

8. Mammals

A Full Theater of Native Fauna

Along with the Greater Yellowstone Ecosystem, the Crown of the Continent includes the most intact assemblage of mammals of any region in southern Canada or the contiguous United States.



There are about sixty-five species of mammals native to the Crown. The smallest is the pygmy shrew, just 8 centimeters (3 inches) long and a few grams in weight; the largest is the bison, at 800 kilograms (1,768 pounds), even larger than the moose. Some mammals are highly specialized, like the northern bog lemmings that live in fens, or the mountain goats of the alpine. Others, like grizzly bears, are generalists that roam from the prairie to the alpine. The Crown of the Continent serves as a reservoir for mammals repopulating other areas and is a link for populations on both sides of the international border, assisting in maintaining genetic linkages of these populations.

Predators

The Crown is home to both black bears and grizzlies. (The black bear exists solely in North America; the grizzly bear is the same species as the brown bears of Asia and Europe.) Black bears live across North America, but grizzlies now live only in protected places

or sparsely inhabited areas of Canada and only five distinct recovery areas in the continental United States. About 400-500 grizzly bears use the Crown as their home range.

Grizzlies

are the largest predator in the Crown of the Continent, but they actually spend very little of their time trying to catch live prey. Meat makes up less than 10% of a typical grizzly bear's diet. More commonly, grizzlies dine on grass, roots, berries and other plant parts, insects, larva, and carrion. When they do hunt, their prey is as likely to be ground squirrels and mice as larger animals.

Grizzlies range over huge home territories. One male, radio-collared in Glacier National Park, had a home range of more than 780 square kilometers (300 square miles). While humans have relegated grizzly bears to high mountains, the bears actually favor lowland habitat. Prior to European settlement of western North America, they could be found roaming the prairies as often as they wandered the mountains. Because of its ample rainfall, lush vegetation, and diverse food sources, the North Fork of the Flathead drainage has the highest density of inland grizzly bears anywhere in North America. The open spaces along the Rocky Mountain Front,

such as the Pine Butte Swamp Preserve and areas on the east side of Waterton Lakes National Park, offer rare opportunities for grizzly bears to venture onto the prairie that was once their home.

The smaller black bear thrives in the Crown of the Continent in far greater numbers than the grizzly. Black bears are generally less bold and defensive than grizzlies and can survive in human-dominated landscapes. Huckleberries and buffalo berries are staples for both bear species in the Crown.



After being driven to near extinction in the western United States and much of southern Canada, wolves have begun to rebound in the Crown of the Continent. Unlike wilderness

areas in Yellowstone and Idaho (where captured Canadian wolves were relocated by the U.S. Fish and Wildlife Service), wolves have been able to recolonize the Crown of the Continent without direct human intervention.

In the mid-1980s, wolves from British Columbia recolonized the North Fork of the Flathead Valley. Once they established a foothold in the North Fork, the wolves began to spread throughout western Montana. A few individuals have even ventured into Wyoming and Idaho.

Since then, migrations of wolves have gone both north and south. Wolves from the Crown have roamed 800 kilometers (500 miles) to the north, into the Peace River country of Alberta and as far south as Yellowstone. This migration illustrates the importance of the Crown as a link between populations of mammals, helping to spread the genetic diversity of these animals.

Like most large predators, wolves follow their prey, particularly whitetail deer. While they occasionally hunt the high country, they are more often found in lowlands, such as the Wigwam Flats along British Columbia's Wigwam River, the North Fork of the Flathead Valley, and the Ninemile Valley northwest of Missoula. Wolves live in places where elk and deer can survive year-round.

The Crown is also important range for coyotes, river otters, pine martens, bobcats, cougars, striped skunks, raccoons, least, short- and long-tailed weasels, minks, red foxes, and badgers, as well as the more rarely seen wolverines, lynxes, and fishers. Across North America, biologists and conservationists have been concerned about these creatures, and the Crown is recognized as important habitat for these species. It may also be a critical reser-



voir for populations of wolverines and lynxes which go on to recolonize other areas.

