

BEAR CART

The following items should be on the cart, if they are not let someone in education know. If you discover a new problem with any biofact (broken pieces, loose teeth, etc.), it is your responsibility to let the staff know **and** make a notation with the date, time and your name on the sign out clipboard.

Note: Please return all items to their appropriate place on the cart, and make sure lids and bungee cords are secured. Things should be left exactly as you found them.

Note: Do not try to open the Lucite containers with the food. We are trying to prevent animals from getting into the bone room.

BEAR CART INVENTORY

- Black Bear skull
- Kodiak Bear skull
- Kodiak Bear front leg including the scapula, humerus, radius, and ulna (see note below)
- Kodiak Bear paw with claws
- Black Bear, Polar Bear & Lion claw
- Kodiak Bear pelt
- Box of Bear's Bile Powder - Traditional Chinese medicine (DO NOT OPEN BOX!!)
- 2 lucite boxes containing grizzly bear and polar bear food
- Golden Eagle egg
- Golden Eagle leg/foot
- Bears Resource Notebook

Note: You will need large piece of **AstroTurf** if you intend to use the leg bones. Please **do not** place bones directly on the ground. Lay the bones on the AstroTurf starting with the humerus at the top; visitors can then lie down next to them to see how tall they are in relation to an adult male Kodiak bear. Remember this "shoulder" height is with the bear standing on all four legs. **Do not let the public pick up the bones, they are heavy. Do not bend/fold the paw or use to give high fives.**

Grizzly Bear Talking Points: *Ursus arctos horribilis*

Grizzly Bear Habitat/Geography:

Grizzly Bears are found many different habitats, from high mountainous wooded areas, to arctic tundra and alpine meadows. They are found in Alaska, Western Canada, Idaho, Montana, Washington and Wyoming. Grizzly Bears need a very large home range (50 to 300 square miles for females; 200 to 500 square miles for males), encompassing diverse forests interspersed with moist meadows and grasslands in or near mountains. In the spring, bears usually range at lower elevations and go to higher altitudes for winter hibernation. Grizzly Bears lead primarily solitary lives, spending most of their time foraging.

Grizzly Bear Physical Adaptations:

1. Size:

- Male Grizzly Bears are close to 2 times heavier than females.
- A typical adult male weighs between 300-850 pounds
- A typical adult female weighs between 200-450 pounds.
- **Advantage:** At the top of the food chain, adult Grizzly Bears have little to fear from other wild animals. The larger body size helps them maintain body temperature in cooler winter environments.

2. Fur

- Pelt is highly insulating and protects bears from insects and the environment, especially during the winter and gives them camouflage.
- Grizzly bears have fur in a wide palette of colors. The tips of their fur is white or silver which gives them a grizzled look, and led to their name, the Grizzly Bear.
- During late spring and early summer bears begin to shed their winter coats, which were thick and fluffy for life in the den.
- A grizzly bear's fur, and therefore appearance, changes greatly throughout the spring, summer and fall. When shedding appear to have balding areas.
- **Advantage:** coloring helps Grizzly Bears blend in with their surroundings to avoid enemies and remain unknown to prey, while thick fur helps them to survive in colder habitats.

3. Limbs

- Large shoulder hump is an indication of the large mass of muscles used for digging up food and making their winter dens.
- Grizzlies have large paws with five digits; the front claws are up to 4 inches in length and straighter than the 1 inch rear claws.
- Grizzlies lack curved claws for climbing; cubs can climb trees to evade danger, but as their front claws grow longer, they lose the ability to climb.
- Claws sharpen during the winter while the bears den up. This enables them to continue to have sharp claws for digging.
- **Advantage:** Both the hump and the claws are traits associated with a Grizzly Bear's exceptional digging ability; strong forearms allow them to dig winter dens, dig up roots or strike down a prey animal or compete with rival males.
- **Note:** The leg bones are from a Kodiak's front leg and include the scapula or shoulder blade, humerus, and the two forearm bones, the radius and ulna. Notice the muscle attachment sites; these muscles provide the main power for digging.
- **Compare** the lion and the two types of bear claws. The polar bear and the lion have to kill food versus the Grizzly Bear, which digs for some of their food. Also, bear species have non-retractable claws versus the retractable claws of most cat species.

4. **Claws:**

- Claws are non-retractable
- Front claws are up to 4 inches in length and straighter than the 1 inch rear claws
- Adult Grizzlies lack curved claws for climbing
- Claws sharpen during the winter while the bears den up
- **Note:** Compare the lion and the two types of bear claws. The polar bear and the lion have to kill food versus the Grizzly Bear, which digs for some of their food.

