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Then and Now: Human–Wildlife Interactions in Simon Fraser's New Caledonia

Orland Wilkerson
University of Northern British Columbia
Prince George, BC V2N 4Z9

Arguing that the character of a region is determined in part by the relationship between humans and other living creatures, this paper examines how attitudes and wildlife management practices with respect to two regionally significant species—the wolf and the grizzly bear—have evolved over the past fifty years in northern British Columbia. Several ethical, planning, and management issues raised by the history of wolf and grizzly bear management in BC are discussed. The paper concludes that a public involvement program that integrates expert knowledge, research, and analysis with public input, reasoned deliberation, and consensus-building is essential if public controversy is to be minimized, our wildlife heritage is to be preserved, and the interests of all stakeholders are to be given an adequate voice in the management of BC's wildlife.

We all strive for safety, prosperity, comfort, long life, and dullness. The deer strives with his supple legs, and the cowman with trap and poison, the statesman with pen, the most of us with machines, votes, and dollars, but it all comes to the same thing: peace in our time. A measure of success in this is all well enough, and perhaps is a requisite to objective thinking, but too much safety seems to yield only danger in the long run. Perhaps this is behind Thoreau's dictum: In wildness is salvation of the world. Perhaps this is the hidden meaning in the howl of the wolf, long known among mountains, but seldom perceived among men.

—Aldo Leopold, "Thinking Like a Mountain",
A Sand County Almanac

> The sight of the [grizzly] bear stirred me like nothing else the country could contain. What mattered was not so much the bear himself as what the bear implied. He was the predominant thing in that country, and for him to be in it at all meant that there had to be more country like it in every direction and more of the same kind of country all around that. He implied a world. He was an affirmation to the rest of the earth that his kind of place was extant.
>
> —John McPhee, "The Encircled River", *Coming into the Country*

Introduction

In 1793, the parliament of Upper Canada passed An Act to Encourage the Destruction of Wolves and Bears. The imprimatur of the Crown was thus placed on a campaign of intolerance that would be repeated many times and in many places as European culture penetrated ever deeper into the Canadian landscape (Obee, 1984). The spirit of intolerance, so common in the Old World, was actively at work in the New, creating conflict not only between French and English, European and Aboriginal, but between human and predator as well. In 1793, the extermination of bears and wolves seemed the rational thing to do. Throughout North America, it was once considered a neighbourly act to lace an animal carcass found on the range with strychnine in order to kill any wolf that might seek a meal there (Lopez, 1978). Today, such behaviour is considered ecologically irresponsible and socially unacceptable. Nevertheless, echoes from the past still reverberate in many of the problems we, as a society, face as we attempt to come to grips with our relationship with the animal world. How we meet this challenge will do much to define the character of the North and its people.

One of the challenges of regional geography is to identify, describe, and understand what it is that gives a region, however defined, its distinctive character. It is regrettable that regional geography has lost some of its allure in recent years because it can be a valuable tool for helping peoples everywhere come to a deeper appreciation of where they live and who they are. The study of human-wildlife interactions has not enjoyed a conspicuous place in geography, although the issue has not been entirely ignored. Biogeographers, for example, have long been interested in the impact that human activities have had on animal distributions (see,

for example Cox and Moore, 1993). A few geographers have responded to Bennett's (1960: 13) suggestion that a new field of study be created, a field he termed "cultural animal geography," which would investigate "those aspects of animal geography which accumulate, analyze, and systematize data relevant to the interactions of animals and human cultures." Gil (1966), Duffus (1988), and Wilkerson (1992), for example, have explored human-wildlife interactions in a number of different geographical settings. Cultural animal geography would appear to be an effective tool for delineating particular dimensions of the zoological and cultural characteristics of a region. So it seems especially appropriate to include an article on cultural animal geography in a special edition of *Western Geography* devoted to the geography of Simon Fraser's New Caledonia, a region where human-wildlife interactions have played an important role in shaping the economic and cultural life of its people.

When one surveys the recent history of human-wildlife interactions in Northern British Columbia, two issues stand out: the wolf-control controversy and the protection of grizzly bears. Both issues merit attention because of the hard questions they raise about our ability to reconcile our economic interests and needs with those of other species who share the northern environment. Perhaps one of the greatest challenges we face is the task of creating more effective and more equitable social and political institutions for resolving our human differences. Our ability to pass our natural heritage on to our children, one hopes in a better condition than we found it, may well depend on it. If we can do that, we can have a measure of assurance that what we have come to value so much may also be treasured and protected by future generations.

The Importance of Wildlife to Canadians

Wildlife is important to Canadians. The 1987 national wildlife survey sponsored by the Federal-Provincial Wildlife Conference reported that in 1987 Canadians spent $5.1 billion on a wide range of consumptive and non-consumptive wildlife-related activities (Federal Provincial Task Force, 1989). While a very small portion of the $5.1 billion—the actual amount was not reported—was spent trapping animals as a property protection measure, the vast majority of these expenditures reflects the positive value Canadians place on wildlife. The Task Force estimated that Canadians spent $73.5 million on wildlife organizations in the form of donations or membership fees and $1.3 billion on wildlife habitat preservation,

conservation and improvement programs. At the provincial level, 91.4 percent of British Columbians reported being involved in some form of wildlife-related activity. Just over 87% stated that maintaining abundant wildlife populations is important, and 88.6% favoured efforts to protect endangered species (Federal Provincial Task Force, 1989).

Data for 1991 indicate that British Columbians spent $977.2 million on wildlife-related activities, with over $174 million being spent on hunting and almost $573 million on primary non-consumptive activities, defined as those activities whose basic intent is to encounter wildlife to watch, feed, listen to, or photograph them. The balance of the $977.2 million was spent on other activities, including contributions to wildlife organizations, natural area preservation, residential activities and incidental wildlife encounters (Federal Provincial Task Force, 1994).

This strong interest in wildlife-related activities translates into significant economic benefits for the provincial government and the provincial economy. For the fiscal year 1993/94, BC Environment reported net revenues from wildlife licence sales in excess of $7.8 million, marginally higher than for the fiscal year 1992/93 (BC MOELP, 1993, 1994). The 1991/92 BC fur harvest generated over $1.2 million in gross revenue (BC MOELP, 1993). The overall contribution of wildlife-related activities to the BC economy is considerable. In 1991, wildlife-related expenditures contributed over $1.07 billion to the provincial gross domestic product and supported over 20,281 jobs (Federal Provincial Task Force, 1994). While forestry, for example, generates far more income for the province—gross forest revenue was over $1 billion in 1992/94 (BC Ministry of Forests, 1994)—the contribution of wildlife-related activities is still considerable.

The broad support among British Columbians for maintaining abundant wildlife populations and protecting endangered species is reason for some optimism, but it should be tempered by some sober reflection on hard economic realities. The economic benefits derived from wildlife-related activities provide considerable incentive for conserving wildlife in British Columbia (BC), but economic forces can also work against conservation, as the history of the Canadian fur trade and contemporary poaching and trafficking in bear parts so forcefully attest. Economic incentives also provided the rationale for the attempted, and sometimes successful, extermination of bears and wolves in many places throughout North America. The killing and harvesting of wildlife are, however, overshadowed by more powerful threats. Industrial development and

other economic forces driven, most notably, by rapid population growth in BC are placing enormous pressures on wildlife and wildlife habitat in numerous areas in the province. When economic interests clash with preservation values, as they often do, conflicts like those we have experienced in BC over the control of wolves and protection of grizzly bears frequently irrupt.

Wolf Control

Historically, many predators—bears, coyotes, hawks, eagles, foxes—were the victims of human intolerance. A special measure of contempt, however, was reserved for wolves, who were hated and hunted with a passion inexplicable in terms of the threat they posed to humans. As a result, wolves have been destroyed on a sweeping scale. While habitat destruction has been a factor in the disappearance of wolves around the world, the role of human intolerance has been one of almost epic proportions.

The Status of the Wolf Worldwide

The gray wolf (*Canis lupus*) once occupied all of North America except for Baja California, the coastal areas of Mexico, the Queen Charlotte Islands and some of the Alaskan Islands (see Figure 1). It no longer exists in most of the continental United States, although there are small populations in northern Minnesota, Isle Royale in Lake Superior, upper Michigan, Montana, Idaho and Wisconsin (Carbyn, 1987). In the contiguous US, the wolf is protected as an endangered species under the *Endangered Species Act 1973*, except in Minnesota where it is classified as "threatened" (Thiel and Ream, 1995). Due to serious conservation efforts, the wolf population in Minnesota has recovered considerably in recent years. An effort, strongly opposed by many livestock producers and hunters, is currently under way to restore wolves to Yellowstone National Park. Canadian wolves have been relocated to the Park, but the final outcome of the effort will not be known for some time. A very few gray wolves may still live in the northern portion of the Sierra Madre in Mexico, but the population is not considered viable (Carbyn, 1987).

In western Europe, wolves are virtually extinct. They have been eliminated from Great Britain and Central Europe, although a few remain in Sweden, Finland, and Norway (Carbyn, 1987). The few that remain in Norway and Sweden have been the subject of bitter debate, with many sheep producers insisting that they be

destroyed (Naess and Mysterud, 1987). In Bulgaria, the former Czechoslovakia, Italy, and Portugal, the species is classified as endangered, while viable populations remain in Greece, Poland, Romania, Spain, and the former Yugoslavia. Significant numbers remain in the Russian states. Viable populations still exist in Turkey, Iran, and perhaps the Arabian peninsula. Little is known about wolf populations in China or Asia (Carbyn, 1987).

Figure 1 Distribution of the Gray Wolf (Canus lupus)
Source: Adapted from Carbyn 1987

North of the Canada/US border, wolves have been extirpated in New Brunswick, Nova Scotia, the southern prairie provinces, the lower mainland of BC, and on the Island of Newfoundland, though not in Labrador (Hayes and Gunson, 1995). In the late 1980s, an estimated 7,000–10,000 were located in BC, 9,000–10,000 in the Northwest Territories, 4,000–6,000 in Alaska, and less then 10,000 in Ontario (Carbyn, 1987). In spite of the relative abundance of wolves in Canada and Alaska, controversy over the management of wolves has often been intense, particularly when it has involved some form of lethal wolf control.