Hoofed Mammals

Large hoofed mammals, known collectively as ungulates, include mountain goats, moose, elk, mule and whitetail deer, bison, pronghorns, and bighorn sheep. The Crown of



the Continent has the most diverse association of ungulates in North America. Pronghorn antelope live on the fringes of the Rocky Mountain Front. The Crown of the Continent includes some of the largest native herds of bighorn sheep in North America. Mountain goats are introduced exotics in Olympic and Yellowstone national parks, but are natives of the Crown of the Continent.

Moose are the largest member of the North American deer family and are the largest ungulate still common in the Crown of the Continent. Moose are built to survive in deep snow, eating willow and other shrubs. While some moose live in relatively small home ranges, others migrate many kilometers between summer and winter range.

Of these ungulates, only mountain goats spend the winter in the high mountains. Elk, bighorn sheep, and mule deer often summer in the cool, lush high country, but migrate to the lowlands in winter. In spring, the winter's

survivors follow green up of the vegetation back into higher country. Carnivores follow these patterns as well.

Important winter ranges in the Crown of the Continent include thousands of acres of private ranchland, the Elk River Valley, the North Fork Valley, the foothills east of Crowsnest Pass, the prairie portions of Waterton Lakes National Park, the Sun River Game Range, and the Clearwater/Blackfoot Game Range.

Seasonal migration routes are often international. Elk that winter in the North Fork of the Flathead in Montana may summer in British Columbia; some elk and bighorn that summer in the upper Flathead of

British Columbia cross over the Continental Divide and winter in Alberta. Given such patterns, cooperation between wildlife managers is crucial.

Other Creatures, Great and Small

The Crown is also home to many often-overlooked, but equally fascinating, smaller creatures.

Deer mice are ubiquitous, while western jumping mice are less

common. Red squirrels and northern flying squirrels live in the forest canopy. Three species of chipmunk inhabit the Crown of the Continent. Porcupines are fairly common in woodlands, as are packrats.

There are several varieties of voles in both forest and grassland habitats. The Mis-



sion Valley is a winter hot spot for falcons, owls, and hawks, because of the copious numbers of meadow voles on which they can feed.

In the alpine, golden mantled ground squirrels are common, as are hoary marmots. Burrowing rodents include Columbian ground squirrels, Richardson ground squirrels, thirteen-lined ground squirrels, and northern



pocket gophers, which live in grassy areas with deep soil. Beavers and muskrats are abundant, semi-aquatic

rodents.

Hares include the snowshoe hare, which changes from white to brown with the seasons, and the white-tailed jackrabbit of the eastern prairie. The pika is a related creature, which lives in boulder fields, spending summers collecting grass to keep it through winter.

Six species of bats live here, eating insects in summer and migrating or hibernating in winter. There are three species of shrew, primitive insectivores even smaller than mice.

Local Extinctions

Of the species that dwelled here 400 years ago, two large mammals are missing from the wild: the bison and the mountain caribou. Huge herds of bison roamed the



prairies and the mountains, migrating with the seasons in search of new pastures. These animals grazed, trampled, rolled, and otherwise disturbed the native grassland vegetation and consequently helped determine which plant species grew and which did not. Bison were the largest species native to the Crown of the Continent, though some experts believe there were actually two bison subspecies: plains bison and the smaller mountain bison. Though they once numbered in the millions, they were locally extirpated by the late 1880s.

Today, the National Bison Range contains several hundred plains bison, and a small herd lives in Waterton Lakes National Park. Many hundreds more are being raised on private ranches throughout the area.

Mountain caribou are creatures of cold mountains and boreal forest. They have lost habitat to large wildfires, early logging, and settlement. The populations were also reduced by over-hunting in the years before effective wildlife management. The Crown of the Continent represented the southern extreme of caribou range. Though never here in great numbers, individual caribou once roamed as far south as Missoula and have been seen in the Crown as recently as the 1970s.

