Factsheets to Support Land, Water and Resource Management in Tŝilhqot'in Territory

Wildlife Management for Bears and Ungulates

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Disclaimer

The scope of this project did not include the gathering of Tŝilhqot'in knowledge beyond the inclusion of Tŝilhqot'in names for plants and animals. Any and all references to traditional and/or modern uses of these animals or plants was based on publicly available knowledge not specific to the Tŝilhqot'in Nation, and does not necessarily reflect the patterns of use or relationship that the Tŝilhqot'in peoples have with these species.

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Alces alces

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Aquatic plants such as horsetail and pondweeds

WINTER FOODS

Willow, birch, aspen, cottonwood, subalpine-fir

CRITICAL TIMES

Rut: Sept/Oct
Gestation: Sept/Oct- May /June

HIGHEST POTENTIAL FOR INTERACTIONS

Moose- Elk
Moose- Mule deer

Moose are the largest member of the deer family and are one of the most widely distributed ungulates in British Columbia. They are most abundant in the central and northern Interior and the boreal forests.

DIET

As the largest member of the deer family moose need to eat around 20kg of food a day during winter. They are primarily browsers meaning they rely mainly on leaves, fruits of high-growing woody plants, soft shoots, and shrubs, most importantly, willow. Since many terrestrial plants lack sodium, moose are attracted to aquatic plants in summer due to their high sodium content. Moose are better adapted to forage on course, woody browse than other ungulates that may share their range. During winter they can lose up to 30% of their body weight due to scarcity of foods and the low nutritional value of the available food. Therefore, it is extremely important that they have a high-quality summer diet to compensate for nutritional stresses of winter and lactation.

INTERACTIONS

Because of their tall legs, moose can reach twigs 2.5m above the ground and travel through fairly deep snow without difficulty (60cm). Moose are therefore adapted to a niche where competition from other ungulates is minimal. There is potential for elk and mule deer to compete with moose during fall when they experience range overlap. Although elk are generalist herbivores, they can switch to a browse diet in times when preferred food is in short supply. A study that took place in North-Central B.C during a deep snow winter found that 70% of elk diet was made up of shrubs whereas moose diet consisted mostly of true fir species (45%) and less so of shrubs (35%). Overall, their diet overlap was 11.3%. Mule deer diet consisted mainly of Douglas fir (48%) and true fir species (12%), and the diet overlap between deer and moose was found to be 24%.

References: 1. Rea RV. A Preliminary Assessment of Moose Winter Diets in the Aleza Lake Research Forest in North-Central British Columbia. Wildlife Afield. 2014;11(1):50-53. Wall W, Belisle M, Luke LA. Moose (Alces alces) Wildlife Habitat Decision Aid. Journal of Ecosystems and Management. 2010;11(3). 3. Hodder DP, Rea RV, Crowley SM. Diet Content and Overlap of Sympatric Mule Deer, Moose, and Elk during a Deep Snow Winter in North- central British Columbia, Canada. Canadian Wildlife Biology and Management. 2013;2(2):8.4. Gillingham MP, Parker KL. Differential habitat selection by moose and elk in the Besa- prophet area of northern British Columbia Alces. 2008;44:41-63. Photo by Madhu Shesharam on Upsplash

Naŝlhiny

Wild Horse

Equus ferus Caballus

FACTS AT A GLANCE

DIET TYPE
Herbivore

FEEDING STRATEGY
Grazer

SUMMER FOODS
Sedges

WINTER FOODS
Grasses (such as pinegrass) and shrubs

CRITICAL TIMES
Mares normally come into heat From April to October. There is an 11-month gestation period with foals born from May- Sept

HIGHEST POTENTIAL FOR INTERACTIONS
Horse-Cattle
Horse- Elk

The wild horse, known as *naŝlhiny* in Tŝilhqot'in, have been present in the Tŝilhqot'in territory for centuries. They are primary grazers of grasses, sedges and shrubs.

