA SUMMER HIKES, TOURS AND BACKPACKS PROGRAM

AWA's hikes program is a great way to explore the lesser-known wilderness gems of Alberta and learn about AWA's work to protect the plants and animals of these magnificent landscapes.

For more information about all our summer hikes, please visit our website: www.AlbertaWilderness.ca. or call 1-866-313-0713.

Pre-Registration Is Required for All Trips

Online: www.albertawilderness.ca/events
or By phone: (403) 283-2025
Toll Free: 1-866-313-0713

DAY HIKES

$20 – AWA members
$25 – non-members

Sunday May 30, 2010
Whaleback Spring Hike
Explore Alberta's première preserved montane wilderness.
With Bob Blaxley

Tuesday June 29, 2010
Dry Island Hike
Enjoy the view from the top of this topographical feature in the beautiful Red Deer River valley.
With Tjarda and Rob Barratt

Tuesday July 6, 2010
Porcupine Hills Hike
Situated between the prairie and mountain environments, these hills exemplify the diversity to be found in Alberta's foothills ecosystems.
With Vivian Pharis

Saturday July 10, 2010
Ya Ha Tinda Hike
"Mountain Prairie" in the Stoney language, Ya-Ha-Tinda is an enigmatic region of prairie and parkland situated along the upper Red Deer River.
With William Davies

Wednesday July 28, 2010
Plateau Mountain Hike
Explore Plateau Mountain Ecological Reserve, located in southern Kananaskis Country.
With Nigel Douglas

Saturday August 7, 2010
Sage Creek Hike
Located in southeastern Alberta near Manyberries, this impressive mixed grass prairie has the look and feel of the wide open spaces.
With Lorne Fitch

Tuesday September 14, 2010
Beehive Natural Area Hike
Contributing to the headwaters of the Oldman river in southwestern Alberta, this protected area is a stunning mix of cool, dark sub-alpine forests and broad, green alpine meadows.
With Nigel Douglas

Saturday September 25, 2010
Whaleback Fall Hike
Experience the wide-open vistas and fall colours of this spectacular montane environment.
With Bob Blaxley

Saturday October 2, 2010
Rumsey Ecological Reserve Hike
A relatively undeveloped example of aspen parkland located in central Alberta, the Rumsey Ecological Reserve retains most of the original parkland flora and fauna.
With Paul Sutherland

PHOTO: C. WEARMOUTH

BACKPACK/CAMPING TRIPS

For the more adventurous travelers, our backpack and camping trips offer 3 or 4 days of wilderness wonder. These trips require varying levels of fitness and experience, so please call AWA's office for more details.

$100 - AWA members
$125 – non-members

Monday July 19
– Wednesday July 21, 2010 (2 nights)
Castle Backpack
Come and spend three days and two nights in the truly spectacular surroundings of the front canyons and peaks of southwest Alberta's Castle region.
With Reg Ernst

Friday August 13
– Sunday August 15, 2010 (2 nights)
Lakeland Camping and Hiking/ Biking Weekend
Join us in the Lac La Biche area for a long weekend of camping and exploring (on foot and light mountain biking) in the gorgeous setting of Lakeland Provincial Park.
With Aaron Davies

Thursday August 19
– Sunday August 22, 2010 (3 nights)
White Goat Backpack
Limited to foot access, the White Goat Wilderness preserves wilderness values – especially available to those with an adventurous spirit.
With Nigel Douglas and Paul Sutherland

BUS TOUR

Cost:
$55 - AWA members
$65 – non-members

Tuesday June 22, 2010
Oldman Watershed Mini Bus Tour
Join us on a driving tour through southwest Alberta's Oldman River watershed, including stops at:

- **Upper Oldman River**
- **Livingstone River**
- **Chain Lakes**

June 3rd, 2010
Wild about Wilderness
An evening with AWA Board and Staff
Please join us for an evening reception highlighted by a talk by guest speaker and noted environmental lawyer Richard Secord.

This opportunity to hear Richard discuss the state of environmental law in Canada and to meet your Board and staff members will be complemented by music, fine food, cash bar, raffles, gift baskets and auctions.

6:30 p.m.
Royal Glenora Club, Edmonton
$30 per person
Please pre-register:
Online:
www.albertawilderness.ca/events
or By phone: (403) 283-2025
Toll Free: 1-866-313-0713

Some of the volunteers who helped make the 2010 Climb for Wilderness a tremendous success. AWA has more than 370 volunteers across the province. The AWA Board and Staff salute all of you who help us pursue positive change in Alberta.
PHOTO: K. MIHALCHEON

CLIMB & RUN For WILDERNESS

ALBERTA WILDERNESS ASSOCIATION

ANOTHER SUCCESSFUL YEAR!

THANK YOU
to the approximately 1,500 participants who helped make the 2010 Climb for Wilderness a fantastic Earth Day celebration!

HELP PROTECT GRIZZLY BEARS

PHOTO: A. CAREY

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