The Historical and Cultural Roots of the Wolf Control Debate

If we are to understand the depth of feeling associated with wolf control, it is important to examine some of the cultural and historical dimensions of the debate. Historically, much of the hatred of wolves was based on the fact that they *do* kill livestock. Other animals do the same, however, but on the whole, they have not been the objects of such intense vilification. As Lopez (1978: 139) puts it:

> the wolf is fundamentally different because the history of killing wolves shows far less restraint and far more perversity. A lot of people didn't just kill wolves; they tortured them. They set wolves on fire and tore their jaws out and cut their Achilles tendons and turned dogs loose on them. They poisoned them with strychnine, arsenic, and cyanide…. [T]hey…burned down their own property to get rid of wolf havens.

There is a plausible explanation, however, for this seemingly irrational behaviour. The contempt went much deeper than than the fact that wolves had a negative impact on human interests. It was rooted in profound religious beliefs and in feelings about wilderness, which have both secular and religious origins. Lopez (1978: 140, 145) contends that, because wolves scavenged on the human corpses on battlefields and were frequently seen "in the eerie twilight of dawn and dusk, they were feared not just as predators but as physical and metaphysical dangers." Indeed, strong links have been drawn between the Devil, greed, sin, sexual lust, and the wolf in Christian tradition and literature.

In the *Divine Comedy*, for example, the wolf is an icon of greed and covetousness, symbolism borrowed directly from the Bible. The prophet Ezekiel, referring to the heartless oppression of the citizens of Jerusalem, laments that "Her leaders…are like wolves tear-

ing their prey, shedding blood and killing people to steal their possessions" (Ezekiel 22:27).[1] The gospel of Matthew (7:15) speaks of false prophets who disguise themselves "as sheep but underneath are ravenous wolves." Similar words are attributed to St. Paul in Acts (20:29-30), where he describes heretics as "fierce wolves." Biblical references to the wolf are, in fact, uniformly pejorative, which is not surprising since they reflect the experiences of agricultural communities for whom the wolf was a very real economic threat. Yet the association of the wolf with spiritual evil undoubtedly deepened and exaggerated a legitimate fear.

In colonial America, the association of the wolf with spiritual darkness continued. Speaking of North American pioneers, Nash (1982: xii) writes:

> Wilderness was the unknown, the disordered, the uncontrolled… [T]he European colonists experienced in America their old, insecure relationship to wilderness. There was too much wilderness for appreciation. [It was] a moral and physical wasteland fit only for conquest and fructification in the name of progress, civilization and Christianity.

The colonists' distaste for wilderness stemmed, Nash argues, from two sources: a secular fear of dark uninhabited, inhospitable places; and a religious belief, based on the Bible, that wilderness was the haunt of demons and witches, a place without God. It was the duty of each person to assist the Creator in restoring order in a wilderness of chaos. "The beast of waste and desolation," to use Theodore Roosevelt's words, had no place in an orderly universe (Lopez, 1978: 142). For the colonists, the logic was quite simple: restoring order meant that the wolf had to be eliminated.

Anti-wolf sentiment was not confined to colonial days nor to the agricultural community. The naturalist, William Hornaday (1904:22), for example, writing in the twentieth century, termed wolves the most "despicable of all animals on the North American continent," adding that there "is no depth of meanness, treachery, or cruelty to which they do not cheerfully descend." The historian Dunlap (1988: 15) notes that many wild carnivores, including the wolf, were disliked by people, many of them city dwellers, who otherwise showed great appreciation for animals, because predators "'murdered' the 'innocent' deer and songbirds." Ironically, people in the humane movement had the most unbending attitudes towards predators. This was especially true of individuals who espoused vegetarianism on ethical grounds; for them, predation was a profound embarrassment (Dunlap, 1988).

North American society has inherited a powerful legacy of anti-wolf sentiment. There is little doubt, however, that attitudes are changing, not only in the general population, but in the agricultural community as well (Dunlap, 1985; Wilkerson, 1992). Much of this change can be attributed to scientific studies that emphasize the ecological importance of predators and promote an understanding of the complexities of lupine social structures. As Dunlap (1985: 611) observes, "By the late 1930s,…scientific studies were presenting a vision of order in nature which struck a responsive chord in many people and provided an 'rational' justification for protecting nature."

This attitudinal shift is closely associated with changing conceptions of wilderness. Wilderness no longer symbolizes disorder; it has become, instead, a natural cathedral; a source of solace; a place of romance and beauty; or a reservoir of intrinsic value (Nash, 1982; Thomas, 1983). For many people, the wolf now symbolizes the values associated with wilderness: beauty, mystery, spirituality. For them, the integrity of BC's northern wilderness depends on the continued presence of the wolf; if there is no wolf, there is no wilderness, a idea articulated by Aldo Leopold many years ago. Susan Flader (1974), Leopold's biographer, argues that the idea of ecological integrity is what he had in mind when he wrote "Thinking Like a Mountain" (Leopold, 1970). She states:

> Because the wolf stood at the apex of the [biotic] pyramid, it became Leopold's symbol of the pyramid itself, of land health. He did not elaborate on this symbolism in "Thinking Like a Mountain," but it is there. One who could listen objectively to the total life process of the ecosystem through time, not just as it might effect one's own immediate interest—was thinking ecologically, like a mountain (p.2).

Similar sentiments are often voiced by environmental groups devoted to the protection of the wolf. For example, the winter (1987-88) edition of "Northwest Wildlife Focus," a publication of the Northwest Wildlife Preservation Society, included an article stating that "the wolf is our symbol and ally in this struggle" to preserve the wilderness. "The Spirit" (Summer 1990), a newsletter produce by The Alaska Wildlife Alliance, advertized T-shirts and sweatshirts with a wolf and the words "THE WOLF SPIRIT OF WILD ALASKA" emblazoned on the front.

A new image of the wolf has emerged, nurtured by popular books such as Farley Mowat's (1963) *Never Cry Wolf*, R.D. Lawrence's (1986) *In Praise of Wolves*, and Barry Lopez's (1978) Of

Wolves and Men, the latter two considerably more accurate, scientifically, than the first. Most wildlife biologists seem to share Mech's (1970) opinion that Mowat's book is largely a work of fiction. Nevertheless, as Mech observes, *Never Cry Wolf* has served a useful purpose by offsetting the impact of traditional views of the wolf embodied in fairy tales such as "Little Red Riding Hood." A number of scientific works have contributed to the transformation of the wolf's image. Notable examples are by Mech (1970), Murie (1944) and Pimlott (1967). While these works have contributed to a softening of attitudes towards wolves, they are also a reflection of the changes in social values that have occurred in North America over the past fifty years or so.

Nonetheless, significant portions of the North American population still view wolves in a negative light (Kellert, 1985, 1986; Bath, 1989; Wilkerson, 1992). This is particularly true of some segments of the ranching, guide-outfitter, and hunting population, people whose livelihoods can be affected by wolf predation. The endurance of hostile feelings about the wolf, coupled with a dramatic shift in general public attitudes, has presented the BC government with a major challenge: how to balance old values with new perspectives in a way that recognizes long-standing economic interests while acknowledging the legitimacy of other values. It may be an impossible task, but failure in this regard will almost certainly ensure, sooner or later, more conflict that will sap human energies and financial resources so much needed for the conservation and preservation of our natural heritage

Human-Wolf Relations in New Caledonia

With few exceptions, the people of European descent that settled Northern BC, and indeed all of the province, considered wolves vermin. The killing of wolves, for any reason whatsoever, was almost universally endorsed. There was no legislative support for the persecution of wolves in BC, however, until the creation of the bounty system in the early 1900s, which provided an incentive for anyone, not just livestock owners and hunters, to kill wolves indiscriminately. As in most western provinces, the wolf bounty in BC was established primarily to protect livestock (Cluff and Murray, 1995). The BC government paid close to $1 million in bounties from 1922 to 1955, the year that the bounty system was abandoned due to high cost, inefficiency, and widespread abuse (Pimlott, 1961; Tompa, 1983a). Although 9,025 wolves were killed for bounties between 1909 and 1955, the system was not the pri-

mary cause for the decline in wolf numbers seen during this period (Tompa, 1983a).

In 1947, the government created the Predator Control Board (PCB) to address the concerns of hunters, guides, and livestock producers about the number of predators that were wounding or killing livestock and competing with humans for wild game (Archibald, 1989). The predator control program established by the PCB made use of several poisons, including strychnine, cyanide, and, in the 1950s, compound 1080 (sodium monoflouroacetate) (Hatler, 1981). Compound 1080 was indiscriminately distributed over a wide range of central and northern BC; baits were often dropped in remote locations by aircraft and were left unmonitored because of the high cost of flying (Hoffos, 1987). Persecution of the wolf during the 1950s, via the poisoning program and, to a lesser degree the bounty system, came very close to eliminating the wolf from northern and interior agricultural management zones (Archibald, 1989). Several changes in government policy in the 1960s and 1970s enabled wolf populations in BC to recover. In 1966, wilderness area poisoning programs were halted. In 1961, trapping was prohibited, widespread poisoning ceased, hunting seasons were closed in regions of low wolf numbers, wolves were designated big game, and bag limits were set.[2] In 1963, the Predator Control Branch was dissolved. In 1975, strict protocols were established for the use of poison, and wolf control was aimed at specific "problem" animals rather than overall populations (Tompa, 1983a; Archibald, 1989).

These policy changes closely paralleled a growing appreciation of the ecological role of predators on the part of professional biologists and the development of more positive attitudes towards wolves in the general population. It is instructive to note a related transformation that has taken place in newspaper coverage of wolf-related incidents in BC (Wilkerson, 1992). After 1920, the sheer number of newspaper stories, editorials, and letters to the editor in the *Victoria Colonist*, *Vancouver Sun*, and *Vancouver Province* increased significantly, reaching a peak in the 1980-84 period, when controversy over a wolf-control program in the Kechika and Muskwa regions of northeastern BC was at its height. The increase in the volume of newspaper coverage has been accompanied by marked differences in the language used to describe wolves. Prior to the 1960s, terms like "savage beasts," "ravenous beasts," "timber savages," "varmints," and "bad men of the range" were commonly applied to wolves. In public discourse, at least, there has been a tendency to replace these pejorative descriptions with relatively

neutral terminology—for example, "predators," "carnivores," "wild animals"—or terminology that extols the virtues of wolves. Descriptions that were seldom heard before 1960—"beautiful," "friendly," "magnificent," "intelligent," and even "noble"—are now commonplace (Ibid.).