5. **Gait**

- Grizzlies have paws with large footpads and five digits; they walk with a slow shuffle and a plantigrade gait.
- They can move quickly when needed, up to 30-35 mph and are good swimmers too.
- Bears stand when they are simply curious or surveying their surroundings and will turn their head and ears in various directions to scan the area. Otherwise they generally remain on all fours.
- **Advantage:** The primary advantages of a plantigrade gait are stability and weight-bearing ability; walking on the soles of the feet uses the largest surface area. The primary disadvantage of a plantigrade gate is speed but Grizzlies are still quite fast.

6. **Skull**

- Large sagittal crest for the attachment of chewing muscles giving them a powerful bite. The sagittal crest is much bigger on male bears than it is on females, giving males a more powerful bite when fighting over females.
- The joint where the jaw attaches to the skull is relatively flat allowing for more lateral motion of the jaw as the bear chews.
- The eye sockets are opened at the rear, protecting the eyeball from the intermittent pressures generated by the temporal muscle during chewing; this is typical for a powerful mammalian predators

7. **Teeth /Diet**

- Grizzly Bears are omnivores; their longer, piercing canines are for tearing meat and large, flattened molars are used for grinding; the incisors are not specialized.
- The bulk of their diet is: tubers, berries, roots, grasses, vegetation, and small insects. They will also eat carrion, fish, and rodents as well as birds and their eggs.

8. **Senses**

- **Smell:** Grizzlies have an excellent sense of smell due to numerous bony plates or **turbinates** that intensifies their sense of smell. The many layers of bone are covered with wet mucous membrane to collect odor particles. The larger the surface area, the more odor particles can collect on it increasing the sense of smell.
- Grizzly's sense of smell is their main tool for detecting and locating food as well as evading conflict. When searching for prey, Grizzlies primarily rely on their acute sense of smell by bowing their heads low to the ground and sniffing while they walk.
- Turbinates aid in heat conservation as well as olfaction due to countercurrent exchange; cold air passing over turbinate surfaces on inhalation is warmed by blood flowing outward from the heart and warm exhalation from lungs rewarms blood flowing back from turbinate membranes.
- **Hearing:** Their short, round ears provide good hearing, which is helpful in locating prey. The smaller ears with large body size help conserve heat in the cooler northern temperatures.

- **Sight:** Eyesight is thought to be poor compared to humans. Their eyes are forward, tiny and closely spaced giving them binocular vision with a wider range of view and better depth perception.

Other Grizzly Bear Adaptations

1. Communication

- Grizzly Bears use sounds, movement and smells to communicate. They growl, moan or grunt, especially when females are communicating with their young or during mating season when male bears can fight each other fiercely for the opportunity to mate with receptive females.
- Grizzly Bears also rub their bodies on trees to scratch and to let other bears know they are there.

2. Denning Up:

- Grizzly Bears go through a period of deep sleep during winter and only drop their body temperatures by about 10° F and their metabolic rate only slightly compared to those of true hibernators.
- **Note:** true hibernators, (i.e. ground squirrel), have a metabolic rate that is significantly lower and a body temperature that may be reduced to near freezing. Hibernators have to awaken about every week for about a day, eat stored food, pass waste, and then return to hibernation. They continue this cycle all winter.
- In preparation for winter, grizzlies building up fat reserves by consuming as much carbohydrate-rich berries and other foods as they can find (**hyperphagia**).
- Dormancy period is triggered by fat store and not cold weather.
- Grizzlies have a low surface-to-mass ratio, which allows them to better retain body heat.
- In late November to early December, Grizzly Bears find a hillside and dig a hole to serve as their winter den. They typically choose northward-facing slopes to ensure optimal snow cover. This dormancy period is triggered by fat store and not cold weather.
- When inside the den, Grizzly Bears slow down their heart rate, reduce their temperature and metabolic activity and live off stored fat reserves. This is not a true hibernation since there is not a marked drop in body temperature and pulse rate; they are easily roused.
- Bears live off their fat reserve during denning up. The bears lose approximately 25% of their body weight during the winter sleep, but remain in good physical condition.
- **Advantage:** By entering a period of dormancy, bears minimize energy expenditure at a time when resources are limited. Bears can go for more than 100 days without eating, drinking, or passing waste.
- **Note:** By dropping their body temperatures by only about 10° F, bears are able react to danger quicker and mother bears are able to respond to their cubs when they need it.

3. Reproduction:

- 1-4 (2 more common) altricial cubs. Cubs are 8-9" in length and weigh only about 12 or 15 ounces.
- The cubs survive the winter by drinking from their mother's milk and staying warm by her side. Denning permits cubs to be born in a warm and secure environment.
- Cubs stay with their mother 2-3 years.
- **Advantage:** With a shortened gestation period and birth of very small young, female bears are able to endure the hardship associated with supporting her cubs while

hibernating and avoiding food intake. Denning permits cubs to be born in a warm and secure environment.