The swift fox was extirpated when its native grasslands habitat was converted to

agricultural crops and as a side-effect of other predator- and rodent-control measures. These small foxes have been recently reintroduced to the Blackfeet Indian Reservation in Montana, as a result of earlier successful conservation efforts in

southern Alberta. Sinopah Mountain, in Glacier National Park, above Two Medicine Lake, takes its name from the Blackfeet word for swift fox.

Issues in Mammal Conservation

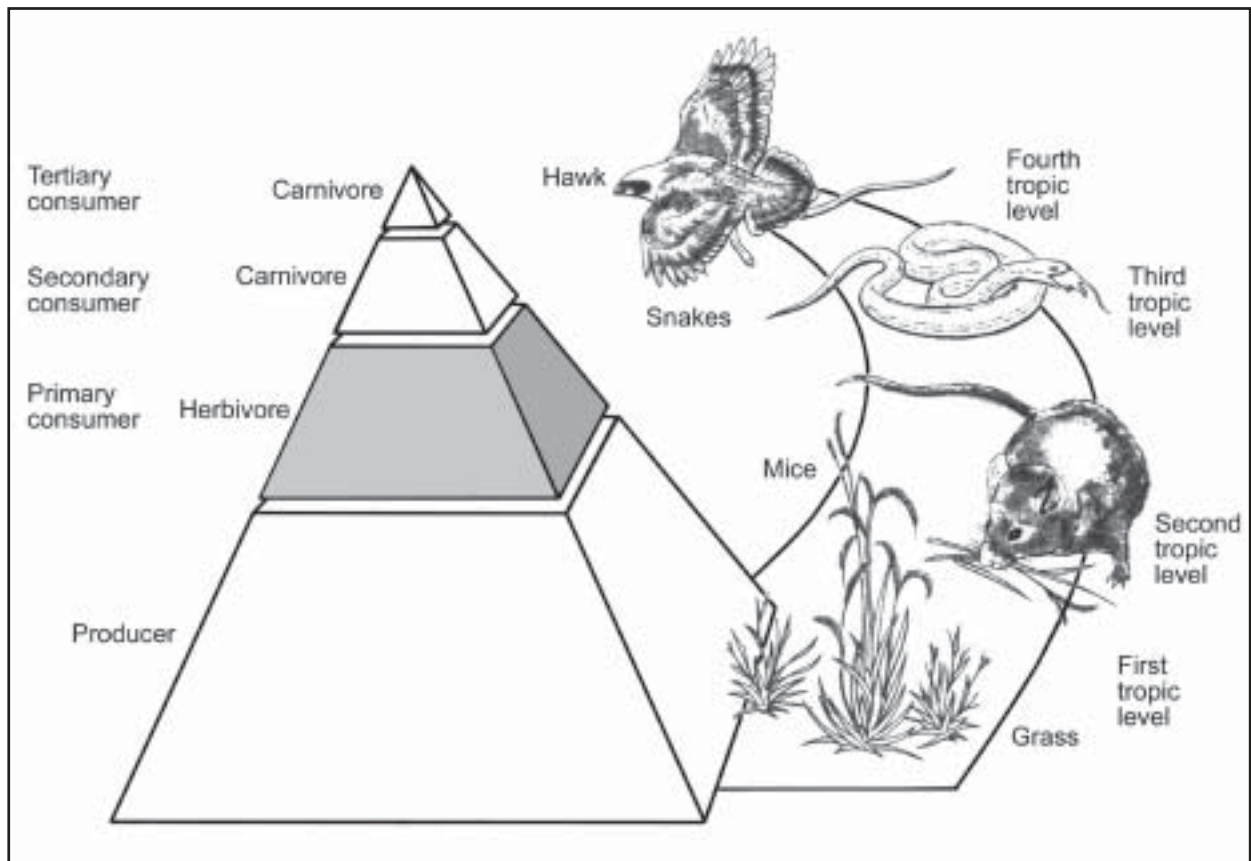
All creatures need food, water, shelter, and space in their habitat. In the Crown, the supply of food and shelter varies from summer abundance to winter scarcity. Winter range—places where animals seek refuge from snow and cold—is often the limiting factor for ungulate populations in the Crown. Much of the Crown is inhospitable to deer and elk during the winter. This natural situation is compounded because much of the original winter range is being used for agriculture, towns, and reservoirs. To adequately conserve these species, our towns and highways should be planned and managed to allow animals to

migrate between summer and winter ranges.

