

# Grizzly Bears

IN BRITISH COLUMBIA



*Ecology, Conservation and Management*



BRITISH  
COLUMBIA

Ministry of Water, Land and Air Protection

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### INTRODUCTION

No animal is more symbolic of our wild areas than the Grizzly Bear. As human populations have expanded, the Grizzly Bear's habitat has shrunk. Today there are a minimum of 13,800 Grizzly Bears in British Columbia. These 13,800 animals must

co-exist with four million humans.

For centuries, humans have refused to tolerate this large, mobile, and potentially dangerous species in or near settled areas or livestock ranges. Grizzly Bears are relatively long-lived and intelligent and have adapted to some extent to human activities and land uses, but wilderness is where they do best.

### EVOLUTION AND APPEARANCE

The Grizzly Bear – *Ursus arctos horribilis* – is a North American

sub-species of the Brown Bear – *Ursus arctos* – the widest ranging bear species in the world, which is found in Asia and Europe as well. Grizzly Bears originated in Eurasia and arrived in North America via the Bering land bridge approximately 50,000 years ago. Because the North American grizzly has been here only a relatively short time, it hasn't changed much from its Asian relatives. North American grizzlies all look much the same, too. Only Kodiak Island and adjacent islands in Alaska have another subspecies – the somewhat larger Kodiak bear, *Ursus arctos middendorffi*.

The weight of Grizzly Bears can vary a lot depending on gender, season of the year, ecological region, and the availability of food. On average, males are larger and heavier than females. Grizzlies are generally heavier in autumn than in spring, in coastal than in interior regions, and wherever supplemental foods are available (e.g., at zoos and garbage dumps). Maximum weights of over 500 kg (1100 lb.) have been recorded. In British Columbia, spring weights of adult Grizzly Bears average around 220 kg (480 lb.) for males and 130 kg (290 lb.) for females. Average fall weights are about 30 to 40 percent greater.

Grizzly Bear coats can vary from creamy yellow to almost black. In coastal British Columbia, most are light brown to dark brown; in the Rockies, most have a "silver tip" pattern, in which the long hairs of the shoulder and back are frosted with white. Grizzly Bears shed their heavy winter coats in late spring and early summer,

then re-grow them from mid-August to October. They have a broad head with small, rounded, heavily furred ears, a prominent shoulder hump formed by muscles used in digging, a dish-shaped facial profile, and long, slender yellow or brown claws. Although it is possible to confuse Grizzly Bears with brown-phase Black Bears, which are common in the interior of the province, there are important differences. Black

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### TAXONOMY

#### Order

Carnivora  
(Carnivores)

#### Family

Ursidae  
(Bears)

#### Genus

*Ursus*

#### Species

*arctos*

#### Subspecies

*horribilis*

(Grizzly Bear)



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Bears do not have a prominent shoulder hump, and they have a relatively straight facial profile. The two species also leave different tracks. Grizzly claws are much longer than those of Black Bears, and the toes are close together in a fairly straight line. The front of the Black Bear footprint is more rounded, and the toes form an arc.

A grizzly usually walks slowly, swinging its low-slung head from side to side. However, grizzlies can run quickly, sometimes as fast as 55 km per hour, even on steep slopes. They are also excellent swimmers. When they are alarmed, Grizzly Bears often stand upright on their hind legs to get a better view of potential dangers.

### DISTRIBUTION AND ABUNDANCE

Formerly one of the most widespread mammals in the world, the original range of the Brown Bear included Europe, North Africa, northern and central Asia, and North America. The species persists in small isolated populations in western Europe, the Middle East, China, and Japan, but it occurs more continuously across eastern Europe and northern Asia.

In North America, Grizzly Bears once occurred as far south as northern Mexico and as far east as the Great Plains and Hudson Bay. Today they occupy only about half that area. Outside of Alaska, the United States has only 750 to 1000 remaining Grizzly Bears living in five fragmented populations in four states. British Columbia and Alberta share four of those small populations. Alaska still has about 30,000 Grizzly Bears.

