



BEARS

and Happy Hour



By Julie C. Polk

Friday, April 10, 2020



Why Bears?

Where did this happen ?



How did this happen?

I was out on a hike with my friend Chelsea and we started talking about Bears.

Where do they live?

How do they know when to come out of hibernation?

So many unanswered questions.

Well I recently found myself with lots of free time ... so the bear research began!

Bears of North America



American Black Bear

Ursus americanus

Smallest and most common bear species - twice the population of all others combined



Brown Bear

Ursus arctos

Typically called Brown bear in coastal areas and called Grizzly inland and northern habitats



Polar Bear

Ursus maritimus

Classified as a marine mammal

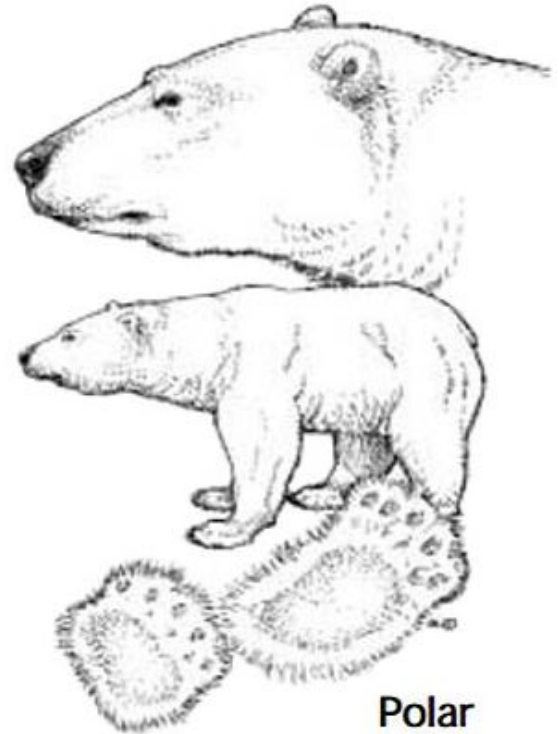
Bear Differences



Black



Brown



Polar

Difference between Brown Bears in North America



Grizzly Brown

Ursus arctos horribilis

essentially brown bears that live further inland and typically don't have access to marine-derived food.



Brown Bear

Ursus arctos

access to coastal food sources



Kodiak Bear

Ursus arctos middendorff

Lives on the Kodiak Island archipelago, and has been isolated for twelve thousand years from brown bears of the mainland of Alaska.

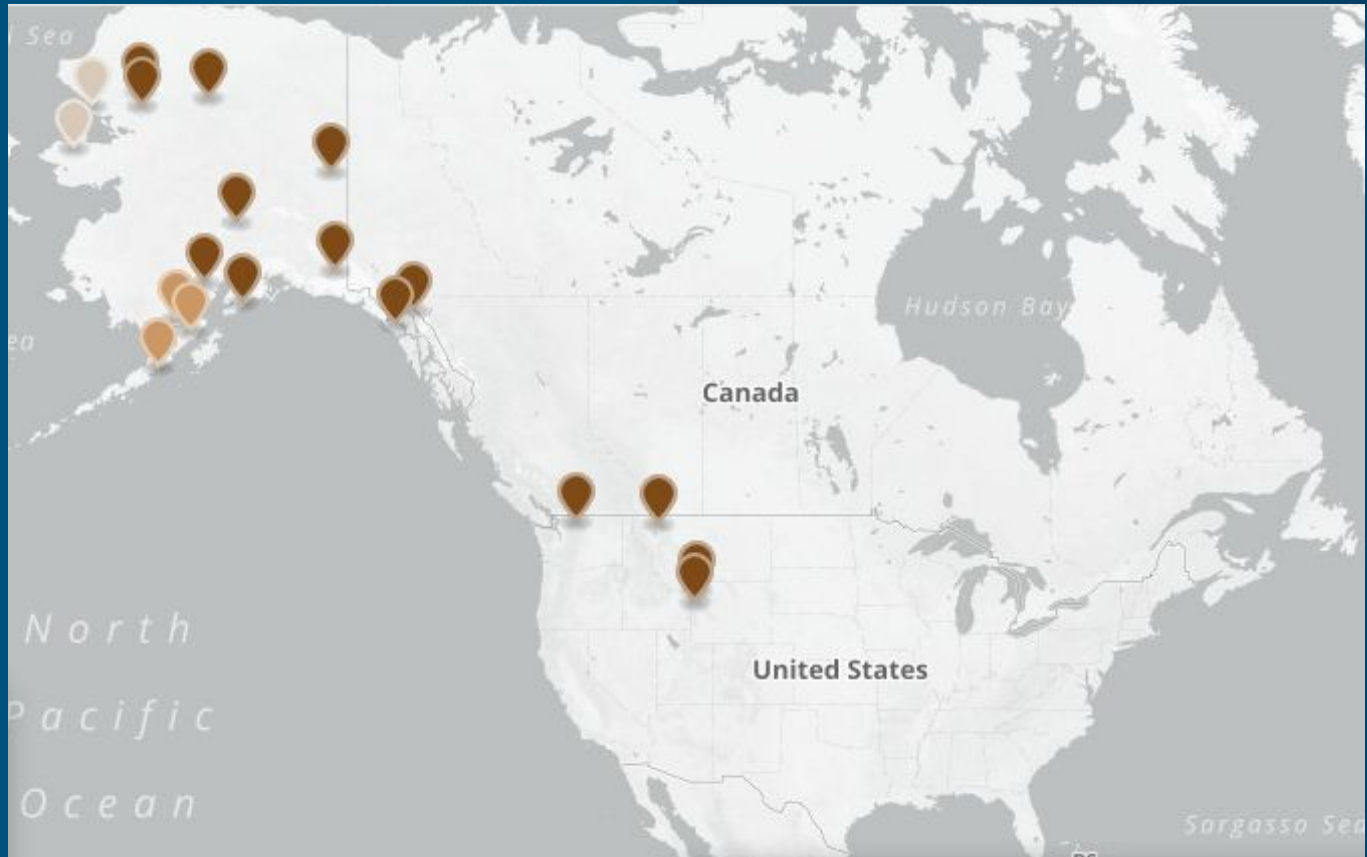
Which National
Parks can you
find bears?



