



Protecting Predators

Tracking the Rocky Mountain carnivores

By TINA ADLER

A mountain lion, also known as a cougar.

Tom Hall/World Wildlife Fund

Little Red Riding Hood must be turning over in her grave. Many residents of the United States and Canada now go out of their way to protect wolves, those evil tricksters, even importing them into national parks where hunters had wiped them out.

Recent studies show that many North Americans—particularly people who don't live near the animals' habitats—support measures designed to encourage the long-term survival of wolves and other large predators, Stephen R. Kellert of Yale University and his colleagues assert. Although grizzly bears still strike fear in the hearts of most people, the woods are full of hikers and campers who hope to catch a distant glimpse of the huge beasts. Their tourism dollars generate goodwill toward the animals among people in rural communities.

Although mountain lions pose a greater threat to humans than wolves do and require more room to roam and hunt than grizzlies, the general population has little awareness of them, Kellert's group finds.

Over the last century, the number of large carnivores has declined sharply in North America. Although many people now want to protect these animals, their populations are not rebounding. Development and roads have encroached on their habitat and put hunters closer to their prey. In much of the Rocky Mountains, most deaths of adult wolves, grizzly bears, and mountain lions result from cars, trains, and hunters (even though hunting is illegal in many cases).

With current land-use and conservation practices, the numbers of Rocky

Mountain carnivores will continue to decline, scientists warn in a series of reports in the August *CONSERVATION BIOLOGY*. Studies examining the animals' viability and resiliency provide clues to guarding their long-term survival. Investigations into their influence on other species demonstrate the importance of preserving them.

The Rocky Mountains, which stretch from Canada into the western United States, harbor the largest and most diverse population of large carnivores in North America, outside of Alaska. Increasingly, however, the animals in the Rockies are confined to fragments of suitable habitat, particularly in the southern ranges.

Wolverines and lynx have become rare. In the United States, wolves have made it onto the federal list of endangered species and the grizzly is considered threatened.

Canada has nothing comparable to the U.S. Endangered Species Act. The continued existence of the wolf and grizzly "in the southern Canadian Rockies remains uncertain," note Paul C. Paquet and Arlin Hackman of the World Wildlife Fund Canada in Toronto in a May 1995 report. Paquet is also a researcher at the University of Calgary in Alberta.

The U.S. Fish and Wildlife Service (FWS) has instigated a plan to boost the wolf population. The agency has imported 31 wolves into Yellowstone National Park in Montana and Wyoming and 35 into parks in Idaho since 1995.

Throughout Canada and the United States, research and conservation efforts to study and guard the Rockies' large carnivores generally lack coordination and legal backing, some ecologists assert. "In most cases, there aren't widespread plans for dealing with different carnivores," says Olin Bray of FWS in Denver.

The four-footed residents come under different laws depending on where they live and wander. The Endangered Species Act protects only animals deemed already at risk. For the most part, a host of state laws determines the other creatures' fates within U.S. borders. In Canada, since both the federal and provincial governments have jurisdiction over carnivores, the laws also vary widely.

Wolves moving from Banff National Park in Alberta to northeastern Idaho may cross more than 30 jurisdictions, each with its own wolf policy, Paquet and Hackman note. A hunter or frightened landowner in British Columbia or Alberta could legally shoot a wolf, whereas doing so in the United States is illegal.

Many people regard the Rockies not as a haven for wildlife but as valuable real estate for development, mining, and logging. The extent of such activities varies throughout the region, however. For example, more tourist and resort development occurred in Banff in the last 4 years than in the history of Yellowstone.

Overall, the Rockies remain lightly populated, and the range provides the existing carnivores with enough habitat to live, raise their young, and find prey, says Paquet.

Carnivores generally need at least 2,000 adults, including 500 breeding members, to maintain a genetically healthy population over many years (SN: 8/24/96, p. 125), Reed F. Noss of Oregon State University in Corvallis and his colleagues note. A group that large requires an area of roughly 100,000 square kilometers—more or less depending on the species and the availability of food and suitable habitat. For example, wolves appear to require 4 to 10 times that much.

“Even large herbivores such as moose and elk require much less space than large carnivores,” the researchers report.

On their extensive travels and even while residing in parks popular with tourists, the animals often face deadly encounters with humans. To provide adequate space safe from people, many conservation biologists are recommending the creation of broad, protected corridors linking up wilderness areas. These paths will need to wander through varied landscapes to meet the animals’ different route requirements. Noss’ team observes.