DIET

Wild horses are considered primarily grazers. Habitat complexes such as wet meadow, sedge, shrub field and dry meadow, grass, shrub field are the most important all-season foraging habitat for wild horses in the Tŝilhqot'in territory. Gramineous plants (i.e., grasses and sedges) make up the majority of equine diets. In spring and summer horses prefer sedges over grasses but in winter, grass becomes their most important food source. Many ungulates are ruminants and obtain nutrients through a fermentation process in their four-chambered stomach. Horses are non-ruminants and have only one stomach compartment. This digestion strategy make it possible for horses to ingest large quantities of low-quality forage when high-quality forage is sparse. Non- ruminants can sustain themselves on plants more fibrous than can be tolerated by a ruminant.

INTERACTIONS

The greatest potential for competition for forage occurs between wild horses and domestic cattle. They are both grazers and ingest large quantities of grass. Competition is highest in summer when cattle and horses come into contact in open grasslands. A study in Alberta found that the dietary overlap between horse and cattle in the summer was 66%. However, they had different grazing patterns, which resulted in plants being grazed repeatedly throughout the year. Repetitive and continuous grazing in areas can result in overgrazing and can lead to land degradation. The dietary overlap between elk and horse is also high, up to 50%. The greatest potential for competition occurs in winter when food is scarce. Horses have been found to be dominant in their social interactions with many ungulates due to their large size and often aggressive behaviour. Because of this, horses may outcompete other ungulates for food.

References: 1. Preston SK. A Habitat-Use and Dietary Analysis of a Monogastric versus a Ruminant Herbivore, on Forested Range. University of British Columbia; 1984. 2. Bhattacharyya J, Murphy SD. Assessing the Role of Free-Roaming Horses in a Social–Ecological System. Environmental Management. 2015;56(2):433-446. 3. Scasta JD, Beck JL, Angwin CJ. Meta-Analysis of Diet Composition and Potential Conflict of Wild Horses with Livestock and Wild Ungulates on Western Rangelands of North America. Rangeland Ecology & Management. 2016;69(4):310-318. Photo by Kevin Ortiz on Upsplash

Bedzish

Caribou

Rangifer tarandus caribou

FACTS AT A GLANCE

DIET TYPE
Herbivore

FEEDING STRATEGY
Intermediate browser-grazer

SUMMER FOODS
Green alder, birch, willow, huckleberry, blueberry, aster

WINTER FOODS
Terrestrial and arboreal lichens

CRITICAL TIMES
Rut: Sept/Oct
Gestation: Sept/Oct- May /June

HIGHEST POTENTIAL FOR INTERACTIONS
Caribou- Moose

Caribou populations are declining all over Canada and some populations are at risk of extinction. Low reproductive rates and sensitivity to altered landscapes makes them more vulnerable to population decline than other ungulates.

DIET

During winter, caribou diet consists almost entirely of terrestrial lichens such as reindeer lichen and snow lichen. In areas of high snowfall, they reply primarily on arboreal lichens such as horsehair or witch's hair lichen. Protein levels in lichen are generally very low (2%-6%) and so caribou exploit protein rich vascular plants during summer to restore body reserves. In the spring and summer time, caribou show strongest selection for deciduous shrubs, forbs, lichens, and mushrooms. In December, body fat tends to be lower in females with calves versus females without calves and protein requirements for caribou during gestation and lactation increase by 110-130%. Therefore, the summer is an important time for female caribou as they have high nutritional needs and rely on these rich vascular plants to restore body fat reserves before winter.

INTERACTIONS

Caribou populations are currently declining all over Canada and some populations are at imminent risk of extirpation. Much of the caribou declines can be explained by indirect effects caused by human activities that alters caribou habitat. Industrial activities such as timber extraction can cause a range of landscape scale effects such as removal of forest cover and creation of road access for hunters and predators, which can be detrimental to caribou populations. These human-caused landscape changes can sometimes push moose into higher elevation, caribou habitat. The potential for direct food competition is low between the two species but a study that synthesised 30 studies about caribou diets found that caribou diets are highly variable and when vascular plants are available, they will choose them. Use of vascular plants decreases with number of sympatric ungulates.