Prelude to a confrontation

Cognizant of the need for good public relations, many of the traditional supporters of wolf control tended to keep their strong feelings about the wolf out of the public arena during the 1970s. Those feelings emerged quite dramatically, however, when, in 1978, Rafe Mair, the provincial Minister of Environment, announced a temporary moratorium on the use of poison to control wolves (BC Ministry of Environment, 1979). The announcement came while the government was considering a wolf control program in the north to address declines in the number of caribou and other ungulates. The moratorium raised the ire of many guide-outfitters, hunters, and livestock producers who claimed that their livelihoods were being threatened. An article in *Country Life* (Beingessner, 1979:25) labelled the decision "a sellout to wildlife groups." Some livestock producers complained they could not graze their stock on open range, a situation they claimed was "crippling the industry" (Ibid.). The chairman of the predator management committee of the BC Cattlemen's Association (BCCA) argued that the moratorium was a severe blow to the cattle industry, at a time when it was beginning to climb out of a "badly depressed" market (*Country Life*, Jan 1979). There were even reports of illegal poisoning using toxicants such as strychnine, anti-freeze, and poison hemlock (Hoffos 1987).

The moratorium was strongly supported by many individuals and environmental groups, many of whom took their protests to the editorial pages of the province's newspapers, which provided one of the major forums for the dispute. The debate was rather lopsided, however, especially in the Victoria and lower mainland papers, where letters to the editor were overwhelmingly opposed to compound 1080. Its use was described as "unspeakably cruel," "another instance of the depravity of human nature," "abhorrent," a "blood-thirsty plan," "cruel and vicious murder."

The anti-poison lobby, as the previous paragraph suggests, voiced a variety of objections to the use of 1080. Some people were concerned primarily with the perceived cruelty of using poison and would have condoned the killing of wolves, though perhaps with great reluctance, if a more humane method could be found.

Others raised concerns about dispersal of the poison in the environment and the possible impact of 1080 on non-target animals or even human beings. Still others were opposed to the very notion of controlling wolves for the benefit of hunters or ranchers, but latched on to the safety, cruelty, and environmental issues as a way of marshalling support for their position. Although the poison protest managed to generate more newspaper interest than any other wolf-related issue had done to date, the Pesticide Control Branch finally agreed to issue a permit for 1080 in January 1980 (Wilkerson, 1992). The permit limited the Fish and Wildlife Branch to 5 grams of Compound 1080 per year for wolves and coyotes (Hoffos, 1987).

The controversy over the moratorium should have sent strong signals to the government that wolf-control issues needed to be handled with the utmost care. The polarization of public opinion on wolf control issues was, in fact, noted in the government's Preliminary Wolf Management Plan released in 1979 (BC MOE, 1979), but subsequent protests concerning the Kechika and Muskwa wolf-control projects revealed that little had been done to develop an effective and inclusive mechanism for involving the public in the decision-making process.

The basic dimensions of the wolf-control controversy

The Kechika/Muskwa controversy that irrupted in the early 1980s was part of a larger wolf-control debate—one that persists to this day—that has two basic dimensions. The first involves the overall reduction of wolf populations to accomplish one or both of the following objectives: to increase the size of ungulate populations as part of a wildlife management program; and to reduce the threat of depredation on domestic livestock. The practice is sometimes referred to as proactive control. The second dimension deals with the removal (either relocation or elimination) of specific wolves or packs who have killed, wounded, or threatened livestock, a practice often referred to as reactive control. Public support for reactive control is generally quite high, reflecting a general sympathy with ranchers who lose valuable livestock (Wilkerson, 1992). Proactive control as a livestock protection measure is generally viewed very negatively. By far the strongest protests, however, have been mounted against proactive control as a tool for increasing ungulate numbers. The same sympathy accorded livestock owners is far less likely to be extended to hunters upset over declining ungulate populations. For many people, proactive wolf control as an ungulate management tool is objectionable simply on

the grounds that hunting itself—especially recreational and trophy hunting—is unacceptable. Public opposition to the use of proactive control as a means of increasing ungulate populations was voiced most clearly in the mid-1980s while BC was undertaking a wolf-control program in two regions in the north-eastern part of the province.

The Kechika/Muskwa controversy

In 1978, Bergerud (1978) had concluded that overhunting and predation were causing declines in caribou herds in northern BC. Similar conclusions were reached by Elliott (1989), a government biologist, who claimed that moose, elk, and mountain sheep were being affected as well. Working on the assumption that reducing the number of wolves in the Kechika region would allow ungulate populations to recover, the government began a wolf removal program in the region in 1978 (see Figure 2). The control effort was later extended to the Muskwa region in 1984. No wolves were removed from the Kechika region after 1985. Between 1978 and 1987, 491 wolves were removed from the Kechika region and 505 from the Muskwa region. Wolves were shot from a helicopter, at an estimated operational cost of $140/wolf (Elliott, 1985a, 1985b, 1989). Post-control investigations revealed that where wolves were controlled juvenile survival increased for moose, mountain sheep, caribou, and elk. Population increases for all but elk were also recorded (Elliott, 1989). These data strongly suggest that wolves were, indeed, limiting ungulate populations in northeastern BC, as the government had argued.

Although the Kechika project began in 1978, it received little public attention until late in 1983, when the BC Wildlife Federation and Northern BC Guides Association announced a raffle to help offset the costs of aerial shooting in the Muskwa region. The grand prize was to be a hunting safari in Zimbabwe (Obee, 1984). The winning of the lottery by a Pennsylvania resident captured the attention of the international media, and the BC government soon had a public relations crisis on its hands. Much of the media frenzy surrounding the wolf-kill focused on the staged media events and musings of Paul Watson, who as leader of Project Wolf, a coalition of some twelve organizations, exercised his considerable public relations talents to fan the flames of opposition to the government's northern wolf-control projects. Watson had hoped to set up a base of operations in Fort Nelson and fly trom there into the wolf-control area to confront government agents in the field. However, when fuel dealers refused to sell him airplane fuel and hotel own-

ers refused him and his entourage accommodations, he set up camp in front of the RCMP detachment threatening to march on foot to the camp of John Elliot, the government biologist in charge of the wolf-kill. He attempted the march but turned back because of the cold. Nevertheless, Watson generated considerable attention from the media, who had a voracious appetite for his commentary and flair for the dramatic.

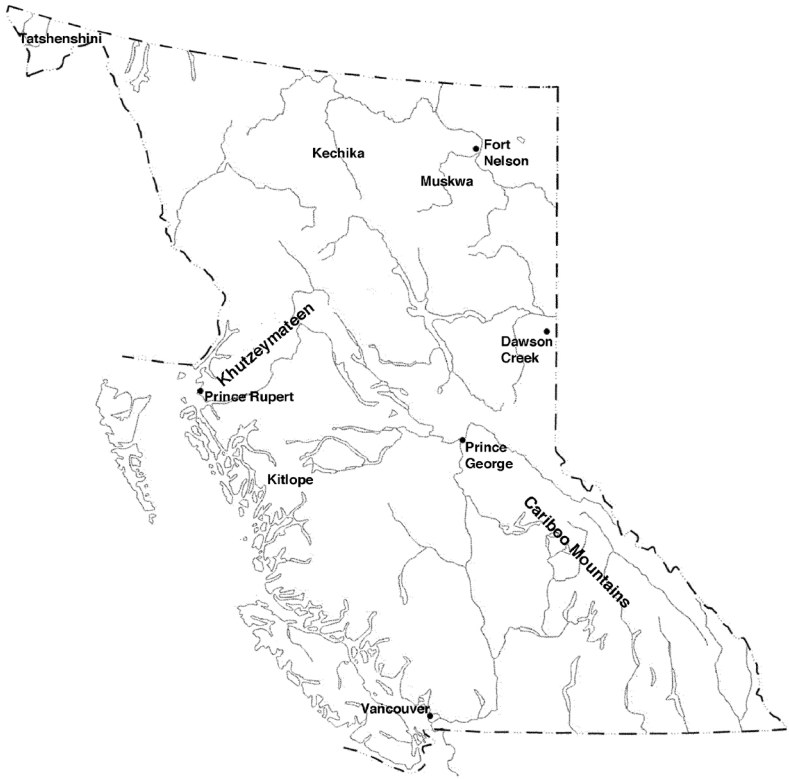

Figure 2 Some significant wildlife areas in BC

In an effort to justify its decision, the government released five reports outlining the technical rationale for the wolf-kill program. Five independent biologists, whose views were solicited by the government, were critical of the quality of the reports. Prefacing their remarks with a statement that they were not opposed to wolf

control as a matter of general principle, they offered the following appraisal:

> Three of these documents…are rough drafts and have major deficiencies. In them the tabulation, analyses and interpretation of data are weak. There are inconsistencies in presentation and, in some cases, inaccuracies (e.g. some columns don't add up and some data are incorrectly transferred to graphs) (Obee, 1984:8).

Most non-government biologists who commented publicly, agreed that the programs could not be justified on the basis of the reports released by the government. The government did, however, seek the advice of outside reviewers and technical refinements were eventually made in the control projects (Obee, 1984).

Although the scientific validity of the government's case for wolf-control was questioned at the time, by far the greatest objections were ethical in nature. Protesters railed against not only the killing of wolves to provide game for hunters but also the perceived cruelty of aerial shooting. Some people considered it inhumane because, they argued, there was no way to ensure that wolves were killed immediately, not just wounded and left to succumb to a slow death. Others thought that it did not conform to sportsmanlike standards of fair play.

The public protest and the media response were unprecedented in the history of wildlife management in BC. Obee (1984: 6) describes the controversy in this way:

> Biologists criticized each other's work; oil companies and tourist outlets were boycotted; ferry docks, airline terminals and Canadian embassies were picketed; and packs of reporters marauded through the northern outback in search of the government wolf killers. Of 8,764 people who signed letters and petitions, only 121 sided with the government.

The public outcry settled down considerably by 1987, but it was now very clear that any future plans of this sort, if they were considered at all, would need to be handled quite differently.

The Vancouver Island wolf-control program

Another BC wolf-control program that occurred at roughly the same drew a good deal less public attention. In 1982, the BC Wildlife Branch began an experimental wolf-control program in the Nimpkish Valley on northern Vancouver Island, an effort designed to determine the impact of wolf control on the deer population. The results showed that deer fawn survival in the wolf-kill zone

improved significantly; little change was observed in a contiguous nonremoval zone used as a control. On the basis of these results, an operational wolf-control program was initiated on Vancouver Island in the spring of 1986. The program was undertaken in old-growth areas on the northern part of the island and in watersheds in the south where deer populations were in decline. Between the summer of 1986 and spring of 1989, an estimated 255 wolves were killed, most (80%) by trapping, the balance by hunting. Deer populations in monitored watersheds generally increased during the program (Janz, 1989; Reid and Janz, 1995).