4. **Delayed implantation:**

- Grizzly Bears are solitary and come together for mating in the spring, just after emerging from their winter dens.
- When female Grizzlies enter hibernation and food resources have been sufficient, the embryo implants in her uterus and begins gestation. If a female bear is unable to gain enough weight during the summer and fall, her body will tell her to not proceed with the pregnancy and the embryo will reabsorb.
- **Advantage:** This gives the female a head start on gaining enough weight to have a successful pregnancy the following year. It helps female avoid risk to their own live during unfavorable conditions.
- **Advantage:** The timing of the birth of their cubs occurs during the dormancy period and the cubs are weaned when food is once again available in their habitat. By having cubs only when resources are sufficient ensures a greater success rate for the cubs surviving. Delayed implantation also allows bears to maintain their solitary existence, as they don't need to be searching for mates during the more critical time of hyperphagia.

GRIZZLY BEAR INTERESTING/FUN FACTS

- While foraging for tree roots, plant bulbs, or ground squirrels, bears stir up the soil, increasing species richness and nitrogen availability in alpine ecosystems. Grizzlies increase the amount of available nitrogen through soil disturbance and through salmon carcass dispersal.
- Grizzly Bears can also help ecosystems by distributing seeds and nutrients through their scat, and occasionally regulating ungulate populations. The manure acts as a fertilizer to the seeds.
- Grizzly Bears have a better sense of smell than a hound dog and can detect food from miles away.
- The Grizzly's ability to eat large quantities of starch rich food, such as roots and bulbs, and store fat without suffering from heart disease or cholesterol problems is of great interest to medical scientists. If scientists can determine how Grizzlies accomplish this, that information may be useful in preventing human heart disease.
- A bear cub at birth is smaller in proportion to the size of the mother than the young of any other mammal except marsupials.
- Grizzly Bears have one of the slowest reproductive rates among terrestrial mammals, due to their late age of first reproduction (4-9 years), small average litter size (2 cubs), and the long interval between litters (every 3 years): it may take a single female 10 years to replace herself in a population, making it harder for Grizzlies to rebound from threats to its survival.

Conservation Talking Points for Grizzly Bear (*Ursus arctos horribilis*)

Is it a Brown Bear, a Grizzly, or a Kodiak? The answer is that all Grizzlies and Kodiaks are Brown Bears. There are several recognized subspecies within the Brown Bear species (*Ursus arctos*). The Grizzly (*Ursus arctos horribilis*) and Kodiak (*Ursus arctos middendorffi*) are the two generally recognized subspecies of Brown Bear that are native to North America. The Kodiak is the largest of the Brown Bears and is found only in the Kodiak Archipelago, islands along the southeastern coast of Alaska. There is a continuum of difference between the larger coastal Brown Bears and the interior individuals that are generally called Grizzlies. Coastal Brown Bears have a greater amount of animal protein in their diet, achieve larger size, and have slight differences in coloration and do not have the “grizzled” appearance of Grizzlies.

STATUS OF GRIZZLIES: (see historical range map)

- Populations Declining: there are fewer than 2,000 grizzlies remaining in the continental U.S., down from 50,000 in the early 1800s. Grizzlies once lived in much of western North America and even roamed the Great Plains. Now, they are found only in four U.S. mainland states, Washington, Idaho, Montana, and Wyoming where they are protected by law.
- Alaska has an estimated 30,000 Brown Bears statewide. Legal hunting is regulated; in 2007, about 1,900 Brown Bears were harvested in Alaska.
- In 1975, the Endangered Species Act listed the Brown Bear as a **threatened** species in the lower 48 States.
- Recovery efforts have been modestly successful in some regions; in 2007, The US Fish and Wildlife Service removed the Grizzly Bear population from the threatened species list.
- The California Grizzly Bear (*Ursus arctos californicus*) disappeared from the state of California in 1922, but it is still on the state flag of California.

IMPORTANCE OF GRIZZLIES:

- Grizzly Bears are seed dispersers and a keystone predator, having a major influence on the entire ecosystem they inhabit.
- Brown Bears promote greater plant diversity on undisturbed land; while foraging for tree roots, plant bulbs, or ground squirrels, these bears stir up the soil, which promotes plant growth and results in a greater diversity of plant species.
- Grizzlies directly regulate prey populations and also help prevent overgrazing in forests by controlling the populations of other species in the food chain.
- Grizzlies facilitate nitrogen cycling by digging for food; soil disturbance causes nitrogen to be dug up from lower soil layers, and makes nitrogen more readily available for plants to take up in their root system. Also salmon carcasses are carried into surrounding forests where the nitrogen is returned to the soil and in turn taken up by the surrounding plants.