References: 1. Denryter KA, Cook RC, Cook JG, Parker KL. Straight from the caribou's (Rangifer tarandus) mouth: detailed observations of tame caribou reveal new insights into summer–autumn diets. Can J Zool. 2017;95(2):81-94. 2. Cook JG, Kelly AP, Cook RC, et al. Seasonal patterns in nutritional condition of caribou (Rangifer tarandus) in the southern Northwest Territories and northeastern British Columbia, Canada. Can J Zool. 2021;99(10):845-858. 3. Festa-BianchetM, RayJ.C, BoutinS, CôtéS.D, GunnA. Conservation of caribou (Rangifer tarandus) in Canada: an uncertain future. Canadian Journal of Zoology. 2011;89:419-434. Photo by Sebastien Goldberg on Unsplash

Denichugh

Elk

Cervus elaphus

FACTS AT A GLANCE

DIET TYPE

Herbivore

FEEDING STRATEGY

Intermediate grazer-browser

SUMMER FOODS

Grasses such as blue bunch wheatgrass and big sage

WINTER FOODS

Browse species, such as birch, saskatoon, cottonwood, willow and Douglas-fir

CRITICAL TIMES

Rut: Sept/Oct
Gestation: Sept/Oct- May /June

HIGHEST POTENTIAL FOR INTERACTIONS

Elk- Cattle
Elk-Moose
Elk–Deer
Elk- Big horn sheep

Elk are considered generalist herbivores because of their ability to live in a wide variety of habitats and their variable diet. This generalist strategy often allows elk to avoid competition with other ungulates by switching their diet in times of food scarcity.

DIET

The generalist feeding behaviour of elk allow them to adjust their diets to their habitats. Generally, their diet consists of primarily (70%) low growing forage such as grasses and shrubs but the amount of browse in the diet can increase substantially when herbaceous plants are limited. In May and June, most Rocky Mountain elk migrate to subalpine and alpine basins which support lush herbaceous vegetation. Autumn snowfalls tend to push elk back to lower elevation winter ranges. Physical condition of cows is the main determinant for successful breeding, and the physical condition of the cow is directly related to the survival of their offspring. Therefore, it is extremely important that elk have access to food with a high nutritional content in the summer so they can restore their fat reserves after fat losses through the winter and resulting from energy requirements during pregnancy and lactation

INTERACTIONS

Cattle can offer significant competition to elk. Niche foraging overlap between elk and cattle has been shown to be as high as 60% in the spring as they both rely heavily on grasses. Often the presence of cattle can cause elk to move away from favoured habitats and instead spend more time foraging at higher elevations and on steeper slopes where there are no cattle. Deer exhibit much more selective feeding patterns than elk but competition can occur when food is scarce. Deer are more strongly affected by the movements of elk than are elk by deer, meaning that it is more likely for elk to displace mule deer than the other way around. Similar patterns exist with big horn sheep. The dietary overlap between these species is not extensive but in times of heavy snowfall when elk are pushed into sheep range, it has been reported that sheep will wait until elk have left before moving back into feeding areas.

References: 1. Hodder DP, Rea RV, Crowley SM. Diet Content and Overlap of Sympatric Mule Deer Moose, and Elk During a Deep Snow Winter in North- central British Columbia, Canada. Canadian Wildlife Biology and Management. 2013;2(2):8. 2. Blood D. Elk in British Columbia, Ecology, Conservation and Management. Published online 2000. 3. Torstenson WLF, Mosley JC, Brewer TK, Tess MW, Knight JE. Elk, Mule Deer, and Cattle Foraging Relationships on Foothill and Mountain Rangeland. Rangeland Ecology & Management. 2006;59(1):80-87. Photo by Mathew Schwartz on Unsplash

Nists'i

Mule Deer

Odocoileus hemionus

FACTS AT A GLANCE

DIET TYPE

Herbivore

FEEDING STRATEGY

Browser

SUMMER FOODS

Browse species such as Douglas-fir, Saskatoon and soopolallie with increased grass and forb consumption

WINTER FOODS

Browse species such as Douglas-fir, saskatoon, Willow and some forbs

CRITICAL TIMES

Rut: Nov-Dec
Gestation: Nov/Dec- June/July

HIGHEST POTENTIAL FOR INTERACTIONS

Mule deer- white tailed deer
Mule deer- cattle
Mule deer- elk

Mule deer will spend 40-60% of their time foraging. In mountainous habitats of British Columbia, mule deer are primarily migratory, using upper elevation and alpine habitats during the summer and lower valleys and south facing slopes during the winter