Although the Vancouver Island program did receive some attention in the media (see, for example, Kennedy, 1984), and some environmental groups did express their opposition, the public and the media seemed far more focused on the Kechika and Muskwa projects. In part, this may have been due to the international attention generated by the lottery and the involvement of Paul Watson and Project Wolf in the protest against the northeastern projects. The media are not generally known for initiating concern over environmental issues; they tend to respond to issues raised by other groups in society (Parlour and Schatzow, 1978)

Controlling wolves for depredation of livestock

For the most part, controversy over the use of proactive control has been related to its use as an ungulate management tool. The issue of using proactive control to protect livestock has surfaced occasionally, however, when the BC Federation of Agriculture (BCFA) or the BCCA has called on the BC government to employ the procedure as a livestock protection measure. A case in point is a resolution prepared by the BCCA and presented to the Ministry of Environment in 1985. The BCCA submission included these comments (*Country Life*, Apr. 1985: C5): "In every area of the Province where problem wolves present a threat to the livestock industry, the only real solution is population control based on a long term plan." It is interesting to note that, while the wolf-kill program in the Kechika and Muskwa regions was not designed to protect livestock, it was officially endorsed by the BCCA (*Country Life*, June 1984). Calls for increased predator control from agricultural groups usually draw some attention from environmental groups, who frequently respond through the media.

Although the BCCA, as a organization, supports proactive control, ranchers themselves appear to be divided on the issue. Close to 50% of the ranchers surveyed by Wilkerson (1992) did not support proactive wolf-control, although they did strongly endorse

reactive control. The reasons for the mixed support for proactive control among ranchers have not been studied, but it may relate to concerns some ranchers have about the public relations nightmare that the cattle industry might face if it were to continue encouraging government to engage in what would surely be a highly controversial program. It may also reflect a genuine concern on the part of ranchers for the wolf population.

In any event, short of eliminating wolves in problem areas, there is some doubt about the effectiveness of proactive wolf control as a livestock protection measure simply because of the lack of research that has been conducted on the question. One of the few attempts to address the issue involved the experimental application of strychnine in Alberta. In this case, the prophylactic use of poison resulted in a significant decline in bear and wolf predation (Bjorge and Gunson, 1985). However, wolves rapidly repopulated vacant territories, leading the researchers to conclude that the long-term protection of livestock would require continuous control action. Given the current climate of public opinion, continuous control of this sort would be met with strong public resistance, whatever its practical value in reducing predation might be.

The perceptions and attitudes of ranchers

Ranchers have a reputation for hating wolves. Some of it is undoubtedly deserved, given their strong support of wolf extermination programs in North America in the past. Yet like many groups, ranchers have been unfairly stereotyped. For example, in an otherwise thoughtful and provocative book, Berman (1989:94) writes:

> …ranchers embody the anti-ecological thrust of the whole of modern, and especially recent history. They loathe coyotes, eagles, and bears, and favor extermination of all animals regarded as predators. The coyote is hated because it can outwit human beings, the eagle because of its power of flight, the bear for its elusiveness.

Berman's psychological explanation for ranchers' attitudes is questionable at best, but there is some truth in what he says. For example, almost 28 percent of the BC ranchers surveyed in a 1989 study indicated that they dislike wolves; and nearly 28 percent expressed similar feelings about coyotes (Wilkerson, 1992). Kellert (1985) reports that approximately 58 percent of the US cattle producers he surveyed indicated that they dislike wolves. A rancher responding

to Wilkerson's (1992: 167) study wrote: "There is not enough room for man and wolf." Certainly strong anti-wolf sentiment survives.

Nevertheless, many ranchers report very positive feelings about wolves. In Wilkerson's (1992) study, 41 percent of ranchers stated they like wolves; and 46 percent expressed similar attitudes towards coyotes. Kellert (1985) reports that about 30 percent of the ranchers he surveyed indicated they like wolves. The truth is, ranchers' attitudes towards predators are quite varied, as indeed they are towards all wildlife (Kellert, 1985, 1986; Wilkerson, 1992). Bennett's (1969) observations are more in tune with the available data:

> To the rancher, wild animals are…objects of sentimentality and nostalgia. The rancher is proud of the antelope that eat from his haystack in the winter—although he may complain to the wardens if they eat too much! The rancher loves the howl of the coyote, but will not hesitate to shoot one if it steals chickens. Ranchers tolerate wild animals *so long as they do not get out of hand* (Bennett 1969:93, emphasis added).

Ranchers have also been widely criticized for exaggerating the predator threat, a claim that appears to be born out by statements occasionally made by livestock producers. For example, no independent observer with any knowledge of the situation believed for a moment that the 1978 moratorium on the use of compound 1080 would threaten the entire beef industry in BC; yet several claims of this sort came from the BCFA and the BCCA. There may have been some intential hyperbole here designed to get the attention of the government and address what ranchers believed to be a realistic concern. There is, in fact, some convincing evidence that ranchers' numerical estimates of predation mortality are generally quite accurate.

In the US, the prestigious Cain Committee, commissioned by the Secretary of the Interior in 1971 to review the predator control program conducted by the US Fish and Wildlife Service (Wade, 1981), rejected the results of a study conducted by Reynolds and Gustad (1971). Based on questionnaires sent to a random sample of ranchers, they concluded that annual predation losses averaged approximately five percent of the total sheep inventory in the American West. Commenting on this study, the Cain Committee (Cain et al., 1972:25) stated:

> …similar and even more inflated figures have been arrived at in calculations by the National Wool Growers Association. While

> there is no basis for accepting these figures, there is no accurate source of information on which to make an objective evaluation.

However, several field studies have shown that, with normal levels of predator control in effect, minimum livestock losses ranged from 3.36 to 5.8 percent (Shelton, 1972; Klebenow and McAdoo 1976; Taylor et al. 1979). These studies suggest that ranchers in the US do not grossly exaggerate their losses to predators. Similar data are not available for BC, but a survey conducted by the BCCA in the late 1980s suggests that ranchers, as a rule, do not routinely attribute unexplained losses to predators, as is often claimed. Of the 5740 cattle reported lost to various causes, ranchers participating in the survey reported that 1273 were lost due to unknown causes (*Beef in BC*, Sept./Oct. 1988). In his study of wolf control in north-western BC, Hatler (1981) noted that there was no evidence that ranchers inflated their reports of predation losses, even when it might have been in their interest to do so. In fact, ranchers are, generally, very good at distinguishing a predator kill from some other kind of mortality (Saunders, 1991).

Although there is no convincing evidence that ranchers systematically inflate *numerical* estimates of animals lost to predators, their *subjective* assessments of the predator threat are frequently difficult to reconcile with what is known about the impact of predation on the cattle industry in BC. For example, Wilkerson (1992) reports that just over 19% of the ranchers he surveyed indicated that they believed wolves were a serious threat to the cattle industry as a whole. Admittedly, the economic impact of depredation on livestock in BC is difficult to gauge with any precision, in part, because of the lack of data. It is clear, however, that predation is greatly overshadowed by other problems. Ranchers surveyed by the BCCA reported that sickness and accidents took far more livestock than predators in 1986 and 1987 (Table 1). Losses attributed to predators in the BCCA survey accounted for 8.7 percent of the total losses in 1987 and 10.3 percent in 1986. If these figures are representative of the (approximately) 6000 cattle farms in the province, in total ranchers lost about 2486 cattle to predators in 1987. Based on a nominal price of $500 per animal, this represents financial losses close to $1.3 million, approximately 0.7 percent of the 1987 provincial cash receipts of $186 million for beef cattle.[3] Similar calculations for sickness and accidents yield losses of about $1.7 million for 1987, with these two factors accounting for about 58 percent of the losses in that year.

Calculations based on livestock losses confirmed by the BC Wildlife Branch yield even smaller and, undoubtedly, very conser-

vative estimates. With confirmed predation mortality of 486 livestock, independently verified losses were approximately $243,000 in 1987. However, this figure is certainly too low. Bjorge (1983) reports that cattle killed or dying from predation are more difficult to discover than cattle killed or dying from other causes, because predators, particularly wolves, often completely consume the carcasses. Moreover, many ranchers prefer to handle their own problems by trapping and hunting predators (Saunders, 1991). In fact, more than 55 percent of the ranchers surveyed by Wilkerson (1992) who indicated that they had experienced problems with predators stated that they had never contacted the BC Wildlife Branch for assistance with predators. Actual losses to predators are, without doubt, much higher than those confirmed by the Wildlife Branch and may be closer to the figures reported by ranchers in the BCCA survey.

Table 1 Cattle Losses in 1987[a]

	Inside Fenced Land		*On Range*		
Cause	*Grown Stock*	*Calves*	*Grown Stock*	*Calves*	*Total*
Suspected Theft	37 (49)	17 (63)	170 (142)	312 (144)	536 (398)
Hunters	16 (8)	4 (7)	21 (22)	54 (31)	95 (68)
Road Accidents	25 (9)	9 (9)	37 (21)	80 (28)	151 (92)
Predators[b]	29 (24)	148 (147)	80 (76)	244 (313)	501 (560)
Bog Holes, Drowning	94 (149)	38 (60)	105 (61)	32 (13)	269 (283)
Other: Sickness, Accident	997 (855)	1535 (1521)	220 (171)	163 (134)	2915 (2681)
Unknown	151 (233)	277 (362)	454 (318)	391 (463)	1273 (1377)
Total	1349 (1352)	2028 (2170)	1087 (811)	1276 (1126)	5740 (5449)

[a]1986 figures in parentheses. Based on 1209 returns in 1987, 1128 in 1986. Approximately 2000 ranchers belonged to the BCCA in 1986-87.

[b]Some of these losses may have been caused by domestic dogs.