Predators are generally in greater peril than other large animals. Bears, wolverines, and other meat eaters have naturally slow reproductive rates. This makes their populations vulnerable to serious reductions and limits their ability to recover from losses.

The grizzly bear is a threatened species in the United States and “blue listed” in British Columbia. Grizzly bears are difficult to conserve, in part because they roam over vast territories. Grizzly bears once ranged from the prairies of Kansas to the Pacific Ocean. In the Lower 48 United States, they have lost about 98% of their historic habitat.

Like the grizzly bear, the gray wolf is also protected in Montana under the federal Endangered Species Act. Wolves have historically been among the most persecuted of North American mammals, since they some-



times kill livestock. From the ranching era of the 1870s to the 1970s, wolves were widely regarded as pests. But since the late 1980s, legal protections and improved deer and elk management helped to boost wolf numbers, first in Canada and then the United States.

As highways and human developments increase in the Crown of the Continent, places like Crowsnest Pass and Marias Pass could divide the Crown of the Continent into smaller pieces, cutting off one population from another and limiting reproductive diversity. In recent years, wildlife has been increasingly displaced by new rural subdivisions. Widescale loss of habitat due to unrestricted



development can be mitigated by local planning. Wildlife corridors and wildlife crossings may prevent future problems by maintaining connectivity between blocks of habitat.

Strategic, well-planned development can balance the desire for economic growth and home building with the needs of wildlife.

Future predator management will likely focus more on solving localized predator problems, instead of widespread eradication of entire species. Along the Rocky Mountain Front, in both Alberta and Montana, wildlife managers and conservation officers are focusing their efforts on reducing conflicts between bears, people, and livestock. For example, conservation officers have helped ranchers

dispose of livestock carcasses, so they don't attract bears to herds of cattle. In one program, road-killed animals are being placed in uninhabited locations to attract and feed bears and keep them from hunting on local ranches in the spring.

Wolves are managed differently under different jurisdictions within the Crown of the Continent. A wolf pack may roam over several jurisdictions. In Montana, killing a wolf is a federal crime. Conversely, in Alberta, wolves may be shot without a license or limit for nine months of the year and by landowners within five miles of their property all year round. Wolves freely cross human boundaries. One of the leading causes of death of wolves radio-collared in the United States is legal shooting in Alberta and British Columbia. Of fifty-eight wolves radio-collared in Montana between 1987-1999, twelve were killed legally in Canada.

Public attitudes toward predators have shifted dramatically in recent decades. Only 40 years ago, creatures like coyotes and mountain lions were shot under a bounty system, and wolves were rarely seen in the Crown of the Continent. Today, though opinions still run strong, predators are staging a comeback. Wolves, bears, coyotes, and lions will kill livestock and can be economic burdens to rural stock owners. Some supporters of predators have acknowledged this fact and fund programs to compensate ranchers for their losses through wildlife organizations. The Alberta government also compensates ranchers who lose stock to predators, though the program has many restrictions.

Ultimately, wolves and other large predators will survive where humans tolerate them. A key to conserving large predators will be resolving conflicts, particularly over the loss of livestock.