THREATS TO GRIZZLIES:

- Human-caused mortality is the number one cause of bear population decline. As a result of livestock predation and in response to the fact that this species may attack humans, it has, historically, been heavily persecuted.
- Sport trophy hunting causes an imbalance between the male and female sexes, since older males are primarily sought for their size.
- Illegal hunting can be a particular problem, especially for small bear populations like those in the lower 48. The reproductive rate of Brown Bears is very slow, so their populations are unable to “bounce back” easily after they have been depleted.
- Some bear body parts, gall bladders and bear paws in particular, bring high prices on the

traditional Asian medicine market, although no true medicinal benefit of these parts has ever been documented. Once Brown Bears were used for their meat and hides but these products are not currently in high commercial demand.

- Logging, mining, and urban expansion result in habitat loss and a decrease in food sources. Habitat destruction also pushes Brown Bears into more developed areas, making conflicts with humans more likely.

PROTECTION OF GRIZZLIES:

- Within the United States, the U.S. Fish and Wildlife Service concentrates its effort to restore Grizzly Bears in six recovery areas. These are Northern Continental Divide (Montana), Yellowstone (Montana, Wyoming, and Idaho), Cabinet-Yaak (Montana and Idaho), Selway-Bitterroot (Montana and Idaho), Selkirk (Idaho and Washington), and North Cascades (Washington).
- U.S. and Canadian national parks, such as Banff National Park, Yellowstone and Grand Teton, and Theodore Roosevelt National Park are subject to laws and regulations designed to protect the bears.
- Establishment of parks and protected areas are one of the main focuses currently being tackled to help reestablish the low Grizzly Bear population in British Columbia. Regulations such as limited public access, as well as a strict no hunting policy, have enabled this location to be a safe haven for local Grizzlies in the area.
- The Refuge for Endangered Wildlife located on Grouse Mountain in Vancouver is an example of a different type of conservation effort for the diminishing Grizzly population. The refuge is a five-acre terrain, which has functioned as a home for two orphaned Grizzly Bears since 2001. The purpose of this refuge is to provide awareness and education to the public about Grizzly Bears, as well as providing an area for research and observation.
- Conservation plans often include migration corridors by way of long strips of "park forest" to connect less developed areas, or by way of tunnels and overpasses over busy roads. Barriers from urban development and roads act as obstacles, causing fragmentation of the remaining Grizzly Bear population habitat and prevention of gene flow between subpopulations resulting in a decrease in genetic diversity and fitness of the species.
- Currently, Brown Bears help to fuel an ecotourism industry, especially in areas such as The Yellowstone National Park, Wyoming and parts of Alaska.

HOW YOU CAN GET INVOLVED:

- Support organizations conducting research on the Grizzly Bear
- Travel as an Eco-tourist to national parks and other reserves supporting Grizzly Bears
- Boycott tourist or gift items that use Grizzly Bear parts
- Educate yourself and others on issues facing the Grizzly Bear today
- Support zoos that serve as DNA ark for subspecies and provide opportunities to study the biology of Grizzly Bears in an accessible setting
- Observe and practice established bear safety guidelines when out in bear country.

Grizzly Bear Sources:

<http://animals.nationalgeographic.com/animals/mammals/grizzly-bear>

<http://www.defenders.org/grizzly-bear/basic-facts>

<http://www.nwfwildlife/wildlife-library/mammals/grizzly-bear.aspx>

KODIAK BEAR SKULL: The skull is from a Kodiak bear, a male that was born at the zoo and died in 1999. The pelt, paw and leg bones are also from this individual. The nasal cavity is covered to prevent fingers from breaking the very fragile bones (turbinates) that give bears their amazing sense of smell. The many layers of bone are covered with wet mucous membrane to collect odor particles. The larger the surface area the more odor particles can collect on it and the better your sense of smell.

The leg bones are from a front leg and include the scapula or shoulder blade, humerus, and the two forearm bones, the radius and ulna. Compare the claws. The polar bear and the lion have to kill food versus the brown bear, who digs their food up. The grizzly bear is an omnivore.