DIET

In normal conditions, mule deer will spend 40-60% of their time foraging. Their diet consists mainly of conifers and shrubs in the winter and grasses in the summer. In the summer, grass consumption, mostly bluebunch wheatgrass and Sandbergs bluegrass can increase dramatically. Crude protein of grasses is much higher (17-25%) than the protein content of Douglas-fir (5.5%), which is the main component of their winter diet. These high levels of protein in the summer diet are essential to meet the needs of does with developing foetuses as well as to condition her for lactation. Fawns are born from late May to June, after a gestation period of six to seven months.

INTERACTIONS

Mule deer may face competition from excessive cattle grazing. The potential for direct competition is greatest in spring as both species select bluebunch wheatgrass. Despite this common food source, social interaction between deer and cattle is thought to be minor. In some cases, moderate to heavy fall grazing by cattle can make the spring foliage more attractive to deer as it removes mature forage and allows spring growth to become available sooner. Mule deer may also face competition with elk and white-tailed deer due to similar diets. A study in Washington found that about 90% of the diets consumed by both deer species consisted of deciduous shrubs and forbs, and they selected many of the same plant species. However, overall diet composition was 38% dissimilar indicating potential for modest resource competition.

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Nists'i

White-tailed Deer

Odocoileus virginianus ochrourus

FACTS AT A GLANCE

DIET TYPE

Herbivore

FEEDING STRATEGY

Browser

SUMMER FOODS

Mostly browse species such as saskatoon and red-oiser dogwood with increased Consumption of grasses and fobs

WINTER FOODS

Douglas fir, kinnikinnick, cottonwood, alfalfa, saskatoon, choke cherry, red-osier dogwood

CRITICAL TIMES

Rut: Nov-Dec
Gestation: Nov/Dec- June/July

HIGHEST POTENTIAL FOR INTERACTIONS

White-tailed deer- mule deer
White-tailed deer- cattle
White-tailed deer- elk

White-tailed deer have expanded their distribution in recent decades and now occur throughout much of British Columbia. Their preferred habitat is gentle terrain in valley bottoms with less snow.

DIET

In British Columbia, white tailed deer diets are mostly made up of browse during the winter and use of grasses and forbs increases in the spring and summer. Some of the most important browse species include choke cherry, saskatoon, Oregon grape, snowbrush, and cottonwood seedlings. Irrigated crops such as alfalfa are also eaten. In the winter, much like the mule deer, the diet of the white-tailed deer is primarily composed of conifers and deciduous shrubs, most importantly, Douglas fir. Arboreal lichens such as witch's hair and horsehair, saskatoon and red-osier dogwood twigs are important species year-round. The peak time for the rut for white tailed deer is mid-November and fawns are born in the spring and summer. Like many other ungulates, bucks fast while they are rutting which makes them more vulnerable to winter mortality than females.

INTERACTIONS

White-tailed deer may face competition food with mule deer, elk, and cattle. Across North America, mule deer populations are thought to be decreasing while white-tailed deer are increasing. Due to differing predator avoidance strategies, most of the year mule and white-tailed deer remain spatially separated. Most mule deer stay on steep and rocky mountain slopes at higher elevation than the white-tailed deer who prefer a gentler terrain in the valley bottoms. A study in Washington found that about 90% of the diets consumed by both deer species consisted of deciduous shrubs and forbs, and they selected many of the same plant species. However, overall diet composition was 38% dissimilar indicating potential for modest resource competition. Elk and cattle may compete for shrubs if the range is overpopulated, or herbaceous forage is scarce.