Predators can also pose dangers to human beings. Glacier National Park has

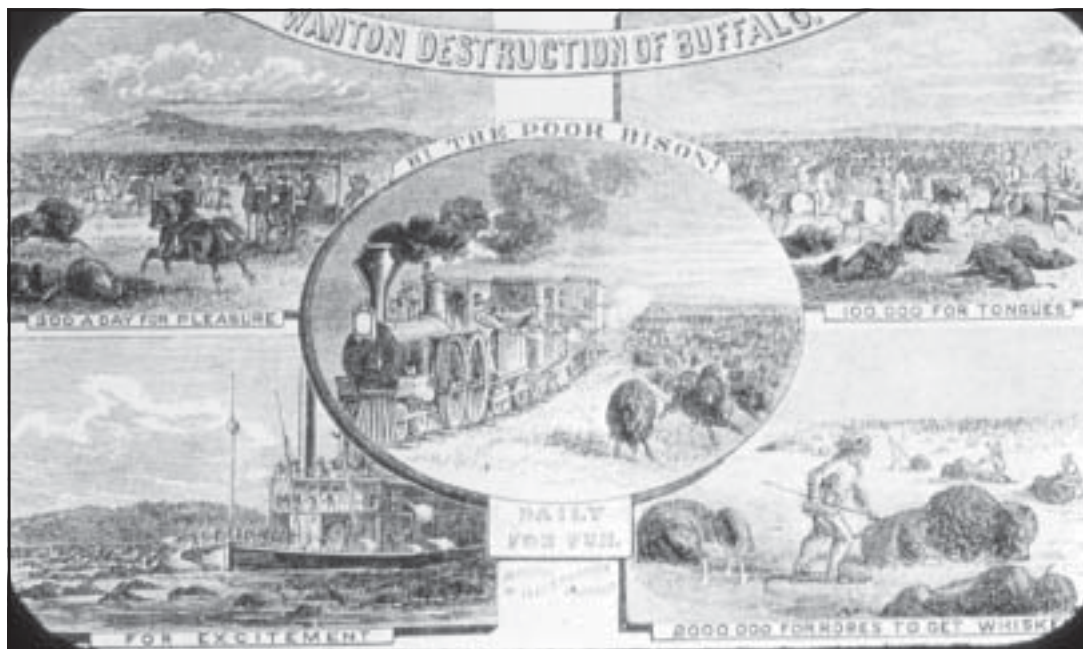
averaged two bear attacks per year, most of which were not fatal. However, ten park visitors have been killed in the history of the park. There have been bear attacks in Waterton, but no fatalities. One person was killed by a cougar north of Missoula, and two young visitors to Glacier National Park have been attacked by cougars since 1980.

While recognizing this potential danger of animal attacks, we also should keep it in perspective. Falls and traffic accidents cost far more lives than bears and other wild animals.

The Crown of the Continent historically had abundant wildlife. It has abundant wildlife today, but this was not always the case. When the railroads crossed the Crown, some wildlife species across North America were annihilated in market-driven slaughters. Market

hunters killed uncounted thousands of elk, bison, deer, and bighorn sheep to feed hungry railroad crews and miners. But around 1900, conservationists such as Theodore Roosevelt and George Bird Grinnell began to turn the tide.

Several areas in the Crown played key roles in wildlife recovery in the following century, in particular the National Bison Range, the Sun River Wildlife Management Area, and the Crown's two national parks. Animals from these places still help restock depleted habitats in other areas. Today, hunting is regulated by Montana and the provinces with a goal of providing a sustainable annual harvest. Illegal hunting is problematic in some areas and with some species. Hunting is not allowed in national parks.



Fragmentation

The Rocky Mountains were once one large, contiguous ecological unit, stretching from Mexico to Alaska. That unit has been changed over the past 200 years. The Crown of the Continent remains one of the larger fragments of the Rocky Mountains which still contains virtually all of its native life forms. The press of development—busier highways and more urban development—is like a rising tide that threatens to break the Crown into fragments. At the same time, people are a part of this ecosystem and have been for thousands of years. With proper conservation, however, we can expect the Crown of the Continent to remain intact.

Part of the reason the Crown of the Continent is biologically healthy is because large portions are protected as national parks and wilderness. Large blocks of protected land are increasingly recognized as valuable reservoirs of ecological integrity and safeguards against extinction, yet these preserved areas alone cannot guarantee the existence of the species within their borders.