OUR GRIZZLY BEARS:

Our two female grizzly bears were orphaned as cubs in Montana and cared for by Montana wildlife officials before being released to the wild. Used to human-induced food rewards, they were considered nuisance animals after getting too close to developed areas and into a rancher's grain storage. After several attempts to relocate them away from humans and numerous phone calls to find the bears a new home, Montana wildlife officials were forced to make the decision to euthanize them. In the fall of 2004, with the cooperation of the Montana Fish, Wildlife and Parks Department, the Zoo agreed to provide a home for the two grizzly bears, Kachina and Kiona, whose names in Native American dialect mean "sacred dancer" and "brown hills" respectively.

The grizzly bear Monarch was the inspiration for the San Francisco Zoo and whose image appears on the California state flag and is recognized as the California state mammal. The grizzly bear is now extinct in California.

BLACK BEAR TALKING POINTS: *Ursus americanus*

GENERAL BLACK BEAR INFORMATION

The American black bear is the continent's smallest and most widely distributed bear species. Its conservation status is of least concern, with an overall increasing population trend.

BLACK BEAR HABITAT/RANGE/DISTRIBUTION

- The current range is at least 41 states of the United States, 6 states of northern Mexico, and 12 of the 13 provinces and territories of Canada. The current range is 65-75% of the historic range, which included even more of the United States and Mexico.
- Habitat: typically, forests (both temperate and subarctic), evergreen and deciduous. The bears live at altitudes from sea level to 11,500 feet.

BLACK BEAR PHYSICAL ADAPTATIONS

1. **Body Type** (see separate pages for diagrams and photos of differences between black and grizzly bears)
 - Non-retractable claws up to 1½ inches long – shorter and more tightly curved than those of the brown bear (including grizzly bears); well-adapted for climbing trees and ripping logs
 - Shorter legs than the brown bear, allowing them to be more agile climbers
 - Stomach includes an expandable region that can hold a large volume and a muscular region for grinding the flesh of fruits. These adaptations allow the bear to swallow berries quickly without chewing them up.
2. **Skull/head/dentition** (see skull photo)
 - A straight or slightly convex facial profile
 - Skull includes a sagittal crest where jaw muscles attach, with males having a much larger crest and therefore a stronger bite than females
 - 42 teeth including broad, flat molars for grinding vegetation and crushing nuts. Incisors and canines are appropriately shaped for its omnivorous diet. Reduced size of first 3 premolars creates diastema (gap) through which branches can be pulled sideways, stripping off the leaves.
 - Mobile lips for picking berries; and long, sticky, agile tongue for collecting ants and for separating and pushing out the less desirable bits within a mouthful of material
3. **Fur**
 - Usually a uniform color except for a brown muzzle and light markings that sometimes appear on their chests
 - Coloring can be blue-gray or blue-black, brown, cinnamon, or, occasionally, white.
 - Soft, with dense underfur and long, coarse, thick guard hairs

4. Size/Weight/Life Span

- Sexually dimorphic, with males tending to be larger than females
- Weight: males – 150 to 550 lbs.; females – 90 – 375 lbs. Weight changes dramatically over the course of a year due to feasting before denning up, fasting during denning period, and, for males, severely reduced foraging during the breeding season.
- Body length: 4 to 7 feet
- Tail: vestigial
- Life span: Average in the wild is 10 years, but can be up to 30. In captivity, can be even longer, with record of 44 years.

5. Senses

- Excellent sense of smell, with well-developed turbinate bones
- Sight and hearing better than that of humans, but less developed than the bear's sense of smell
- Unlike primates, black bears have a membrane (tapetum lucidum) behind the retina that reflects light in a way that improves the bear's vision in low light.

BLACK BEAR BEHAVIORAL ADAPTATIONS

1. Life Style

- Primarily solitary, except for a mother raising cubs, but will tolerate other bears in an area if there is abundant food available
- Roam large territories, spending the majority of their waking hours foraging for food
- Opportunistic omnivores adaptable to a wide variety of food sources and habitats
- May be active during the night or during the day
- Excellent climbers, runners, swimmers
- Running speed as high as 30 m.p.h.
- Adults have few natural predators except, in some locations, grizzly bears. Predators of young cubs include foxes, birds of prey, and other black bears.

2. Communication

- Sounds, including grunts and tongue clicks
- Scent marking
- Claw and tooth markings on trees
- Body language, including jaw-clacking, pouncing, bluff-charging, swatting, or blowing when nervous or fearful

3. Diet/Eating

- Omnivore: berries and other fruits, roots, grasses, nuts, shoots and leaves, eggs, ants and other insects, fish, small mammals, carrion
- 75% to 95% of the diet is vegetation. Food sources vary, depending on the season and location, and can even include human-related foods taken from campsites or garbage dumps or honey and brood from apiaries.
- Zoo diet: meat, fish, fruit and vegetables including lettuce, omnivore chow (kibble)

4. Denning Up

- Winter season is spent dormant in a den, surviving on body fat built up during the previous months. Body temperature and heart rate are reduced.
- Usually 3 to 8 months, depending on climate and food supply
- Dens are in caves, burrows, tree holes high above the ground, or other sheltered locations.