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Debi

Bighorn Sheep

Ovis canadensis

FACTS AT A GLANCE

DIET TYPE

Herbivore

FEEDING STRATEGY

Grazer

SUMMER FOODS

Grasses, shrubs, and forbs
Such as balsamroot and yarrow

WINTER FOODS

Grasses such as bluebunch wheatgrass, rocky mountain fescue and junegrass

CRITICAL TIMES

Breeding time: Nov-Dec
Gestation: Nov/Dec- April/June

HIGHEST POTENTIAL FOR INTERACTIONS

Big horn sheep- Cattle
Big horn sheep- Deer
Big horn sheep- Elk

Bighorn sheep are best suited, physically, and behaviourally, to rugged, treeless terrain that contains low-growing grasses and herbs. Grasses are the most important component of their diet and fobs are highly selected

DIET

Bighorn sheep are best suited, physically, and behaviourally, to rugged, treeless terrain that contains low-growing grasses and herbs. Because of this, their distribution is greatly restricted in British Columbia. Grasses such as bluebunch, wheatgrass, rocky mountain fescue and junegrass as well as forbs such as balsamroot make up the majority of bighorn sheep diets. Browse in the diet is approximately proportional to the relative availability of these woody plants, whereas forbs are highly selected. Important browse species include Douglas-fir, willow, saskatoon, buckwheat, and big sagebrush. Grasses constitute the largest proportion of the animal's diet during summer, increasing from 42% in early spring to 77% in late summer. Grasses may become even more important in winter when forbs become less abundant.

INTERACTIONS

Although big horn sheep utilize grasses more than browse, competition between big horns and deer for browse can occur when deer get pushed into bighorn range. Elk are abundant on some bighorn winter ranges and may compete with bighorns for forage. A study in Yellowstone found that big horn sheep diet was made up of 61% grass, 17% forbs and 22% browse with bluebunch wheatgrass being the most important plant species. For elk, conifers made up 3%, browse 6%, forbs 4% and grasses 87% with lupine being the most important species. The authors concluded that competition was low between these two species but had the winter been more severe, competition may have increased Domestic animals such as cattle pose the biggest risk of competitive interactions as they have similar diets to bighorn sheep. Often range deterioration can pose a bigger risk to bighorn sheep than competition.

References: 1. Shackleton D. Hoofed Mammals of British Columbia, Revised Edition. Vol 3. Royal BC Museum; 1999. 2. Wikeen B, Pitt. Interpreting Diet Preference of California Bighorn Sheep on Native Rangeland in South-central British Columbia. Society for Range Management. 1979;1(5):200-202. 3. Irwin LL, Cook JG, McWhirter DE, Smith SG, Arnett EB. Assessing Winter Dietary Quality in Bighorn Sheep via Fecal Nitrogen. The Journal of Wildlife Management. 1993;57(2):413-421. Photo by Christie Greene on Unsplash

Ŝebay

Mountain Goat

Oreamnos americanus

FACTS AT A GLANCE

DIET TYPE

Herbivore

FEEDING STRATEGY

Grazer

SUMMER FOODS

Grasses, shrubs, and forbs and browse such as subalpine fir, Douglas-fir and juniper

WINTER FOODS

Grasses such as bluebunch wheatgrass, bluegrass and fescues

CRITICAL TIMES

Breeding time: Oct-Dec
Gestation: Nov/Dec- May/June

HIGHEST POTENTIAL FOR INTERACTIONS

Mountain goat- Bighorn sheep

British Columbia has the greatest area of mountain goat habitat in North America and contains over half of the world's population of mountain goats. Mountain goats live in some of the most inhospitable terrain in North America, including alpine areas close to cliffs or rocky ledges

DIET

Mountain goats live in some of the most inhospitable terrain in North America, including alpine areas close to cliffs or rocky ledges. They occur at various elevations, but the terrain is always steep. Summer diets include 52% grasses, 30% forbs and 16% browse. Although mountain goats are primarily grazers, they seem to eat whatever plant species are available. Therefore, feeding habits at the level of plant species can vary a lot among different populations. Grass in the diet remains consistent throughout seasons. In winter, their diets shift to 60% grass, only 8% forb and 32% browse. Snow depth can also affect winter diets and what food is available to mountain goats. In times where snow depth becomes >50cm, forbs and ferns decrease in the diet and when this happens, goats consume twigs and needles of coniferous trees.