(Source: *Beef in B.C.*, Sept/Oct 1988)

Although predation does not pose a serious threat to the cattle industry as a whole, it can take a severe toll on individual livestock producers (Tompa, 1983b). For example, unconfirmed losses in the

neighbourhood of 40 animals in a single year for one rancher were reported in the BC interior (*Kamloops News*, Aug. 12, 1985). Two ranchers surveyed by Wilkerson (1992) reported losing 20 animals in 1989, one reported losing 23, and one claimed to have lost close to 500 animals between 1968 and 1989. Losses of these magnitudes can be financially crippling for some ranchers. Most predation losses attributed to wolves occur on the margins of agricultural regions and tend to affect livestock owners with low to moderate incomes (Tompa, 1983b). Ranchers with high incomes tend to be better situated and are able to hire riders and employ other preventative measures, for example, electric fencing, guard dogs, and adequate feed, thereby reducing predation losses. The Select Standing Committee on Agriculture (1979) offered the following assessment of the impact of depredation on livestock in BC:

> Predators do not place effective limits on [cattle] production In the Province. In most…cases, although predation may cause highly visible losses and engender strong emotional reactions, it does not impose real limits to production.

A similar assessment was offered by a spokesperson for the BCFA:

> Though the numbers of cattle or sheep killed are small when compared to total provincial livestock numbers they are unacceptably high in relation to individual operators (*Country Life,* Aug., 1983).

Reactive predator control

There is general agreement among livestock producers and wildlife officials that limited predator control may be necessary for the survival of some livestock operations. Indeed, public support for reactive control conducted by specially trained government personnel appears to be strong. In a study conducted in 1989, 71 percent of the general public and 87 percent of ranchers surveyed agreed that authorized government personnel should be permitted to destroy a wild animal if it kills a farmer's livestock on his/her property (Wilkerson, 1992). Urban residents do, however, strongly favour the use of nonlethal methods where that is feasible. It is also widely believed that the presence of a government predator control program reduces the level of illegal predator control activities, particularly the use of poisons by ranchers and farmers.

Public support for reactive control is tempered by some very strong reservations about certain wolf control techniques (Wilkerson, 1992). The leghold trap, slow-acting poisons (for exam-

ple, compound 1080), denning, and aerial shooting are considered by many to be unacceptable[4]. The general public seems more concerned about the humaneness of a control measure; effectiveness, while important, is a secondary consideration. For many people, killing wolves is itself inhumane, whatever the method used. It should come as no surprise that ranchers are generally more concerned about effectiveness, and less about humaneness (Wilkerson, 1992). Both groups—ranchers and the public—have also expressed concerns about cost, safety, and the selectivity of the method used, although these factors are not, generally, given top priority. With ranchers primarily concerned about effectiveness and the public about humaneness, some controversy will continue unless predator control techniques can be developed that are generally considered both effective and humane.

Under existing legislation, the lethal control of predators for the purpose of livestock protection is carefully circumscribed. *The 1979 Pesticide Control Act* limits the placing of poison baits to certified government personnel. The only poison currently authorized for use against wolves and coyotes is compound 1080[5]. Because of its greater selectivity for canids (Gunson, 1983), it presents fewer dangers to other wildlife and humans than do cyanide and strychnine (Tompa, 1983a). Poison is frequently used to destroy wolves and coyotes simply because other methods are likely to be ineffective or too costly. Ground-based shooting, for example, usually depends on a chance encounter between the predator and hunter, which is a rare occurrence (Tompa, 1983a). Aerial shooting is expensive, and the probability of killing animals not directly implicated in livestock losses is high. Data compiled by the provincial Wildlife Branch indicate that, on average, 215.7 wild animals of various species were destroyed or relocated per year during the 1985-1990 period because of predator/livestock conflicts (see Table 2).

The Procedure Manual for the Management of Problem Predators limits the destruction or relocation to wild animals that have actually harassed, injured, or killed domestic animals. When livestock owners request assistance from the Wildlife Branch, the investigative officer attempts to determine if the problem is related to faulty husbandry practices (for example, carcasses left on or near grazing areas, remote and uncontrolled lambing or calving grounds, obvious malnutrition of livestock). If such practices are implicated in the predation problem, the attending officer may deny control until the situation is corrected.

Table 2 Predator/livestock conflicts: Estimated number of predators removed 1985–90[a]

Species	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
Black Bear	22	52	45	27	20	14
Grizzly Bear	2	6	6	2	7	5
Cougar	20	39	32	10	12	6
Coyote	99	50	48	87	78	77
Wolf	125	59	47	117	124	56
Total	268	206	178	243	241	158

[a]Destroyed or relocated

(Source: BC Wildlife Branch)

When the decision is made to destroy wolves, control is directed at individual "problem" wolves or packs. Relocation is the preferred method of controlling problem grizzly bears and cougars. Bears and cougars may be shot if it is reasonably certain the suspected animals are responsible for the problem. Where they can be safely employed, aerial shooting, ground-based shooting, and trapping are preferred to the use of poisons, but only authorized government personnel are permitted to shoot predators from aircraft or any other vehicle.

There are numerous measures that livestock producers can take to protect their animals; those that involve killing predators, however, are carefully circumscribed by government legislation and regulation. *The 1979 Wildlife Act* permits livestock owners to remove problem predators by ground-based shooting and trapping (ss. 2(3) and 27(2))[6]. Permits may also be issued to ranchers to destroy predators that have previously been caught attacking livestock on private or leased land. These permits are valid only for the site of a confirmed livestock kill or injury and for a limited time. Wolves may also be harvested as game animals in certain regions of the Province, but ranchers must adhere to bag limits set out in the Provincial hunting and trapping regulations.

There is some evidence that reactive control is effective in reducing livestock losses, although this evidence is not based on controlled field investigations. In an evaluation of the reactive wolf control program in BC during the 1978-1980 period, Tompa (1983b)

reported that shooting, trapping, and poison effectively reduced predation (see Table 3). Control effectiveness was rated high, moderate, or low when no further loss was recorded for a given site for one year, six months, or three months respectively. In the United States, individual case histories suggest that sheep producers who suffer high losses can benefit from the selective removal of predators (Robinson and Bolen, 1989). Its value in significantly reducing predation has been questioned, however. In an assessment of predator control effectiveness in north-western BC, Hatler (1981: 84) writes:

> Some people still oppose predator control because they are against killing generally, or because they do not understand. Others, of which I am one, simply wish to put and end to the lie—that we *know how* to conduct effective protection for livestock within the constraints set by society, that is, short of predator extermination (emphasis in original).

Hatler is more optimistic that ranchers can create nearly predator-proof operations by using a combination of animal husbandry techniques.

Table 3 Predator/livestock conflicts: Estimated number of predators removed 1985–90[a]

	Effectiveness				
Method	*High*	*Moderate*	*Low*	*Nil*	*Total*
Strychnine Baits	9	4	2	5	20
Compound 1080 baits	12	8	8	11	39
Shooting and Trapping	14	8	7	12	41
Total	35	20	17	28	100

(Source: Tompa 1983b)

Preventative measures

A number of non-lethal, preventative measures may also be utilized by the livestock owner (Tompa, 1983b). These include the proper disposal of animal carcasses that may attract predators; locating calving grounds near buildings and away from remote areas; and adequate surveillance, particularly on the open range. Hatler (1981) indicates that other husbandry-related practices—

malnutrition of stock, early turn-out on summer ranges following de-horning and castration, and the aggressiveness of certain cattle breeds—may also have an influence on predation losses. Allowing calving to occur on remote summer ranges is a particularly risky practice since birthing cows are especially vulnerable to predator attack, as are newly, or partially, born calves. Commenting on this practice, Hatler (1981:60) remarks "…rather than considering such 'expected' calves as losses when they do not show up in the fall, they should be considered bonuses, if they do." There is some anecdotal evidence that allowing aggressive livestock such as llamas, donkeys, and billy goats to graze with cattle may provide some protection against predators (Hatler, 1981; Green, 1982). Electric fences and livestock guardian dogs can significantly reduce coyote predation (deCalesta and Cropsey, 1978; Gates et al., 1978; Thompson, 1979; Wade, 1982; McGrew and Blaskey, 1982; Pfeifer and Goos, 1982; Gipson, 1983; Green et al., 1984; Black and Green, 1985). Experimental trials reported by Coppinger and Coppinger (1985) suggest that dogs may provide protection against wolves. However, the effectiveness of electric fences and livestock guardian dogs in reducing wolf predation has not been fully established in controlled field studies.

Protecting the Grizzly Bear

The grizzly bear (*Ursus arctos*) has also been considered vermin and subjected to a long history of intolerance. The grizzly (including the "big brown bears" of Alaska) once occupied most of North America from the west coast east as far as 84 degrees west longitude and from the arctic sea south to Mexico to about 20 degrees north latitude (Hummel, 1990). In the American west outside of Alaska, the grizzly bear has been eliminated from 99% of its range (see Figure 3). Grizzly bear numbers dropped from an estimated 100,000 in the 1850s to less than 1,000 by the early 1900s. In the contiguous states, where only 700-900 grizzly bears remain, the species is listed as "threatened" under the *US Endangered Species Act* (Servheen, 1990). Alaska has a large population, however, of 32,000-43,000. Western Canada also supports a significant population of about 25,000 grizzly bears, with 4,000-5,000 in the Northwest Territories, 6,000-7,000 in the Yukon, about 800 in Alberta, and 10,000-13,000 in BC (Servheen, 1990; BC MOELP, 1995a). On BC's dry plateaus in the southern interior the species is very vulnerable, with a estimated population of 140 (BC MOELP, 1995a). Grizzlies have been eliminated from much of Alberta,

Saskatchewan, and the central and southern part of Manitoba. In Canada, the grizzly bear has lost 24% of its historic range. In 1990, the Committee on the Status of Endangered Wildlife in Canada designated over 60% of the remaining grizzly bear habitat in Canada as vulnerable or threatened—all was considered to be at risk (BC MOELP, 1995a).