5. Reproduction

- Breeding usually occurs in June or July
- Mature females typically produce cubs once every two years.
- Females available for mating move around much more than usual and leave scent trails for males to track.
- Delayed implantation: a fertilized egg does not implant until approximately November, and only if the mother has been successful in finding adequate food.
- A litter of 1 to 5 cubs, most often 2, is usually born during January or February, in the mother's den.
- Newborn cubs are altricial: blind, nearly hairless, weighing less than 1 pound, and dependent on their mother's body heat to survive.
- Cubs are weaned at 6 to 8 months, and cared for by their mother for 16 to 18 months.
- Sexual maturity at 3 to 6 years.

BLACK BEAR CONSERVATION

- IUCN classifies the American black bear's status as "Least Concern."
- All 12 Canadian provinces and 31 U.S. states allow sport hunting of black bears. Mexico bans hunting.
- Some small, isolated populations are in danger of extirpation. Some populations have rebounded due to reintroductions or due to migrations from other areas, including bears crossing the U.S.-Mexico border.
- Threats include habitat loss, global climate change, fast-moving vehicle traffic, and intentional killing of bears.
- Reforestation, creation of national parks, reduction of human-bear conflict, creation of travel corridors under freeways and between separated populations, and well-informed hunting regulations are helpful conservation measures for black bear populations.

BLACK BEAR INTERESTING FACTS

- The toy "teddy bear" was based on a black bear. The creator named it after President Theodore "Teddy" Roosevelt, who in 1902 refused to shoot a black bear that had been tied to a tree.
- You can tell the age of a bear by counting the rings in a cross section of a tooth root. The outer side of the root adds a new layer each year. A narrow dark band forms during denning season and a light band forms during the growing season.
- In areas with bears present, it is important to follow food storage rules to prevent bears from breaking in, taking anthropogenic food, and subsequently becoming problem bears.
(see photo)

OUR BLACK BEARS:

Our two black bear cubs, probably born in January or February 2017, were found orphaned at two different locations in Alaska, the male near Valdez in May and the female near Juneau in June. They were undernourished, gained weight quickly under the care of the Alaska Zoo, and then moved to San Francisco Zoo in July 2017. There are an excess of bear orphans in Alaska now, and no reproduction was planned for these two. They have each now been spayed or neutered.

BLACK BEAR SOURCES:

<http://www.iucnredlist.org/details/summary/41687/0>
<http://www.sfzoo.org/animals/mammals/blackbear.htm>
<https://www.bear.org/website/bear-pages/black-bear/basic-bear-facts/>
<https://www.nationalgeographic.com/animals/mammals/a/american-black-bear/>
<https://defenders.org/black-bear/basic-facts>
<https://a-z-animals.com/animals/black-bear/>
<http://justfunfacts.com/interesting-facts-about-the-american-black-bear/>
<https://www.sfchronicle.com/bayarea/article/Cubs-at-SF-Zoo-highlight-glut-of-orphaned-Alaskan-11758801.php>
<https://www.ncbi.nlm.nih.gov/pubmed/14738502>
<https://www.bear.org/website/live-cameras/slide-shows/black-bear-show.html>

BALD EAGLE TALKING POINTS:

Use the bald eagle biofacts (egg and wing) to discuss the impacts of DDT and the resulting efforts of the San Francisco Zoo's breeding programs:

- The dwindling population and effects of DDT would not be discovered if it weren't for bird watchers (citizen science!) who noticed a decrease in juveniles.
- From there scientists discovered that DDT ingested through the food chain was accumulating in the eagles and causing them to lay thin eggs.
- The breeding program raised and released bald eagles for many years at the Zoo.
- During this time they were listed as Endangered and DDT was outlawed.
- Recently, the bald eagle was removed from the list, achieving stable numbers in the wild.
- This species was saved by citizen scientists and collaborative efforts of the government, zoos, and other non-profits.

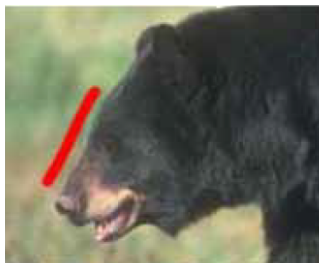
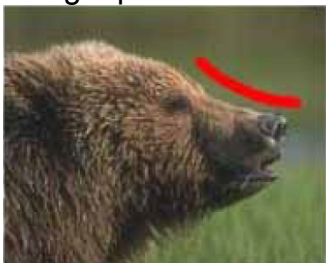
How do you differentiate between the Black vs a Grizzly bear?