For example, Glacier National Park is important grizzly bear habitat, yet if Glacier were alone in its effort to preserve grizzly bears, the creatures would go extinct. Since bears demand large areas of habitat, the park is simply



not large enough to accommodate an entire grizzly population. In the 1960s, biologists studying islands noted that the larger an island, the more species it was able to support and the more stable its natural community. In other

DISTRIBUTION OF GRIZZLY BEARS



words, larger, better-connected islands were less likely to suffer extinctions. Small, isolated islands supported fewer species and were more likely to lose them.

According to the ideas behind conservation biology, this observation is as applicable to continents as it is to offshore islands. Small fragments of protected land can be seen as islands surrounded by seas of human activity and development. Again, the smaller the habitat island, the less stable its ecosystem and the more likely it will suffer local extinctions.

In the 1990s, scientists examined protected areas like Utah's Zion and Washington's Mt. Rainier national parks. The habitat inside the park was protected, as were the individual creatures within those boundaries. But isolated from

larger habitat islands, the parks lost one species after another. Human laws dictated that the parks were to be preserved, but, in fact, human pressure surrounding the parks overwhelmed the natural community within them.

In 1998, a panel of experts found a similar trend in Canada's national parks. The scientists wrote, "Without a more intense effort by Parks Canada and the provinces, our mountain parks will be like the Alps—beautiful to look at but lacking any ecological integrity."

Ecologists don't understand the complete details of why some species become extinct, but most agree that habitat fragmentation is the most serious threat to biological diversity and is the primary cause of the present crisis. Early conservationists believed it adequate to simply protect natural places. Today's challenge is to protect natural processes.

A classic example of the consequence of habitat fragmentation—and the benefits of protecting habitat—is illustrated by the mountain lion, *Felis concolor*. Mountain lions (also known as cougars or panthers) once lived across North America, from British Columbia to Florida.

The Florida panthers are endangered. Fewer than fifty Florida panthers remain in the wild, in protected habitat fragments like Everglades National Park. Freeways and other barriers block panthers from moving from one habitat island to the next.

Although individual panthers are protected by law, in the long run, the habitat fragments are too small to support a viable population. The cats suffer from kinked tails, extra toes, and other symptoms of inbreeding. To save the

Florida panther, biologists must intervene by providing the cats with veterinary care and by importing new panthers into the gene pool.

Conversely, mountain lions thrive in the Crown of the Continent. The blocks of habitat remain connected, so the cougar gene pool stretches unbroken. As long as cougars have ample habitat, are protected from over-hunting, and have enough prey, they will remain a part of the Crown of the Continent.

Careful, long-range planning can allow appro-



priate new development while maintaining the ability of the land to sustain wildlife as well as people. Corridors between natural areas allow wildlife to move freely. Conversion of agricultural land to residential and commercial development is permanent and irreversible, and has ecological, economic, and social implications for all of us.

People have used natural resources in the Crown of the Continent for thousands of years, and they will continue to do so. People cannot be expected to "lock up" huge portions of land without using them. The challenge is to use our natural resources as wisely as possible, balancing their use with allowing natural processes to function and the full diversity of life to exist.

Below are examples of how people are working to prevent habitat fragmentation in the Crown of the Continent:

- At U.S. Highway 2 in Glacier National Park, an underpass was built so mountain goats can move between the Bob Marshall Wilderness and the park.
- The U.S. Fish and Wildlife Service, the U.S. Forest Service, Montana Department of Natural Resources and Conservation, and Plum Creek Timber Co. regulate logging in grizzly bear linkage zones across the Swan Valley between the Mission Mountains and



the Swan Range.

- At Crowsnest Pass, organizations like the Rocky Mountain Elk Foundation have worked with private landowners to protect migration routes between summer and winter range.
- Along the Rocky Mountain Front canyons and in Crowsnest Pass, The Nature Conservancy, the Alberta Conservation Association, Shell Canada, and Alberta provincial authorities are working together on an educational program which focuses on keeping grizzly bears in the landscape.
- Roads with steep culverts blocked streams flowing into Hungry Horse Reservoir, isolating bull trout and cutthroat trout in the upper reaches of those streams and blocking spawning runs. By replacing those road crossings with properly installed, enhanced culverts, people were able to reconnect the fish populations.

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