Black Bears



Brown Bears



Polar Bears



Bear differences

American Black Bears

American black bears (*Ursus americanus*) are the most common and widely distributed species of bears in North America. They can be found anywhere from forested areas to the beach to the alpine zone.

The name "black bear" is misleading, however. This species can range from black to gray to cinnamon to white depending on the location and the individual. To ensure proper identification of an American black bear, do not depend on the bear's coloration. Instead, look for a combination of the following features.

- Shoulder lies level or flat with back/lacks shoulder hump.
 - Rump is higher than front shoulders.
 - Face profile is straight from between the eyes to tip of muzzle.
 - Ears are taller and more oval shaped and can appear to be very prominent on the head.
 - Front claws are less than 2 inches long and curved.
 - Toes are separated and fairly arced. A line drawn under the big toe across the top of the pad runs through the top half of the little toe on black bear tracks. Claw marks do not always show in the tracks.
 - Black bears are smaller than brown bears, standing 2 - 3.5 feet at the shoulder when on all fours.
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Bear Differences

Brown Bears

Brown and grizzly are common names for the same species, *Ursus arctos*; the difference between the two is geographic location, which influences diet, size, and behavior. Those that live in coastal areas of Alaska are called brown bears, while typically inland bears that have limited or no access to marine-derived food resources are often smaller and called grizzlies

- Distinctive shoulder hump.
 - Rump is lower than shoulder hump.
 - Face profile appears dished in between the eyes and tip of the snout.
 - Ears are short and round.
 - Front claws are slightly curved and 2-4 inches long, depending on how much digging the individual bear does.
 - Toes are close together, and form a fairly straight line. A line drawn under the big toe across the top of the pad runs through or below the bottom half of the little toe on grizzly/brown bear tracks. Claw marks are often visible in the tracks.
 - Brown bears are larger than black bears, standing 3-5 feet at the shoulder when on all fours.
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Bear Differences

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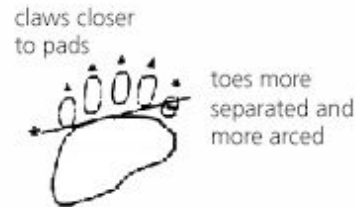
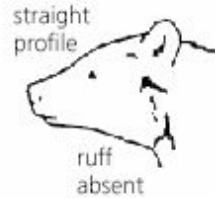
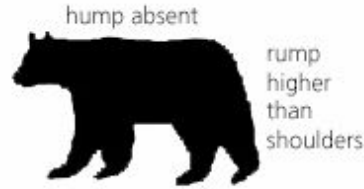
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Side by side comparison

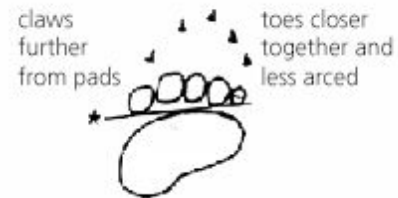
When trying to identify a bear use tracks and physical appearance..