Color and size can be misleading. Unfortunately color is not very reliable as both species exhibit a variety of colors and the “grizzled” or white-tipped hair is not present on all grizzly bears. Nor is size used for identification. An adult black bear may weigh the same as a female grizzly and also be about the same height. To identify a black or a grizzly bear, you need to look at other characteristics such as the shoulder hump, the facial profile, the ears and/or the claws.

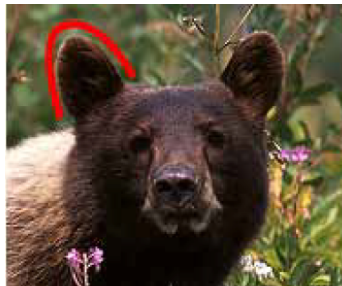
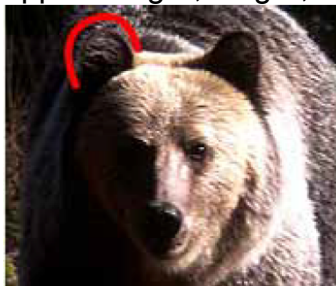
Hump: Grizzly bears (left) have a prominent hump with well-developed shoulder muscles for digging and turning over rocks. Black bears (right) have no such shoulder hump.



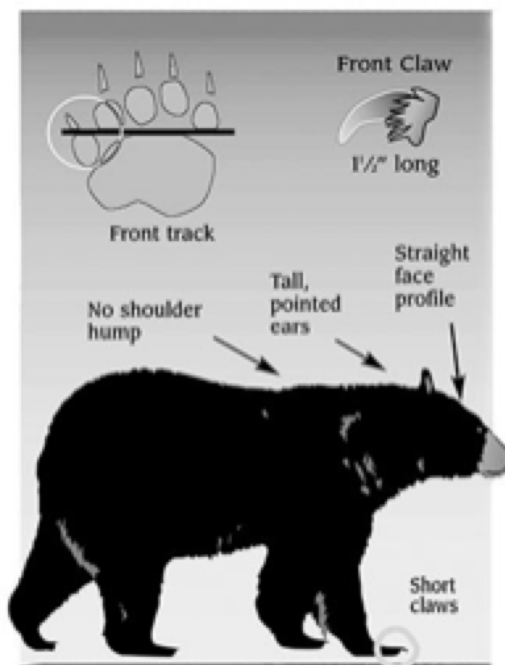
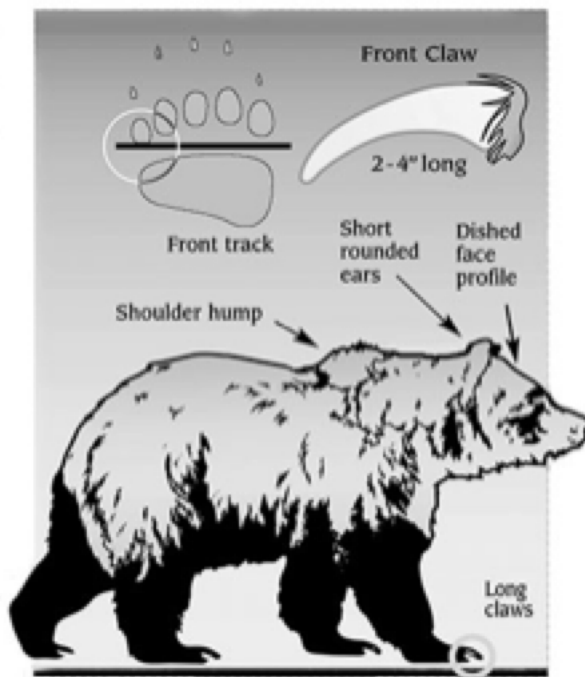
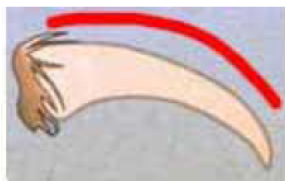
Facial profile: Grizzlies have a concave or dish-shaped profile that extends from between its eyes to the end of its nose. A black bear normally has a long, fairly straight profile from forehead to nose tip.



Ears: Grizzlies have smaller, more rounded ears, whereas the ears of a black bear appear larger, longer, more erect, and pointed.