INTERACTIONS

Because the mountain goat is adapted to this narrow, extreme niche, they can often avoid competition from other herbivores and predation by large carnivores. There is potential for competition for foraging between mountain goats and bighorn sheep as their ranges overlap substantially in southwestern Canada. A report that combined data from 37 studies concerning big horn sheep and mountain goat diet in North America found, on average, the diet of mountain goats consisted of 52-60% grasses, 8-30% forbs and 16-32% browse. For big horn sheep, grasses made up 56-64% of the diet, forbs 15-23% and browse 21%. However, the authors did note that the importance of specific plant species varied between species. For example, goats relied mostly on meadow grasses, whereas sheep favoured sedges and wheatgrass.

References: 1. Côté S, Festa-Bianchet M. Wild Mammals of North America: Biology, Management, Conservation. In: ; 2003:1061-1075. 2. `. 1994;54(2):114-121. 3. Hebert D, Cowan IM. Natural salt licks as a part of the ecology of the mountain goat. Can J Zool. 1971;49(5):605-610. Côté S. Dominance Hierarchies in Female Mountain Goats: Stability, Aggressiveness and Determinants of Rank. Behaviour. 2000;137(11):1541-1566. Photo by JJ Shev on Unsplash.

Ses

Black Bear

Ursus americanus

FACTS AT A GLANCE

DIET TYPE

Omnivore

FEEDING STRATEGY

Forager, predator, scavenger

SUMMER FOODS

Berries along with grasses, sedges and horsetail, insects such as wasps and ants

WINTER FOODS

Black bears don't eat during hibernation in winter, but in fall salmon becomes an important food source

CRITICAL TIMES

Before hibernation: June- Aug

HIGHEST POTENTIAL FOR INTERACTIONS

Black bears- grizzly bears
Black bears- white tailed deer

Black bears are considered omnivores and consume a variety of plant and animal foods including berries, fruit, sedges, insects, fish, and meat. They are the most common and widely distributed of the three bears found in Canada

DIET

Black bears are considered omnivores and consume a variety of plant and animal foods. They utilise different foods in different seasons and seek out low-fibre, easily digestible and concentrated foods. The amount of meat in the diet depends on a variety of factors such as presence of grizzly bears and abundance of vegetation. The dominant spring food sources in British Columbia include skunk cabbage, lady fern, clover, dandelion, and devils club. In summer their diet shifts almost entirely to berries such as huckleberry, blueberry, soopolallie, thimbleberry, salmonberry, and twin berry. Bears survive the low temperatures and low food availability of winter by hibernating. They accumulate energy in the form of body fat and draw on these stored energy reserves during this period of low metabolic rate. Therefore, mid-summer to fall is a critical time for black bears to consume high quality food.

INTERACTIONS

Black bears and grizzly bears are closely related and have similar life cycles and thus share a substantial diet overlap. Both species are omnivores, consuming a variety of plant and animal foods. Ungulates such as caribou, elk and moose as well as berries high in carbohydrates are important summer foods for both species to build up fat reserves before they go into hibernation in October. Grizzly bears will often dominate black bears at sites with concentrated, energy rich foods such as salmon or carrion, whereas black bears have an advantage when foods are small and dispersed (eg. berries). Black bears can also compete with ungulates for certain foods, especially in areas where bear diets are mostly herbivorous. Over-grazing of berry producing shrubs by ungulates such as white-tailed deer can remove the most important summer and fall food source for black bears, berries.

References: 1. Smith P. Kenai Black Bears And Cranberries: Bear Food Habits And Densities (Berries, Habitat, Succession, Alaska). Published online 1984. 2. Michelfelder V, Lertzman K. Community Structure of Forage Plants Consumed by Black Bears in the Nimpkish Valley , British Columbia. Published online 2006. 3. Bull EL, Torgersen TR, Wertz TL. The importance of vegetation, insects, and neonate ungulates in black bear diet in northeastern Oregon. Northwest Science. 2001;75:244-253. Herrero S. A comparison of some features of the evolution, ecology and behavior of black and grizzly/brown bears. Carnivore. 1(7):17. Photo by Danika Perkinson on Unsplash

Nunitsiny

Grizzly Bear

Ursus arctos

FACTS AT A GLANCE

DIET TYPE

Omnivore

FEEDING STRATEGY

Forager, predator, scavenger

SUMMER FOODS

Berries along with roots of plants such as yarrow and glacier lilies, grasses, horsetail. In spring and fall ungulates such as elk, moose, and deer become important food sources

WINTER FOODS

Grizzly bears don't eat during hibernation in winter but in fall, salmon becomes in important food

CRITICAL TIMES

Before hibernation: June- Aug

HIGHEST POTENTIAL FOR INTERACTIONS

Grizzly bear- black bears

Out of 55 grizzly bear population units in British Columbia, 3 are of extreme concern, 14 are of high concern and 14 are of moderate concern. Around 60% of grizzly bear populations in British Columbia are threatened.

