

Ecology and Biodiversity of the Castle Special Place

The Castle Wilderness is an incredibly rich ecosystem with remarkable landscapes, alpine lakes, intact populations of wild ungulates, rare plant and animal species, and large carnivores. Because of its habitat diversity, the Castle is home to an estimated 824 vascular plant species (over 50% of all the vascular plant species found in Alberta), approximately 140 of these are rare species. Twenty-five different species of fish can be found in the Castle's rivers and streams, and the area is known for its productive and popular fisheries. In total, 59 species of mammals live in the Castle, and the area is integral to the survival of healthy populations of grizzly bears, wolves, and wolverines.

Grizzly Bears



The lush and plentiful vegetation of the Castle Wilderness provides excellent grizzly bear habitat. The grizzly bears in the Castle Special Place are part of a larger "superpopulation" of grizzlies that includes the Flathead Valley in Southeast BC, Glacier National Park in Montana, and Waterton National Park. Despite decreasing populations, this "superpopulation" is still the highest population of non-coastal grizzly bears in North America. For this reason, the South Castle and West Castle valleys serve as important movement corridors for grizzly bears moving between across the provincial border and the international border with the US. Connections to northern populations in the Kananaskis area and Banff National Park are also very important. This "superpopulation" is estimated to have 228 individuals, 51 of which reside in Alberta (the Castle and Waterton). The Alberta Government recognizes the Castle Special Place as significant core grizzly bear habitat.

Wolves and Other Carnivores



After a long period of absence due to over hunting, wolves appeared again in the Castle in 1992. Marten, lynx, wolverine and fishers all require undisturbed mature forest areas, which the Castle is still able to offer in a limited amount. It appeared that the fisher was gone from the Castle; however, in 1991, biologists found and photographed fisher tracks in the West Castle valley. For those with a keen eye and knowledge of where to look, bobcats and cougar can still be found in the area.

A Floral Convergence



Because the Castle lies in a climatic transition zone, the area is a unique zone of vegetation overlap. Plants such as tall huckleberry, thimbleberry, Oregon grape and large flowered fringe cup, which are more at home in the interior of British Columbia, reach their western limit here. Southern species that reach their northern limit in the Castle include red and yellow monkeyflower, beargrass, mariposa lily, big sagebrush and mountain hollyhock.

This intermingling, where east meets west and north meets south, creates a mixture of species that is unique in Canada. Here new species and sub-species will eventually evolve under the selective forces of competition and climate change. Currently, over 120 provincially rare plants can be found in the Castle, 38 of which are nationally rare. In comparison, Banff National Park has almost nine times the area but only about 36 provincially rare plants.

Watershed and Fish



Because the Castle has one of the highest precipitation rates in southern Alberta, it is an important watershed for rivers that reach thirsty grasslands to the east. Thirty-four alpine lakes and tarns are encompassed by the Castle Wilderness, more than any other comparable section of the Alberta Rockies between Waterton and Banff National Parks. Twenty-six major headwater streams arise in the Castle Wilderness, significantly more than in Waterton Lakes National Park which has eleven. Twenty-three of the streams in the Castle Wilderness contain populations of trout, including native species. These headwaters are part of the Oldman River ecosystem and their health is vital for agriculture, municipalities, and other downstream users. The City of Lethbridge relies solely on the Oldman Watershed for its water, and one-third of all the water in the Oldman watershed comes from the Castle. Old-time residents of the Castle can recall the streams teeming with fish. They remember a time in the 1920s when fishermen could catch their daily limit of 25 trout. Unfortunately, native cutthroat and bull trout are now in serious decline throughout their North American range. The Castle is an exception. In 1994, the bull trout was found still to be present in 95 percent of this region's historical range. The West Castle also has one of the better westslope cutthroat trout fisheries in Alberta.

Critical Ungulate Range

The Castle area provides essential habitat for ungulates: elk, moose, mule and white-tailed deer, bighorn sheep and mountain goats. Since the south-facing slopes of the Castle's Front Ranges are usually snow-free in winter, this region provides critical winter range for bighorn sheep. The Front Ranges contain some of the best year-round bighorn sheep habitat in North America.



White-tailed deer are common in the Castle at lower elevations, unlike mule deer which tend to forage higher up on south facing grassy slopes. Both animals are an important prey and carrion source for large carnivores. In the 1920s, residents remember seeing mule deer frequently; however, white-tailed deer may now outnumber them. White-tailed deer are known to prefer habitat that is fragmented by roads and other developments, whereas mule deer cannot tolerate such changes. By the 1900s, moose were hunted out of the Castle but they have returned and their numbers have increased. Today they can be found foraging along the Castle's main rivers and streams.

Small Fauna

Although the Castle's cast of characters contains high profile species such as the grizzly bear and wolf, it is also home to the wandering shrew which is only found here in Alberta and the rare red-tailed chipmunk which in Alberta is found only in Waterton Lakes National Park and the West Castle Valley. Two other lesser-known species that call the Castle home are the plains and wandering garter snakes. There is concern for the long-term survival of both species in Alberta.

With the exception of butterflies, little is known about the insects of the Castle. It stands to reason though, that with such high plant diversity there should be a corresponding diversity of insects. A Parks Canada report on butterfly diversity states, "One area that stands out as unique in Alberta with respect to butterflies is the Castle River/Crowsnest region. A number of species are found in this drainage and nowhere else in Alberta. The next nearest populations are usually in central B.C. or further south in Montana.

Birds



The Castle Wilderness is home to approximately 105 species of breeding birds, while 60 others migrate through the area. The area is also on a major migration route for bald and golden eagles. It provides an abundance of nesting habitat for raptors including golden eagles, red-tailed hawks, goshawks, great horned owls, northern pigmy owls and possibly prairie falcons. Its wetlands have a healthy population of the uncommon and declining northern water thrush, while its rivers and streams nurture a very vulnerable population of harlequin ducks. Other species which are vulnerable and thought to breed in the Castle are the weery, olive-sided flycatcher, western wood peewee, red-naped sapsucker, Hammond's flycatcher, Swainson's thrush, solitary vireo, warbling vireo, MacGillivray's warbler, Wilson's warbler, black-headed grosbeak and cooper's hawk.

Big Sagebrush Community

Along the steep southwest-facing slope of the South Castle Valley is a rare floral community (approximately 5 square kilometers in area) that boasts the largest stand of big sagebrush in Alberta. This community is home also to at least 15 provincially rare plant species including creeping mahonia, mariposa lily and snowbrush. Until the Castle is protected this area will continue to be subject to motorized recreational use, random camping, equestrian use and cattle grazing.

Old Growth Forest

Old growth forests are characterized by tree species of a variety of age classes-ranging up to hundreds of years. Other attributes of old growth forest are fallen, decomposing logs, snags or standing dead trees, a diversity of shrubs and herbaceous plants in the under story, and nutrient-rich soils. They support a large variety of plant and animal species some of which, such as the Canada lynx, marten and interior bird species, can survive nowhere other than in the interior of large patches of old growth forest. Fallen logs provide dens for hibernating bears, homes for red-back voles and marten, and stream debris for fish habitat.

In the Castle region, this forest is primarily comprised of Engelmann spruce and sub-alpine fir along with the whitebark pine in the South and West Castle valleys. At lower elevations, aspen and lodgepole pine can be mixed with the spruce and also Douglas fir. Large forest fires of the 1930s along with logging have led to a reduction in old growth in the Castle region, but there is still time to protect the old growth forest that remains.