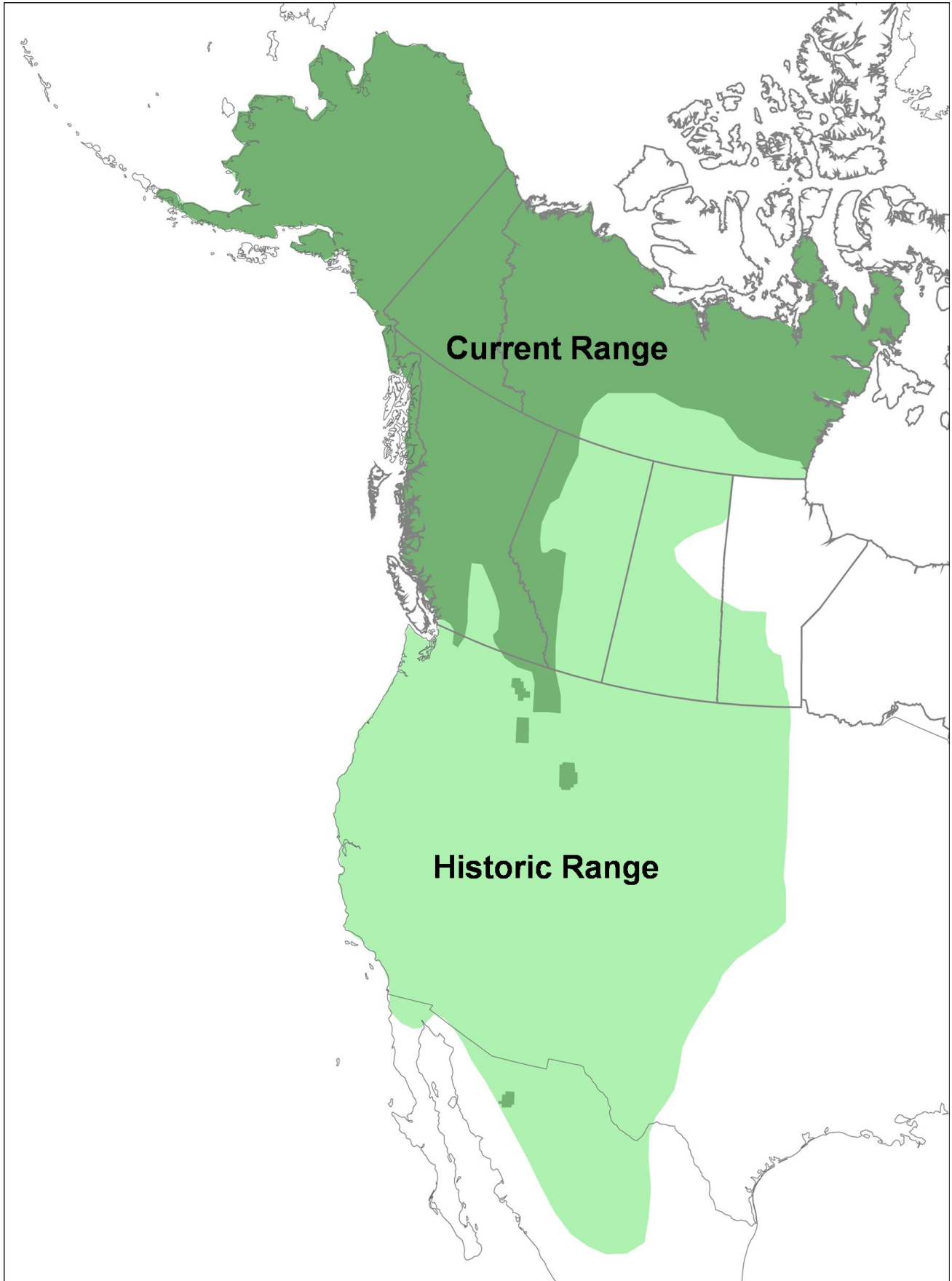


Claws: Grizzly bears have gently curved, often light-colored, 2- to 4-inch long claws adapted for digging roots and excavating a winter den. Black bears have shorter (often less than two inches long), more sharply curved, dark claws for climbing trees and tearing apart stumps and logs in search of insects in their forest habitat.



Source: Montana Fish, Wildlife & Parks Bear Identification Course

GRIZZLY BEAR RANGE



BLACK BEAR RANGE - 1995



BLACK BEAR HISTORICAL RANGE



AMERICAN BALD EAGLE RANGE





Mother with two-week-old cub in den. Bear cubs are smaller in comparison to their mothers than the newborns of any other placental mammal. Birth weight is less than 1 pound. Cub weight when the family finally leaves the den in approximately April is 4 to 10 pounds.



Mother and cub are climbing birch trees to eat tent caterpillars. The 146-pound mother ate 25,192 caterpillars (31 pounds) in 24 hours. (June 1989, Minnesota)