DIET

Grizzly bears are considered omnivores and consume a variety of plants and animals. Important spring foods for grizzly bears include green vegetation such as skunk cabbage, pinegrass as well as winter-weakened ungulates such as moose, elk, deer, and caribou. As the season advances, grizzly bears follow the receding snow up avalanche chutes feeding on emerging grasses, horsetails, rushes, and sedges. Similar to black bears, in the summer berries become important food sources for grizzly bears. Some common berries include soopolallie, salmonberry, raspberry, black twinberry, elderberry and a variety of blueberries. Late fall feeding focuses mainly on harder berries such as mountain ash and kinnickinnick. Salmon are an extremely important food source in the fall because of their high nutritional value. Fish, roots, pine nuts, bulbs, and insects are important components of the diet, whenever they are available and sufficiently abundant.

INTERACTIONS

Black bears are 10 times more abundant than grizzly bears. Aggression, large body size, and claws for digging gives grizzly bears an advantage in open habitats and smaller body size, recurved claws that help with tree climbing and the comparatively timid behaviour of black bears makes them better adapted to forested environments. However, in areas without abundant ungulates, roots or salmon, grizzly bear and black bear diets may converge more. In these cases, the potential for competition between black bears and grizzly bears for food is high and exploitation competition from black bears can adversely affect grizzly bears as black bears have an advantage when foods are small and dispersed (eg. berries). When black and grizzly bears are both inhabiting an area where food is limiting, black bears may have a competitive reproductive advantage by producing offspring more rapidly and with less cost than grizzly bears.

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Nuŝtil

Wolverine

Gulo gulo

FACTS AT A GLANCE

DIET TYPE

Carnivore

FEEDING STRATEGY

Scavenger, predator

SUMMER FOODS

Smaller mammals such
As ground squirrels, marmots
And hares

WINTER FOODS

Scavenged and cached carcasses of large mammals such as moose, elk, caribou, deer, mountain goats

CRITICAL TIMES

Lactation period: Feb- April

HIGHEST POTENTIAL FOR INTERACTIONS

Wolverine- coyote
Wolverine- wolf

Morphologically and behaviourally wolverines are well adapted to roam large areas in search of carcasses. Throughout its distribution, the wolverine displays very large home ranges, low densities, and low reproductive rates

DIET

Wolverines are carnivores and large mammals (particularly ungulates) compromise most of their diet. Wolverines are thought to be primarily scavengers and often consume moose, elk, caribou, deer, and mountain goats obtained as carrion (i.e. dead, decaying carcasses that were not killed by the wolverine). It has been estimated that wolverines obtain 60% of their food as carrion. As an adaptation to fluctuating food availability, wolverines cache food items in snow. Caching food allows wolverines to survive in unproductive habitat and take advantage when food is more plentiful. Medium and small sized mammals such as ground squirrels, marmots, snowshoe hare and porcupine can become primary prey when larger food items are not available. Diet composition varies seasonally and depending on the sex of the individual. Caribou, porcupines, and marmots are more important to adult females with kits than to any other age or sex class.

INTERACTIONS

Wolverines can experience competitive interactions with any large predator at carcass sites including coyotes, wolves, lynx, cougars, and bears. Wolverines have been reported to be declining across their range due to decreases in snow cover. Climate change and warmer winters iare expected to further reduce wolverine range. Historically, wolverines could avoid competition from other predators due to their adaptation for living in cold, low productivity environments and caching the limited food resources available. However, due to climate change causing decreased snow cover and human development that creates seismic lines, roads and trails, animals such as wolves and coyotes may be able to move onto wolverine range and out compete them for food. Coyotes and wolves live at much higher densities than wolverines and thus exploit resources at much faster rates.

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