Size and color can be misleading.

American Black



Brown/Grizzly



Bear Encounters

Viewing Etiquette

- **Respect** a bear's space
- Never approach, crowd, pursue, or displace bears. If a bear changes its behavior because of your presence, you are too close!
 - Average space should be at least **300 ft.**
- Stay in groups and minimize noise and movement. However, in areas of low visibility or when you're out on the trail, reduce chances of surprise encounters by staying alert and talking calmly to identify yourself as a human, not another animal
- Stay on designated trails when possible
- Let bears eat their natural food
- Never get between a mother and her cub

Food Storage

By eating human food, bears can lose their preference for natural food sources and their fear of humans. Over time, these bears may begin approaching people in search of food and can become aggressive, unpredictable, and dangerous.

- Anything with a scent is “food” to a bear
- Always keep your food within arms reach
- Do not store in your tent or backpack
- Store items in your car with windows closed or in bear lockers (if available)
- Secure garbage and other scented items

Additional rules apply for backpacking.
See NPS for more details

How to Protect Yourself

Black Bears

- If you are attacked by a black bear, **DO NOT PLAY DEAD**.
- Try to escape to a secure place such as a car or building.
- If escape is not possible, try to fight back using any object available. Concentrate your kicks and blows on the bear's face and muzzle.

Brown/Grizzly Bears

- If you are attacked by a brown/grizzly bear, leave your pack on and **PLAY DEAD**.
- Lay flat on your stomach with your hands clasped behind your neck. Spread your legs to make it harder for the bear to turn you over. Remain still until the bear leaves the area.
- Fighting back usually increases the intensity of such attacks. However, if the attack persists, fight back vigorously. Use whatever you have at hand to hit the bear in the face.

American Black Bear



Size

- Weight 100-300 lbs.
- Height 2.5-3 feet in all fours and 5 feet when upright

Color

- Washington Coastal - 99% black & 1% brown or blonde
- Washington Inland - 21% black & 79% brown or blonde
- Michigan - 100% black

Population

- North America - 600,000
 - United States - 300,000
 - Washington State - 25,000

American Black Bear



Habitat

- Edges of forested zones (except islands), hardwood & coniferous forests, meadows, alder thickets, burns and cuts. Heavily vegetated.
- Usually 1,300-9,800 feet in elevation

Dietary Habits

- Omnivores (eating both plant & animal).
- Spring diet is mainly herbaceous plants, including grasses and flowering plants.
- Summer diet adds ants, bees, grub and more plants
- Late summer to fall diet is tree fruits, berries, nuts.
- Fall is critical time and usually forage for 20 hours per day in order to increase their body weight for hibernation.
- A very keen sense of smell and curiosity make them skilled scavengers.

American Black Bear



Reproduction

- First Litter - 3 -5 years old. More developed areas get pregnant earlier
- Breeding usually June-July (sometimes into August) and lasts 2-3 months
- Males try to mate with multiple females and may violently claim a female when other males are present
- Females tend to be short tempered with their males after copulating
- Fertilized egg undergoes delayed development and doesn't implant till November
- Gestation in 235 days but actual development period is 3 months
- Cubs usually born late January - February
- Females have one little every other year

American Black Bear

Cubs

- Weight at birth is 0.62-0.99 pounds
- Length at birth is 8.1 inches
- Open eyes at 28-40 days old
- Walk at 5 weeks
- Dependant on mother's milk for 30 weeks
- Independence after 16-18 months
- At 8 weeks 5.5 pounds
- At 6 months 40-60 pounds
- Fully ground at 5 years



American Black Bear



Hibernation

- Considered highly efficient hibernators - usually hibernating up to 7 months
- Enter dens October - November (In the SE & SW only pregnant females hibernate)
- Dens are tree cavities , under logs or rocks, caves or culverts. Females are shown to be more picky about their den location than males
- During hibernation
 - Heart rate drops from 40-50 bpm to 8 bpm
 - Temperature drops from 99-102 degrees F to 88-98 degrees F
 - Retain all excretory waste.
 - Retention keeps smell away and protects from predators
 - May also play a role in atrophy
 - Hormone leptin released to suppress appetite
 - Foot pads peel off making room for new tissue