The Canadian population of about 25,000

Grizzly Bears is widely distributed throughout Yukon Territory, the



FOOT PRINTS



mainland parts of the Northwest Territory and Nunavut, Alberta, and British Columbia. Grizzly Bears also occur occasionally in the Churchill region of Manitoba, but these probably come from adjacent Nunavut. Less than 1000 Grizzly Bears live in Alberta, primarily in the Rocky Mountains and northern boreal forests.

In British Columbia, Grizzly Bears still occur across over four-fifths of the land area of the province and almost 90 percent of their historic range, but they have evidently never occurred on Vancouver Island or the Queen Charlotte Islands. Their range extends across northern British Columbia, southward in the Coast Mountains to about Jervis Inlet and down through the Rocky, Purcell, and Selkirk mountains to the U.S. border. Although Grizzly Bears are occasionally sighted on islands located close to the northern B.C. mainland such as Princess Royal, Pooley, and King, they may not live on those islands year-round.

Grizzly distribution in the province has shrunk primarily in the Lower Mainland, Thompson-Okanagan, and south Cariboo regions and, to a lesser extent, in the southern Rocky Mountain Trench, and Peace River areas. High human population density in these areas, together with intensive agriculture or livestock grazing, prevents people and Grizzly Bears from co-existing there.

The natural abundance of Grizzly Bears at any particular location depends on the productivity of the habitat. The number of animals per 100 km<sup>2</sup> of habitat varies from 25 or more at Kodiak Island, where salmon and lush vegetation are plentiful, to less than 0.5 on the sparsely vegetated Arctic tundra. In British Columbia, densities tend to be higher on the coast (7 to 10 per 100 km<sup>2</sup> in the Khutzeymateen watershed) and somewhat lower in the interior (3 to 6 per 100 km<sup>2</sup> at several study sites).

### LIFE HISTORY

The only Grizzly Bear social groups are sows with their young and mating adult pairs. Mating occurs during a six- or seven-week period from late May to early July, but most pair bonds during that period last only a few days. Grizzly Bears are polygamous, and a male may mate with more than one sow (even on the same day) and vice versa. As a result, littermates sometimes have different fathers. Eggs fertilized in

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June do not implant in the sow's uterus until she hibernates, a phenomenon called delayed implantation. The embryo goes through a short period of development in November and December, and one to four hairless cubs weighing only about 0.5 kg (1 lb.) are born in the den in January or February. The mother nurses her cubs in the den until they all come out in late April or May.

Grizzly cubs usually stay with their mother and den with her for at least two years. During that time they are fiercely protected and learn where to find food as the seasons change and when, where and how to dig a winter den. Grizzly cubs also play a great deal. The period of dependence on the mother is relatively long compared to other mammals. This prepares the cubs for an independent life. In June of the third year, adult females usually breed again, and they chase the cubs, now quite large, off to become self-sufficient. However, the interval between litters may be four or more years in locations with limited food or a harsh environment. Sow Grizzly Bears don't produce their first litter until they are about five or six years old or even older. Delayed sexual maturity, together with a three-or-more-year interval between litters, results in a low reproductive rate. The maximum life span of Grizzly Bears in the wild is more than 30 years.

Hibernation is a very important feature in the life of a Grizzly Bear. In coastal British Columbia, bears hibernate from about early November to mid-April; in the interior, hibernation lasts from about October to May. This means that bears can survive in northern regions where their main foods – green vegetation, berries, insects, and fish – are not available in winter. During their winter sleep, which is not as deep as in true hibernators like marmots or ground-squirrels, a Grizzly Bear's body temperature drops by 4 to 5°C, oxygen consumption declines by up to 50 percent, the heart rate falls to only 8 to 12 beats per minute, and the bears do not urinate or defecate. These physiological changes allow the bears to live on stored fat for several months, although they usually lose a lot of weight.

A grizzly bear's most important means of detecting food or danger is its extremely acute sense of smell. Grizzlies also have excellent hearing and

good eyesight. Although they are supposed to have poor vision, they can obviously see other bears and people at considerable distances, as well as fish when they are underwater.