Carnivores’ future well-being depends not only on management plans and legal protections, but also on their own long-term viability. Scientists determine a species’ viability in part by calculating its reproductive rate and the population size needed to prevent its members from inbreeding.

“The large carnivore species in the Rocky Mountains are of concern to conservationists precisely because their values for these characteristics . . . are generally low,” assert Noss and his colleagues.

A species’ prognosis also depends on its resiliency—how well it survives

human and natural disturbances to its environment. The ability to alter foraging behavior when food supplies change, to increase reproduction to make up for a temporarily high death rate, and to travel widely in search of new mates makes a species more resilient, report John L. Weaver of the Northern Rockies Conservation Cooperative in Missoula, Mont., Paquet, and Leonard F. Ruggiero of the U.S. Forest Service in Missoula.

The longevity of adult females appears particularly critical to the well-being of most carnivore populations, the team concludes. In landscapes fragmented by human disturbances, young animals benefit a great deal if they can establish a new home turf and reproduce far from their parents. Among large carnivores, only wolves do this regularly, Weaver says.

Although often unable to escape slaughter by humans, wolves deserve their wily reputation when it comes to eking out a living. Because they produce many offspring and disperse widely, they are resilient to the disruptions that people are creating in the Rockies, says Weaver. Moreover, they are not picky about what prey they dine on or where they live. A female gives birth to approximately six female pups in a lifetime.

Mountain lions “appear to have slightly less resiliency,” as they can’t hunt in as wide a range of habitats and have fewer young, Weaver’s group reports. However, they do travel widely and eat a variety of prey. They produce three to four female young during a lifetime.

Grizzly bears are even less resilient than mountain lions and “extremely vulnerable to anthropogenic disturbance,” the scientists note. They demand quality forage, and the young females set up housekeeping close to or in their maternal home ranges. They have three to four female cubs.

The scant data available on wolverines suggest that they rank as even more sensitive than grizzlies to fluctuations in scavenging opportunities, and they produce only about two female offspring.

“By accelerating the rate and expanding the scope of disturbance, humans have undermined the resiliency mechanisms of large carnivores and have caused widespread declines,” conclude Weaver and his colleagues.

Scientists have argued that large carnivores are so-called umbrella species: Protecting their habitat will help the Rockies’ other imperiled plants and animals because carnivores occupy such a diverse range of environments. Few studies have been done to support this theory. However, Paquet and his colleagues recently found that preserving the remaining optimal habitats of grizzlies, lynx, and wolves would conserve the stomping grounds of 372 of the 381 additional terrestrial vertebrates liv-



The ever-threatening, and now threatened, grizzly bear.

ing in the southern and central Canadian Rockies. These results were published in early October by the federal Department of Canadian Heritage in Ottawa.

While agreeing that carnivores are umbrella species, Weaver argues that they may not provide as big an umbrella as Paquet’s group calculates. A management plan for large carnivores would benefit only about 60 percent of the area’s terrestrial species, he believes. Birds, for example, depend on dead trees for nesting sites, but carnivores can live without them.

Recent studies suggest that preserving wildlife may help—or at least not harm—even local human residents, assert Hackman and Raymond Rasker of the Wilderness Society in Bozeman, Mont.

The researchers examined the economic well-being of northwest Montana counties from the early 1970s to the early 1990s. They compared counties with 25 percent of their land designated as wilderness or national parks and having little timber harvesting and mining with counties whose economies depend more heavily on natural resource extraction.

Economically, the logging and mining counties “lag far behind” the others, which had more rapidly growing income levels, better economic diversification, and lower unemployment. The more preserved areas attracted newcomers “seeking a pleasant environment in which to live and do business,” the team reports.

So people and wildlife alike may lose out if carnivores aren’t given more protection, conservation biologists warn. “There is no assurance that conventional management will be successful” at saving the animals, conclude Tim W. Clark, a biologist at Yale University and the Northern Rockies Conservation Cooperative in Jackson, Wyo., and his colleagues.

The populations will sputter along in the short to mid term but will eventually die out without further protection, Clark argues.

“I’m concerned about carnivores that aren’t yet listed [as threatened or endangered],” says Bray. “They need to be managed,” but state and federal agencies have little funding to beef up their current efforts, he laments. □



An adult wolf.