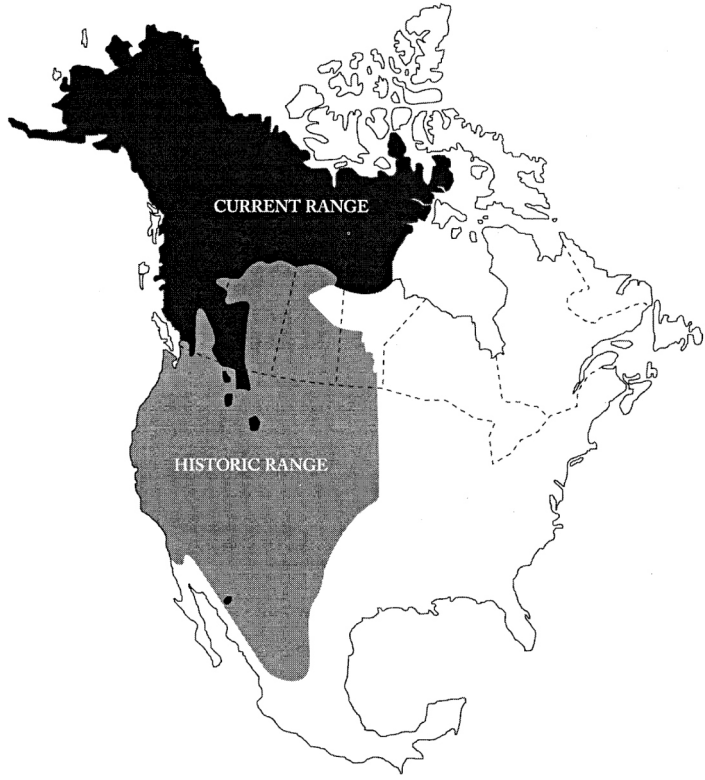

Figure 3 Current and historic grizzly bear distribution in North America
Source: Adapted from BC MOELP 1995b

Grizzly bears and grizzly bear habitat have suffered a similar fate on the Eurasian continent and Africa. Whereas they once occupied almost all of Europe, Asia, the Middle East, and North Africa, they been eliminated from much of their original range. A large

population, estimated at 100,000 in 1990, still remains in the former Soviet Union, but death rates from legal hunting, shooting by farmers to prevent crop damage, and poaching are very high, with a total annual kill of about 10,000. Globally the number of grizzly bears and the amount of available grizzly bear habitat have both declined by about 50% since the mid-1800s (Servheen, 1990).

Threats to the Grizzly Bear

Historically, the decline of the grizzly bear was due to intolerance associated with the threat (real or imagined) that they posed to domestic livestock and occasionally human life (Brown, 1985). More recently, habitat loss has played a major role in its decline. Intolerance and habitat loss are related, however. Intolerance has led not only to the wilful killing of bears, but also to a lack of regard for their habitat requirements (Servheen, 1990). In turn, encroachment on grizzly habitat has increased the level of human contact with bears, making fatal encounters on both sides more likely.

Direct causes of grizzly bear mortality

A number of factors contribute directly to grizzly bear mortality in BC. Overharvesting, while not the most important factor threatening grizzly bears, has been a concern. A provincial review of the grizzly bear harvest for the 1984-88 period revealed that the total kill (which includes the estimated number of unreported deaths) in 52 of 118 management units had exceeded the annual allowable harvest of five percent of the estimated population. Female mortality in certain areas was also above what are considered to be sustainable levels (BC MOELP, 1995a). A small number of bears are also killed each year as a livestock protection measure. In the period 1985-90, for example, the number of grizzly bears removed (either destroyed or relocated) by the BC Wildlife Branch due to bear-livestock conflicts averaged less than five per year (Saunders, 1991). A significant number of grizzlies are taken illegally in BC each year, although the exact number is not known. Some of the illegal kills are related to the trade in bear parts—gall bladders, genitalia, and paws—but most are probably related to trophy hunting. In BC, the illegal trade in bear parts has had a far greater impact on the black bear population. Grizzly bears are also exposed to the risks of vehicle and railway traffic. Between 1989 and 1993 an average of 66 bears per year were reported killed on BC's roads and highways; railway kills averaged 65.2 in the same period (BC MOELP, 1995c). Since many kills go unreported, the actual number of deaths is probably much higher. No data are

available on how many of these deaths involved grizzly bears. Careless behaviour in bear habitat often invites dangerous encounters with bears. Two people were killed and 27 injured in BC in grizzly attacks in the period 1978-94. Most were provoked and resulted from bears trying to protect cubs or food, bears being surprised, or wounded bears turning on a hunter. During the five-year period of 1989-93, on average, 20 bears were destroyed and 21 were relocated each year, as a result of conflict with humans (BC MOELP, 1995a).

Threats to grizzly bear habitat

Loss of habitat is the single most important cause of the decline in grizzly bear numbers worldwide. The decline in habitat, in turn, is associated with several economic and recreational activities. Large hydro-electric dams have flooded large areas of land in BC, destroying salmon runs and altering contiguous and downstream ecosystems (Banci, 1991). The development of BC Hydro rights-of-way and subsequent vegetation management have also reduced the overall area of grizzly habitat. Land disturbed by mining, gas, and petroleum development has been comparatively small, but intensive oil and gas exploration in the Southern Interior Mountains and Boreal Plains Ecoprovinces has had significant, localized impacts on grizzly habitat. In recent years, more livestock grazing has occurred on areas not traditionally allocated for this activity, especially in alpine and subalpine areas, which are important feeding areas for grizzlies in the spring and fall. Vegetation in these areas is very sensitive to sheep and cattle grazing. The experimental use of sheep for managing vegetation on clearcuts has raised similar concerns; worries have also been expressed about the increased demand it might generate for grizzly bear control. Consequently, guidelines have been developed to minimize the impact of sheep grazing in clearcuts. Other forestry-related activities promote the long-term disturbance and, in some cases, the loss of habitat. Road building, for instance, provides greater access to grizzly habitat and increases the chances of human-bear encounters and conflict. Habitat fragmentation resulting from harvesting and road building also impacts negatively on grizzly viability. On the coast, grizzlies appear to require old-growth forest to provide cover from the sun, protection from heavy rains, and thermal cover for dens (BC MOELP, 1995a). With declining reserves of old-growth, pressure to harvest these important habitat areas will continue.

Responding to the Threats

In spite of the fact that BC has almost half of Canada's grizzly bear population, there is good reason to be concerned about the ultimate fate of the grizzly in this province. Nevertheless, there is hope that steps will be taken to prevent the further erosion of its habitat and reduce the likelihood of human-bear conflict.

Changing attitudes: A hopeful sign

One hopeful sign is the growing appreciation that many people have for the aesthetic, spiritual, and symbolic value of the grizzly. There is something charismatic, mystical, enigmatic about grizzly bears, qualities aptly captured in the words of the Canadian writer Sid Marty, who said that the grizzly is "frightening, unpredictable, gentle, intelligent, awe-inspiring, dangerous, and beautiful—like God" (cited in Savage 1990:5). When viewed in this light, grizzlies are no longer merely commodities, trophies, or pests to be quantified as a cost or benefit in an economic analysis or exterminated like cockroaches. They become—and, in the eyes of many people, always have been—something of immeasurable worth.

Grizzly bears now compete with wolves as the pre-eminent symbol of wilderness. But the appeal of the grizzly bear goes beyond that. What child in North America has not cuddled a teddy bear—or at least wanted to. Bears have become symbols of gentility, friendliness, warmth, and security. The characters of Smoky the Bear, Yogi Bear, Paddington, Winnie-the-Pooh, and Rupert Bear have done much to humanize the image of bears. Even though wolves are rarely portrayed as bloodthirsty beasts these days, one simply does not see toy wolves in hospital nurseries or stuffed to overflowing in a child's toy box. "[T]he teddy has virtually achieved the status of talisman, a protector against disorder and things that go bump in the night" (Savage, 1990:7). The irony is that grizzly bears are more likely to attack humans than wolves.[7] In many ways, this romanticized view of the grizzly bear may be just as harmful as more traditional, but also inaccurate, perceptions. Grizzly bears can, of course, be very dangerous when alarmed or threatened, something that must be respected when one ventures into their territory.

The BC Grizzly Bear Conservation Strategy

Given the range of mortality factors, the threats to habitat, and the need to educate the general public, the BC Ministry of Environment, Lands and Parks (BC MOELP, 1995b: 3) has identified four goals as part of a strategy to conserve grizzly bears in BC:

1) Maintain the diversity and abundance of grizzly bear populations and ecosystems throughout BC.

2) Improve the management of grizzly bears and their interactions with humans.

3) Increase public knowledge and involvement in grizzly bear management.

4) Increase international cooperation in management and research of grizzly bears.

Under the Protected Areas Strategy, a number of ecosystem types have been set aside for protection. Most of the existing protected areas are in provincial parks but, for a variety of reasons, may not be adequate for grizzly bear conservation (BC MOELP, 1995a: 26):

> 1) They are not sufficiently large.
>
> 2) They do not, for the most part, contain prime grizzly bear habitat or all of the ecological requirements of a grizzly bear population.
>
> 3) Many were not initially established with the purpose of representing the full range of ecological diversity in the province, but rather to capture scenic or recreational wilderness values.

What is required are several large core areas, one for each grizzly bear ecosystem, linked by travel corridors to provide for the dispersal needs of grizzly bears and other wildlife (BC MOELP 1995a).

Three areas in the province show considerable promise as core grizzly bear conservation regions, one of which, the Khutzeymateen, has already been set aside as a protected area for grizzly bears (see Figure 2). The decision process leading up to the establishment of the Khutzeymateen preserve had been a source of controversy since at least the early 1970s, when the Ministry of Environment, Lands and Parks (MOELP) supported a proposal to turn the area into a sanctuary to protect grizzly bears and their habitat (BC MOF and MOELP, 1992). The dispute is indicative of the difficulties encountered when the needs of wildlife clash with powerful economic interests. The preservation of the area was strongly opposed by Wedeene River Contracting Limited, a forest company that had been allocated a quota in the North Coast Timber Supply Area (Wilderness Advisory Committee, 1986), and by other forest and mining companies who were concerned about its implications for other wilderness/forestry conflicts.

In 1986, the provincial cabinet asked the Wilderness Advisory Committee (WAC) to include the Khutzeymateen in its list of wilderness areas to be reviewed. After considering the interests of various user groups, the WAC recommended that, subject to certain restrictions, timber harvesting be permitted in the area. The WAC also proposed that the MOELP monitor the impacts of harvesting on grizzly bears and that the Ministry of Forests adjust cutting plans if necessary (Wilderness Advisory Committee, 1986). In 1988, the government created the Khutzeymateen project to study the effect of timber harvesting in the area on grizzly bears, and in 1992, released the *Khutzeymateen Study Report* (BC MOF & MOELP, 1992). The report reached what turned out to be a number of pivotal conclusions: the protection of bear habitat in the Khutzeymateen was vital for the management of grizzly bears in north-coastal BC; forest harvesting in the area would reduce the capacity of the area to support grizzly bears, both in the short and long term; forest development would also increase the risk of direct mortality due to higher levels of contact between humans and bear; large reserves where no grizzly bear hunting is permitted were crucial for the future survival of grizzly bear populations; and finally, since options for a protected habitat core in north coastal BC were limited, the Khutzeymateen was considered the best candidate.