American Black Bear



Exiting Hibernation

- A series of chemical reactions controlled by the hypothalamus --- tells a bear when to wake up.
- Upon exiting a reduced heart rate and basal metabolic rate remains for 21 days
- They wander for 2 weeks so they can get accustomed to activity
- In mountainous areas they seek southernly and lower slopes and move to northerly and easterly slopes as summer progresses

American Black Bear

Life Expectancy

- Average life span is 18 years. Possibly 23 years
- They have few predators that include - cougars, bobcats and coyotes that attack cubs
- Male bear may also eat cubs

In Washington American Black Bears can be hunted. Must purchase a big game license and complete a bear identification test. About 1,440 are killed yearly.



Brown Bear



Size

- Weight (varies depending on location) Males 400 pounds and females 298 pounds
- Height - head & body length - 4' 7" - 9' 2" Shoulder height 305 feet up to 9 feet standing

Color

- North America - Dark Brown to cream or yellowish-brown

Population

- World - 200,000
 - Russia - 120,000
 - United States - 32,000
 - 30,000 in Alaska
 - Canada - 25,000

Brown Bear

Habitat

- Fringes of deserts to high mountain forests and ice fields
- In North America - Tundra, alpine meadows and coastlines
- Main requirement is areas with dense cover where they can shelter by day
- Typically a solitary creature

Dietary Habits

- Mostly omnivores consuming a variety of foods
- 90% of the diet is vegetable matter - berries, grasses, flowers, acorns, pine cones and fungi
- Most equipt bear to dig for roots and shoots
- Summer/fall - insects, larvae, grub and beehives
- Coastal bears eat crabs and clams
- Alaska - rock nesting birds & eggs and small rodents - marmots, ground squirrels, mice, rats, lemmings, voles and salmon



Brown Bear

Reproduction

- First Litter - 4-8 years old. Males usually one more year after females
- Serially monogamous first couple of days/weeks of mating time
- While in heat the both males and females try to mate with as many as possible
- 29% of tested bear cubs have more than one father
- If a female bear doesn't gain enough weight prior to hibernation the embryo will not implant and it will be reabsorbed into the body
- Average litter size is 1-3 cubs
- Records of females adopting or kidnapping cubs



Brown Bear

Cubs

- Weight at birth is 0.77-1.12 pounds
- Dependant on mother's milk for till summer/spring usually weighing 15-20 pounds
- Independence after 2.5 years
- Follow mom to learn to follow and forage for solid food
- Nearly 50% die before they are one year old



Brown Bear

Hibernation

- Usually hibernate 5-7 months
- Choose a new den each each year - moving up to a ton of dirt over the course of 1 week
- Often choose a north facing slope because they tend to receive more snow , which helps seal and isolate the den
- Alaskan Brown Bears can hibernate from five to eight months.
 - Typically because of cold hibernate longer.



Brown Bear

Life Expectancy

- Average life span is 25 years
- They have few predators that include - humans, other bears and tigers
- Cubs can fall prey to mountain lions, tigers, wolves and other bears

Grizzlies are protected as a threatened species under the federal Endangered Species Act and may not be hunted at all in the Lower 48 states

In Alaska Brown Bears can be hunted. About 1,900 are killed yearly.



Polar Bear

Size

- Weight - Males 990 pounds and females 330-550 pounds
- Height - Males - head & body length - 7'10"-9'10" Females - 5'11"-7'10"

Color

- Have two layers of dense underfur and an outer layer of guard hairs that appear white-tan but are actually transparent.
- Coat appears yellowish with age

Population

- World -20,000-25,00 to 2,000-31,000
 - 19 generally recognized sub populations
 - 13 of them, in North America, account for 54%



Polar Bear



Habitat

- Arctic Circle & adjacent land masses as far south as Newfoundland
- Hunt their preferred food preference of seals from the edge of the sea ice
- They follow the migration of seals often living off fat reserves when no sea ice is present
- Because of this dependence they are classified marine mammals
- Unlike Brown bears not territorial - often cautious and choose flight over fight

Behaviors

- Extremely well developed sense of smell - detect seals nearly 1 mile away and under 3' of snow
- Excellent swimmers & after swim for days
 - One bear swam continuously for 9 days - 400 miles in the Bering Sea and then traveled another 1,100 mile on land. Lost 20% of body mass doing so
- Superbly insulated by 4" of adipose tissue and can overheat over 50 degrees F
 - Nearly invisible under infrared photography

Polar Bear



Dietary Habits

- Most preferred food is seals but when alternatives present themselves they are often flexible and include - muskox, reindeer, birds, eggs, rodents, crabs and other polar bears
- May eat plants - berries, roots, kelp but none are significant to their diet
- Due to change in climate and ice breaking earlier than it used to they are exploiting other food options - geese, eggs, and plants like lyme grass in increase quantities.