### ECOLOGICAL RELATIONSHIPS

In British Columbia, as in other places, Grizzly Bears move about to find seasonal foods, mates, and denning sites. The total area a bear uses – its home range – is generally smaller on the coast than in the interior and smaller for females with cubs than for adult males. Studies in British Columbia indicate that sow Grizzly Bears have home ranges of 25 to 200 km<sup>2</sup>, and adult males have ranges of 60 to 700 km<sup>2</sup> or more.

Grizzly Bears are classified as carnivores; however, they eat a wide variety of foods and are really omnivores. Although grizzlies eat mostly plant material, their digestive tract is not made for a herbivorous diet.

On the coast, Grizzly Bears feed mostly in estuaries, seepage sites and valley bottom wetlands, where succulent new sedges, grasses, skunk cabbage, horsetail, and cow parsnip are available in spring. Later, they switch to berries – salmonberry, red elder, and devils' club – and then to spawning salmon. After the main salmon runs in August and early September, they often feed on skunk cabbage again before hibernation. In spring, interior bears congregate in moist, low-elevation sites such as wetlands and lower avalanche tracks, looking for the lush herbaceous plants that grow there. They also switch to berries in summer, particularly blueberries in subalpine burns. Interior bears have less access to salmon than coastal Grizzly Bears, but they make more use of alternate foods like lily bulbs, sweet-vetch roots, and ground squirrels. They also seek out the carcasses of ungulates that have died during the winter and prey on deer fawns and moose and elk calves born in the spring. Interior Grizzly Bears forage at a variety of elevations, from valley bottoms to alpine meadows.

Grizzly Bears are particular about sites for their winter dens. They sometimes dig more than one before they are satisfied and occasionally move to a new site during the winter. They almost always dig their dens horizontally into the ground on steep slopes (20 - 40°) where prevailing winds result in deep, persistent snow cover, which provides insulation. To avoid flooding, dens are always in well-drained sites that usually contain roots of trees, shrubs, or sod-forming grasses

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that bind the soil of the den roof to prevent its collapse. Dens are usually clustered in places that meet these conditions. The elevation where dens are located varies from one climatic region to another. In coastal British Columbia they are located mostly between 350 and 850 m and in the Rockies between 2000 and 2350 m. Grizzly Bears usually den in the same general area each year but dig a new den each winter. Dens may be up to 4 m long and are characterized by a mound of excavated soil, an entrance tunnel about 0.7 m in diameter, and a chamber that is 1 to 2 m wide and about 1 m high. On occasion, coastal Grizzly Bears den in large hollow trees.

### VALUES AND USES

Many segments of society place a high value on Grizzly Bears. For millennia, First Nations people lived among these powerful animals and had the greatest respect for them. The grizzly is featured in many of their ceremonies, stories, dances, and cultural traditions. They often carved the bear on totem poles, and many native tribes had bear clans or cults. Indigenous people also used the hides and meat of bears, even though they were difficult to get before firearms became available.

Organized Grizzly Bear viewing is popular in Alaska, where it is both promoted and closely

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regulated. In British Columbia, organized Grizzly Bear viewing mostly involves travelling in a small boat or aircraft to see Grizzly Bears foraging on spawning salmon or grazing in estuary meadows.

Many backcountry users will never see a grizzly, but they are likely to encounter this elusive animal's tracks, trails, droppings, digging signs, or rub trees. These clues are likely to show up along backcountry trails in many wilderness areas.

Grizzly Bears have always been an important game species in British Columbia. Revenue from the sale of licenses has contributed greatly to the conservation and management of Grizzly Bears and their habitats. It has also produced income for guide-outfitters and their assistants in many of British Columbia's rural communities.