In June 1995, the Provincial government designated the Khutzeymateen a grizzly bear sanctuary, the first in Canada. The area covers 443 km^2 and incorporates the Khutzeymateen River, its tributaries, and Larch and Cedar Creeks and includes an extensive old-growth forest of coastal western hemlock. The river system supports four species of salmon. Public access to the area will be limited to those travelling in the company of specially licensed guides. The region is now a Class A provincial park, surrounded by a large no-hunting area, creating in total a grizzly management zone of 3,850 km2 (BC MOELP, 1995a).[8]

The Kitlope, located somewhat further south than the Khutzeymateen and west of Tweedsmuir Provincial Park, is a 275,100 ha watershed in nearly pristine condition. While it does have some limitations—salmon streams are somewhat intermittent, much of the terrain is steep, and grizzly bear populations are not large—the area is a good candidate for a core conservation area. In March of 1994, a moratorium was placed on hunting grizzly bears in the area and later extended because of conservation concerns. In the same year, almost 82% of the Kitlope was proclaimed a joint Haisla First Nation/British Columbia protected area. The offi-

cial designation of the area and management arrangements have not yet been announced (BC MOELP, 1995a).

Significant bear habitat is also found in the Mitchell Lake/Niagara Protected Area, located between Bowron Lake and Wells Gray in the Cariboo Mountains, and the Tatshenshini-Alsek Provincial Park (a UNESCO World Heritage Site), which borders on Kluane National Park in the Yukon and Glacier national park in Alaska. The Tatshenshini has been a source of conflict with the mining industry because of the valuable Windy Craggy deposits in the area. Wilderness interests concerned about the protection of wilderness values, including grizzly bear habitat, and the preservation of the rafting industry (Wilderness Advisory Committee, 1986) lobbied vigorously and successfully against mining in the area. Several other areas, for example, in the BC/Alaska panhandle area, the northern interior, and along the central coast, may also be prime candidates for core conservation areas and management zones (BC MOELP, 1995a).

In addition to identifying and designating core habitat areas, other initiatives to secure the future of the grizzly bear in BC are being actively pursued or investigated. A Grizzly Bear Scientific Advisory committee consisting of independent, recognized grizzly bear experts has been created to provide advice to government and consult with stakeholder groups. A province-wide inventory of grizzly bears and grizzly bear habitats is to be undertaken (BC MOELP, 1995b). In 1988, the maximum annual allowable harvest was reduced to four percent of the estimated population, with the number of females harvested to be no greater than 50 percent of the male harvest (33 percent of total harvest). As of fall of 1996, all grizzly bear hunting has been through Limited Entry Hunting for BC residents and Guide Outfitter Quotas for non-residents. The government is developing and improving programs to educate the public about grizzly bear behaviour, habits, and safety to reduce the risk of human-bear conflict. The better management of food waste to reduce the number of garbage-conditioned bears is also a priority. Securing the future of the grizzly bear will also be promoted by the formation of partnerships with the private sector and by continued cooperation with US agencies to manage and protect shared grizzly bear populations. The government has strengthened enforcement of the *BC Wildlife Act* by greatly increasing penalties for poaching. Fines for first offences have increased from a minimum/maximum range of $200–10,000 to a range of $1,000–25,000; and for subsequent offences, fines from a range of $1,000–25,000 to a range of $6,000–50,000 (BC MOELP, 1995b). In February 1993, the

government placed a ban on the commercial trade in bear parts. Possession, trafficking, exporting, and importing of bear gall bladders and genitalia are now forbidden. The regulations also apply to bear paws separated from the hide, although possession is permitted for personal use and for ceremonial use by aboriginal people (BC MOELP, 1996).[9]

Land and Resource Management Plans

As part of its efforts to identify wildlife planning and management needs, the BC government has blue-listed grizzlies throughout the province. The blue-list designation identifies a species especially vulnerable to natural events or human activities. The activities most threatening to grizzlies in BC are poaching and encroachment on, and degradation, of grizzly habitat. Natural events that reduce or degrade habitat are also of concern. Habitat concerns have been addressed in a number of Land and Resource Management Plans (LRMP) recently completed in BC. The Vanderhoof LRMP (BC LUCO 1997), for example, modifies the boundaries of some resource development areas thereby increasing the amount of grizzly habitat in special resource zones and Protected Areas, where grizzlies will be relatively undisturbed by human activities. This will also reduce the potential for direct human–bear conflicts, particularly bear attacks, and the subsequent elimination of "problem" bears. Similar provisions can be found in other LRMPs completed in central and northern BC.

The hope is that, collectively, the efforts noted above will counteract the legacy of intolerance and habitat destruction that has characterized our relationship with the grizzly bear thus far. There is a lesson to be learned from the US experience, where over $25 million were spent on grizzly bear recovery in 1992. What we lose can be very expensive to recover, if it can be recovered at all. Losing it could mean losing it forever (BC MOELP, 1995a).

Some Reflections on Human-Wildlife Interactions in New Caledonia

The two major issues examined in this chapter—the wolf-control controversy and the protection of the grizzly bear—raise a number of issues that merit attention. Especially noteworthy are several questions raised concerning the ethical, decision-making, and public relations dimensions of the two issues.

Opposing positions on wildlife management are often related to profound differences in fundamental philosophical and ethical perspectives. The ethical questions surrounding operational wildlife management programs are, however, varied and complex. The most that can be done here is to illustrate the problem and to attempt to point the way forward.

Philosophically, the rift is most pronounced between those who find a human-centred utilitarian perspective the most satisfactory approach to deciding fundamental questions and those who believe that all animals have intrinsic value, a quality that cannot, in principle, be measured in cost-benefit terms. The ethical implications of intrinsic value, as it relates to nonhuman life, have been extensively debated, with two basic positions emerging. As applied to wildlife, the rights-based perspective holds that intrinsic value carries with it a set of basic rights, similar or identical to those we accord humans. For example, it is sometimes argued that animals have a fundamental right to life that cannot be overridden by human interests without very strong justification; defending oneself from attack might be a case in point. A second view, sometimes referred to as a duty-based perspective, argues that intrinsic value simply imposes certain duties on humans with respect to their interactions with animals.[10]. Either of the views based on intrinsic value can generate conflict with those who adopt a utilitarian position.

Assessing the effectiveness of lethal wolf control, whether proactive or reactive, will illustrate the point. Theberge's (1989: 159) comments on the experimental killing of wolves to assess the effectiveness of wolf control are consistent with both a rights-based and duty-based perspective.

> The deductive, experimental approach accords no worth whatsoever to the wolf. It works from the premise that no harm, no injustice, no malpractice is done if a bunch of wolves is killed unnecessarily. We kill mosquitoes, cockroaches, ants without moral misgivings or fear of social reprisal, but we don't kill other humans, whooping cranes or California condors.

Although Theberge's remarks were directed at the issue of proactive control as a means of increasing wild ungulate populations, they apply equally well to all studies that require the taking of animal life. Experimental killing would be viewed quite differently from a utilitarian perspective, provided the utilitarian calculus of pain and happiness (or some other measure of good and evil) were not extended to animals as well, something that is rarely done.

While there is usually some consideration given to the humaneness of the killing method, the lives of predators themselves are usually assigned little worth, from a utilitarian perspective, unless they have some economic or other instrumental value.

The question of experimental killing is probably one of the easier wildlife-related issues to analyze in terms of competing ethical theories; getting people to agree on the ethically correct response is another matter. The broader issue of animal suffering, whether it involves predator or prey, raises ethical questions that defy simple and straightforward anlysis. Honest, rational people who have sincerely held beliefs about what is right and wrong often disagree profoundly with one another over wildlife management issues. Nevertheless, the wolf-control debate is often characterized in very simplistic terms as a confrontation between objectivity and emotions, between those who appeal to hard scientific and economic data and analysis to support their points of view and those who base their arguments on emotion. The general acceptance of utilitarian arguments has, regrettably, fostered a belief in some quarters that arguments based on something other then a cost-benefit model are irrational. Those based on the notion of intrinsic value, for instance, are often rejected as sheer emotionalism; yet arguments of this sort can be just as rational as those based on utilitarian assumptions. Often when people say, "Be reasonable," what they are actually saying is, "Accept my assumptions about what is fundamentally important." Accusations of emotionalism and irrationalism often betray a failure to recognize the fundamental philosophical differences that divide society.

This tension between opposing ethical perspectives will never be fully resolved, but decision-making processes, even those that incorporate a wide range of stakeholders tend to be competitive in nature, rather than integrative. Competitive processes tend to harden existing values and to allocate resources on a win-loss basis. A integrative process provides a forum where "reasoned deliberation" is employed in a search for the common good (March and Olsen, 1989). The promotion of consensus decision-making and principled negotiation (Fisher and Ury, 1981), first by the former Commission on Resources and the Environment and now through the Land and Resource Management Planning process, is a move toward the development of integrative decision-making institutions in BC. There is a vital need for a public forum in which ethical issues can be addressed, discussed and accorded the level of respect traditionally reserved for biological and economic arguments. This is best done in a situation where a climate can be creat-

ed that encourages rational discourse. It should not be left to the media to provide the primary forum for discussing the ethical dimensions of wildlife management issues.

Decision-making, Policy and Public Relations

Wolf control and grizzly bear management have generated controversy, the former much more than the latter. The reasons for the difference are not entirely clear, and the issue warrants a good deal more study. There are, however, some points that seem reasonably clear. Many of those who have opposed the establishment of grizzly bear sanctuaries (in the Khutzeymateen, for example) have considerable economic and political power. The government, however, has had the advantage of supporting a position that has broad public support, provincially, nationally, and internationally. This has, no doubt, kept public controversy much below what it would have been had it been otherwise. Generally, the government's handling of the grizzly bear issue strongly suggests that it learned some hard lessons as a result of the Kechika/Muskwa protest. While not without its faults, the process of public consultation that led to the Khutzeymateen decision was more comprehensive, more inclusive, and more widely publicized than the public input process that preceded the northeastern wolf-kill projects. Moreover, the BC government has followed up its Khutzeymateen decision with a detailed background report on grizzly bear conservation in BC (BC MOELP, 1995a) as well as a comprehensive strategy for grizzly bear conservation (BC MOELP, 1995b). The strategy is very broadly based and acknowledges the multi-dimensional nature of the problem by developing specific strategies to deal with a number of technical, biological, economic, socio-cultural, and international issues in an integrated way. A strategy of this nature would likely have led wolf management in quite a different direction had it been employed in the late 1970s.