Polar Bear



Hunting

- Most common method of hunting is called *still-hunting*: they use their excellent sense of smell to locate a seal breathing hole, and crouches nearby in silence for a seal to appear. The bear may lie in wait for several hours. When the seal exhales, the bear smells its breath, reaches into the hole with a forepaw, and drags it out onto the ice. The polar bear kills the seal by biting its head to crush its skull.
- Also hunts by stalking seals resting on the ice: upon spotting a seal, it walks to within 100 yd, and then crouches. If the seal does not notice, the bear creeps to within 30 to 40 ft of the seal and then suddenly rushes forth to attack
- A third hunting method is to raid the birth lairs that female seals create in the snow

Polar Bear

Reproduction

- First Litter - 4 years old. Males at 6 years old
- Generally polygamous although genetic testing show cubs with different fathers
- Courtship is on the sea ice during April-May when they congregate for hunting
- Male may follow the tracks of a breeding female 60 miles or more
- Engage in intense fighting over mating rights
- After mating fertilized egg remains suspended until August-September
 - During these 4 months female eats copious amounts of food gaining at least 440 pounds - more than doubling her body weight
- Average litter size is 2 cubs
- Records of females adopting wild cubs



Polar Bear



Maternity Denning

- When ice floes are at a minimum and hunting possibilities end pregnant females dig a maternity den
- It has a narrow entrance with tunnels leading to 1-3 chambers and mostly in snowdrifts
- Enter a state similar to hibernation but doesn't consist of continuous sleeping
- Heart rate slows from 46 bmp to 27 bmp
- Temperature does not decrease

Polar Bear

Cubs

- Usually born November - February
- Weight at birth is 0.2 pounds
- Stay in den till mid February - mid April
- Mother maintains fast while cubs nurse
- When mother breaks den cubs are 22-33 pounds
- For 12-15 days stay close to den. Mother grazes on vegetation and cubs become used to walking & playing
- They then begin the long walk to the sea ice for seals
 - Mother may have fasted for up to 8 months
- Females are noted for affection and valor in protecting cubs
- 42% of cubs reach one year of age
- Cubs gain independence at 2.5 years when mother chases them off or abandons them



Polar Bear

Life Expectancy

- Average life span is rarely beyond 25 years
- They have no natural predator other than other polar bears
- Cubs often fall prey to wolves and other carnivores
- Newborn cubs may be cannibalized by malnourished adults

There once was large scale hunting but the population rebounded after controls and quotas were put into place



Polar Bear



Conservation

- In 1973 - five nations - Denmark, Norway, Russia, United States and Canada - are the signers of the International Agreement on the Conservation of Polar Bears, which mandates cooperation in research and conservation
 - Prohibits random, unregulated sport hunting of polar bears and outlaws hunting of polar bears from aircraft and icebreakers which have been the most detrimental to the polar bear population
 - Nations are accountable for taking appropriate actions to protect the ecosystems of which the polar bears dwell, paying special attention to places where polar bears create dens, do a majority of their feeding, and where they migrate
 - Killing of polar bears is only warranted for *bona fide* scientific purposes, to prevent serious disturbances of other living resources such as human populations, and by local people using traditional methods in the realm of their traditional rights in accordance with the laws of that party
 - Skins or any other items of value that are taken as a result of the killing of a polar bear cannot be used for commercial purposes
 - Member states must prohibit the exportation, importation, and trafficking of polar bears within their states.
 - Nations share their polar bear research findings and meet every three to four years to coordinate their research on polar bears throughout the Arctic

Polar Bear



Threats and Controversies

- Climate Change
 - Concerned about malnutrition or starvation due to habitat loss
 - Polar bears hunt seals from the sea ice. Due to rising temperature the sea ice is melting earlier driving the bears to shore before they have built sufficient fat reserves to survive the period of scarce food
- Pollution
 - Top of the food chain and diet is heavy in blubber. They are the most contaminated mammals in the Arctic Circle
- Oil and gas development
 - Concerns of oil spills which would put their fur at risk of dying from hypothermia
 - In addition polar bears lick the oil from their fur resulting kidney failure

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I hope you have enjoyed this presentation
and
learned something too!

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