Harvest levels are strictly regulated. Provincial



Matt Austin

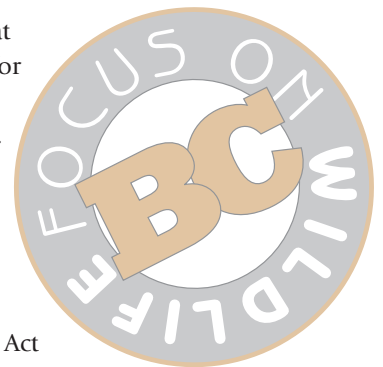
wildlife biologists have recognized 60 Grizzly Bear Population Units (GBPUs) in British Columbia. Of these populations, 11 have been closed to hunting indefinitely, and 49 have been designated as viable and capable of withstanding a conservative harvest. Each year, wildlife biologists carefully consider each of the GBPUs to make sure that these populations can support hunting. If there are conservation concerns, the area will be closed to hunting. Annual regulations for limited-entry hunting and guide-outfitter quotas are intended to ensure the preservation of Grizzly Bear populations.

### CONSERVATION

Before Europeans settled British Columbia, about 25,000 Grizzly Bears roamed throughout the entire mainland of the province. Today only about half as many are left, and they are gone from most settled areas, particularly in the lower mainland and the Okanagan Valley. To prevent further loss of Grizzly Bears in British Columbia, we need to secure suitable habitat for the future, control potentially harmful land uses within the remaining habitat, and carefully manage human-related grizzly death rates.

#### Providing secure habitat

Managing human activities over large areas in ways that maintain effective habitat for Grizzly Bears is key to the conservation of the species. Processes such as land use planning, establishing and managing protected areas, and reviewing major projects under the Environmental Assessment Act all provide opportunities to



minimize the effects of land settlement and resource use on Grizzly Bear populations.

#### **Controlling human-related Grizzly Bear mortality**

At present, most human-related Grizzly Bear mortality results from hunting, poaching and situations where people feel they need to destroy animals in order to protect life or property.

Occasionally, animals die in highway or railway accidents.

In British Columbia, grizzly hunting is closely regulated under a limited entry system.

Hunting is not a threat to Grizzly Bear conservation because it will occur only where populations can sustain a harvest. Shooting by vandals or poachers is an on-going problem but can be minimized with appropriate enforcement. Removing

“problem” bears – Grizzly Bears

that are in conflict with people – is a conservation problem that could worsen as human settlements and activities expand into grizzly habitat. In some cases, improper disposal of garbage or farm wastes contributes to those problems.

Conflicts between Grizzly Bears and people are serious because Grizzly Bears are powerful, potentially dangerous animals that occasionally injure or even kill people. These attacks result from someone accidentally intruding into an area that a bear is defending around its cubs or around food such as an ungulate carcass. The defending bear treats the human intruder like another bear, with serious consequences. There are also rare instances of Grizzly Bears preying on people for food.

Encounters between Grizzly Bears and people or property can be bad for bears as well as for people. Conservation Officers have to kill about 50 Grizzly Bears every year for reasons of public safety. Some are relocated, but these usually die or return to the original problem site. Local residents shoot some to protect their property. Taken together, these kinds of losses greatly affect grizzly numbers in some areas.

*The grizzly needs its own space. Providing that space will benefit a diversity of wildlife, and people, too.*

Backcountry recreationists should take precautions when in areas where Grizzly Bears are known to be active. They should hike in groups, make noise, and carry bear spray. Workers such as tree planters should work in teams and carry radios to advise one another of bear sightings and summon help if needed. They should keep bear spray handy. People living in or adjacent to Grizzly Bear habitats should store and dispose of garbage and farm wastes so that passing bears cannot get access to them.

The “Bear Smart” Community program encourages efforts by communities, businesses and individuals to reduce bear/human conflicts. The program focuses on efforts to address the root causes of bear/human conflicts, reduce the number of conflicts, and ultimately reduce safety risks and the number of bears that have to be destroyed. Once a community has met the six criteria, it will be formally recognized as “Bear Smart.” For more information on the “Bear Smart” Community program, please contact the Ministry of Water, Land and Air Protection.

Only a concerted effort can ensure that the magnificent Grizzly Bear continues to roam our wild areas. The grizzly needs its own space. Providing that space will benefit a diversity of wildlife, and people, too.

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