In an evaluation of wolf control controversies in Alaska, Yukon and BC, Clarkson (1995) identified six problems common to all:

1) No comprehensive and acceptable wolf management policy and plan.

2) Inadequate public information and education programs before initiating wolf management.

3) Questioning of the agencies' biological justification for wolf management.

4) Consideration focused primarily on biological aspects before management decisions were made.

5) A common responsibility for management that placed agencies between public groups with conflicting interests.

6) A poor working relationship with the media before and during the wolf management controversies.

Each of these problems is closely related to the others; indeed an effective wildlife management strategy would address all six problems in an integrated planning and management process. It is becoming increasingly apparent that issues like wolf control cannot be addressed in isolation from a broad range of social, economic, ecological, and political considerations. Increasingly, any decision-making process that does not address the full range of issues will lack credibility. Indeed, the success of any wildlife management plan depends on the extent to which it is perceived to be legitimate, not only by government officials, but also by independent scientific experts and the broader community. In the case of the Kechika/Muskwa controversy, the government faced something more fundamental than a public relations problem; it ran head on into a crisis of legitimacy.

In 1979, the year following the commencement of the Kechika wolf-kill, the BC Fish and Wildlife Branch released its preliminary wolf management plan, after a public consultation process that, in hindsight, had serious flaws. The plan identified five objectives for wolves in BC (BC MOE, 1979):

1) To maintain viable populations of wolves in wilderness areas

2) To provide opportunities for people to listen to and observe wolves in their natural habitats.

3) To control wolves in established livestock management areas.

4) To control wolves on a site-specific basis when the main objective is to maintain other wildlife species at a desired level.

5) To provide for the hunting and trapping use of wolves.

In some respects, this appears to be a relatively well-balanced strategy that takes into account a range of wildlife values. However, during the Kechika/Muskwa controversy, much of the public saw

it quite differently: it was another case, many believed, where consumptive values were given priority over non-consumptive values. Indeed, the government's actions in 1984 provided a good deal of support for the widely held opinion that BC wildlife officials have been more attentive to the views of hunting interests than to other constituencies (Fox, 1988). To many outside observers it appeared that the Fish and Wildlife Branch, believing it had the support of its traditional constituents, was quite prepared to weather a measure of public protest.

Yet it was very clear that the government was quite unprepared for the level of media attention and the intensity and scope of the public protest, which is puzzling since the government was clearly aware that wolf management issues were very controversial indeed, a point acknowledged in the 1979 wolf management plan. The period of relative quiet in the early years of the Kechika project (1978-83), may have lulled officials into thinking that the danger of a major public outcry had passed. But this does not explain why, given the government's apparent determination to forge ahead in spite of contrary public opinion, an effort was not made to prepare adequate documentation of the projects' technical rationale and to create an effective public relations strategy before the wolf-kill began, as contingency measures at the very least. Jim Hatter, who was director of the Fish and Wildlife Branch from 1963 to 1973, and who was no opponent of wolf control, offered some rather frank observations:

> The game managers have not done their homework. Everybody got caught with their (sic) pants down…. There was no advanced conditioning of the public before they started the…wolf-control program. They just went ahead and did it and all hell broke lose (Obee, 1984: 10).

In fact, the government may have misunderstood the very nature of much of the protest, which says a good deal about the government's inability to fathom the public mind. Writing a short time after the controversy subsided, a government biologist (Archibald, 1989) speculated that limited control activities would be more acceptable to the general public if people were convinced that the long-term existence of wolves in BC was secure. "Much of the public's understanding of predation," he wrote, "reflects that of biologists in the late 1960's and early 1970's, that is that predation is not a major limiting factor. Until the public understand [sic] the technical basis for wolf control, public resistance to any control activities will remain high" (Archibald, 1989:176). Most British

Columbians would, indeed, like to be reassured that wolves will not be eliminated from the province, and many might be willing to accept limited control if they fully understood the technical arguments. For many people, however, the acceptability of wolf control is not primarily a technical issue. Theberge (1989: 159-60) is much closer to the mark when he writes:

> …a much bigger issue of values is whether wolf killing, even when it may increase ungulate numbers, is unacceptable. Quite possibly the majority of Canadians see it that way now, on the same grounds that govern attitudes towards the killing of harp seals, the trade in endangered species, and commercial whaling.

Yet wildlife officials seem to have difficulty addressing ethical issues in a straightforward way. It is easier to appeal to economic and biological arguments, which once carried the day, by and large, but are increasingly being challenged, in ever widening circles. If wildlife officials wish to avoid the level of controversy associated with the Kechika and Muskwa projects, proactive wolf-control programs will have to be justified, if they can be justified at all, on ethical as well as biological and economic grounds.

In retrospect, what was needed was a effective strategy for involving the public in a meaningful way in the decision-making process, something beyond mere tokenism. If government officials wish to make the best use of public participation, the process should not be used to "condition" the public, which Hatter's comments, noted above, appear to suggest. There is certainly a need to educate the public in certain matters, but the idea of conditioning the public smacks too much of bending people to the will of officials who have already decided what is best, without allowing the full range of legitimate stakeholders a meaningful voice in the process.

The BC Wildlife Branch, to its credit, has made some progress in recent years by creating various public advisory boards to consult with government on the technical and social dimensions of wildlife management (BC MOE, 1991). Public involvement of this kind prior to 1978 may have led to quite a different outcome, if not in terms of the decision made, at least in the level of public acrimony. Public protests and media events often derive much of their energy from frustration and anger over the exclusionary nature of many public policy processes. In many cases, much of this energy can be tapped to a more productive end through meaningful public involvement.

Clarkson (1995) has outlined a six-step public involvement program for developing wolf management policy and plans that has much to recommend it:

1) Professional analysis and research.

2) Public meetings for presentation of problem and public input.

3) Professional analysis and policy and plan alternatives.

4) Public meetings to deal with alternatives and public input.

5) Professional analysis and final policy and plan formation.

6) Review and approval by political and bureaucratic authorities and placement of policy and plan.

There is no assurance that a program of this kind would prevent a major controversy, but it is very unlikely, given the present climate of opinion, that anything like a consensus could be reached without it. The virtue of Clarkson's proposal is that it recognizes the importance of the interplay between professional analysis and public input. Moreover, the program would allow this to occur in an iterative process whereby technical information, scientific analysis, and public input could be progressively shaped and refined into a formal plan and policy. It is the progressive iteration of professional analysis and public input that is most valuable, rather than the precise number of steps Clarkson identifies. What he does not mention, however, is the need to develop a climate in which reasoned deliberation in search of the common good is encouraged. Doing so is a formidable challenge, however, because it asks us to do something that we have not done well thus far: placing the common good above self-interest.

Conclusion

Intolerance, like the poor, will no doubt always be with us; it is one of the unpleasant facts of life. But just as we hope and work for less poverty, we also hope and labour for less intolerance. The years since Upper Canada began its official campaign against wolves and bears have shown us very vividly what intolerance can do to our natural heritage. In 1793, killing wolves and bears was the right thing to do, even the noble thing to do; and it continued to

be so for many years thereafter. The world, Canada, and British Columbia are the lesser for it. Today, we are not entirely sure what is right, what is noble. Most would argue that killing an animal to protect a human life or to prevent serious bodily injury is morally justified. Beyond that, the serious disagreements start, and they often reflect profoundly different views about the proper relationship between humans and other animals. We often disagree on if, how, where, or when killing other creatures is justified. Most of us agree on one point, however: wolves and bears are too important in a variety of ways, too much a part of our Canadian heritage, too much a symbol of the North and its people to ever say again that the world would be a better place without them. Words come easily, but the way ahead will require hard work, creativity, commitment, and compromise if all of us, with our varied interests, values, and needs, are going to reach agreement on how we can provide for ourselves and still leave room for creatures who, like us, must take the lives of other living things to survive. In a hundred years time, what will our children say about the character of the North and its people?

Notes

1. Biblical quotations are from the Jerusalem Bible.
2. *The 1979 BC Wildlife Act* now permits the trapping of wolves under certain conditions.
3. The nominal price of $500 per animal was suggested by Lorne Leach, Secretary-Manager, BCCA, in a personal communication.
4. Denning involves locating a den and killing the wolf pups. Denning and aerial shooting are not currently used to kill "problem" wolves in BC.
5. The BC government placed a moratorium on the use of 1080 effective January 1, 1999, a moratorium that has been challenged repeatedly by cattle-raising interests in the province. The moratorium is currently under review, as are a number of government policies dealing with "problem" wildlife. Indications are that the moratorium will be lifted by the present (2001) Liberal government (Badry, 2002).
6. The BC Procedure Manual for the Management of Problem Predators outlines the lethal measures that livestock produces may take on their own behalf.
7. In fact, there are no scientifically documented cases of a wolf killing a human being in North America. There is, however, credible anecdotal evidence from people experienced in the woods and

with wildlife that humans have been killed by wolves, although it happens very rarely (Lopez 1978).

8. Class A parks are intended to utilize outstanding natural, scenic, historic, and recreational features for the use, inspiration, and enjoyment of the public of BC. They have a high degree of protection from exploitation and alienation (*BC Park Act*).

9. Poaching and trafficking in bear parts have recently received a good deal of attention in the media because of the efforts of a BC organization known as Bear Watch. Although the group claims not to be anti-hunting, it has initiated an anti-trophy hunting campaign aimed principally at guide-outfitters who cater to American and European clientele. It is also opposed to the killing of "problem" bears—those who have become dependent on human handouts and garbage and those who kill or injury people (Bear Watch, 1995). In May of 1996, six members of Bear Watch were charged by a conservation officer with interfering with a legal hunt (*Victoria Times-Colonist*, May 28, 1996).

10. Many of the complexities and subtleties of ethical theory have been ignored in the following discussion. Rights-based and duty-based perspectives can be anthropocentric, biocentric, or zoocentric (humans included), depending upon the range of entities that are believed to possess intrinsic value. Rights-based and duty-based perspectives can also be based on assumptions other than, or in addition to, the notion of intrinsic value.

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