

Giant Panda Populations



Chen Wu, CC BY-2.0

Giant pandas are easily identified by their thick black-and-white coat that keeps them warm in the cool temperate forests high in the mountains of south-central China.

Their diet is 99% bamboo, and they spend 10-16 hours a day eating! Giant pandas don't get a lot of energy from the bamboo, so they must eat large amounts of up to 20-40 pounds of bamboo a day. And, since they cannot digest much of the plant material, they also poop up to 40 times a day.

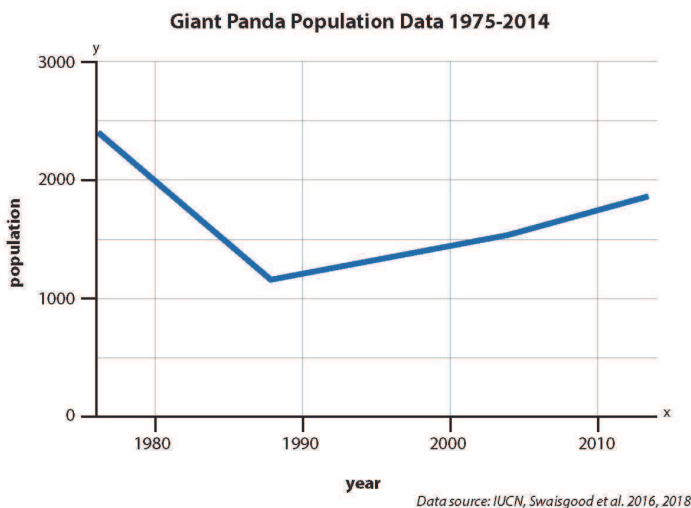
The biggest threat to giant panda populations is the loss of habitat to agriculture, livestock grazing, and bamboo and tree harvesting. Between 1974 and 1985, the panda habitat decreased by 50%.

Giant pandas rely on different species of bamboo, so that when one bamboo species flowers and dies, there are other bamboo species available.

Before habitat loss confined giant pandas to higher elevations, they could easily move up or down in the mountains to find different species of bamboo when needed. Now they are limited to a smaller area or are isolated, without a way to get to a new area for food.



Lina Jimenez



Giant pandas were once listed as rare but then shifted to endangered in 1990. This led to the 1988 Wildlife Protection Act and China's National Conservation Project. These measures banned poaching and established reserves for giant pandas, while also employing other methods to protect their habitat. Today there are 67 giant panda reserves, and their habitat range has increased.

In 2016, giant pandas shifted from being listed as *endangered* to *vulnerable*. Scientists say efforts to focus on regenerating bamboo forests and connect fragmented habitat through wildlife corridors are needed to keep the population growing and safe.

Directions:

- Identify the **trends** in the population:
 - Circle sections of the graph that show a decreasing population over time in **RED**.
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- Add words to describe what was happening to the resource during those times.

Eastern Bobcat Populations



Vermont Fish & Wildlife

Eastern bobcats are common throughout New England, even though they are rarely seen. Bobcats are solitary and feed on various small animals, such as mice, chipmunks, squirrels, and birds, along with bigger prey like deer. Bobcats can be found in many different habitats, including coniferous forests, swamps, and partially forested mountain areas. Areas that have been recently logged and farms are good spots for bobcats because those habitats provide food and cover for the bobcat's prey.

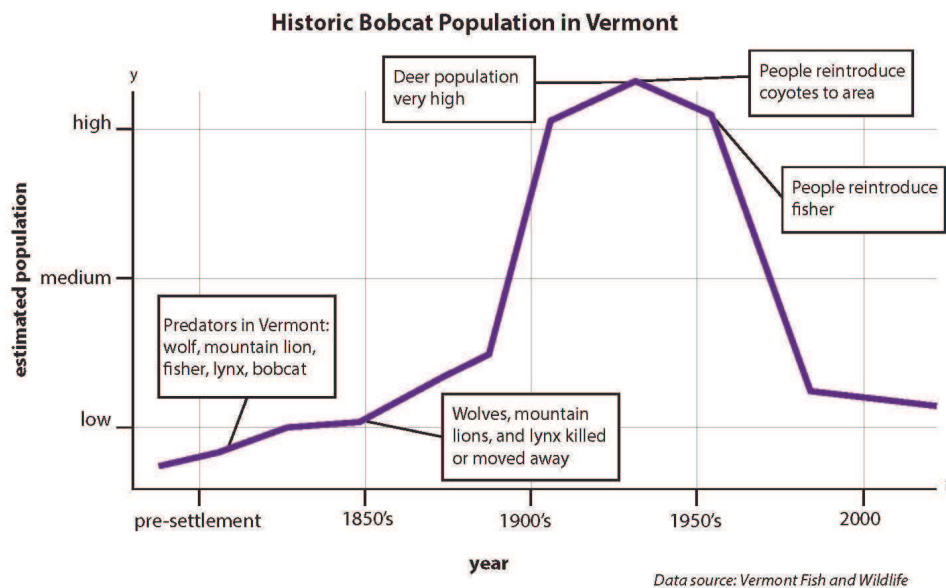
When European colonists cleared more than 80% of Vermont's forests and allowed unchecked hunting, it resulted in the elimination of the wolf, mountain lion, and fisher. With few predators left to compete with, the bobcat filled the role as the area's top predator.

In the late 1800s, as farms slowly started to shift back to forestland, there was an increase of prey such as white-tailed deer and snowshoe hare.

White-tailed deer are an important food source for bobcats. Between 1930 and 1940, deer populations were at their highest levels. In the 1950s, coyote and fisher populations increased and started competing with bobcats for food.



C Watts, CC BY-2.0



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San Joaquin Kit Fox Populations

The San Joaquin kit fox is the smallest member of the dog family in North America. They have big pointy ears and weigh only 3-5 pounds.

Historically, they lived throughout California's San Joaquin valley in grasslands, scrublands, and wetlands. But they've lost habitat due to agricultural and urban development.

In 1967, the San Joaquin kit fox was listed as an endangered species.

San Joaquin kit foxes eat small rodents, including mice, kangaroo rats, black-tailed hares, desert cottontails, and some birds and insects. They also compete with coyotes, red and gray foxes, and bobcats for prey.

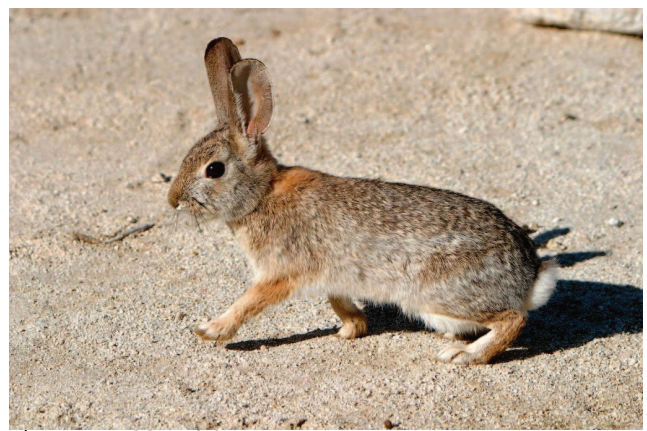
In addition to habitat loss, the San Joaquin kit fox is threatened by the increased use of pesticides and rodenticides. This has reduced the population of prey species like rabbits and hares, which are a favorite food source.

San Joaquin Kit Fox



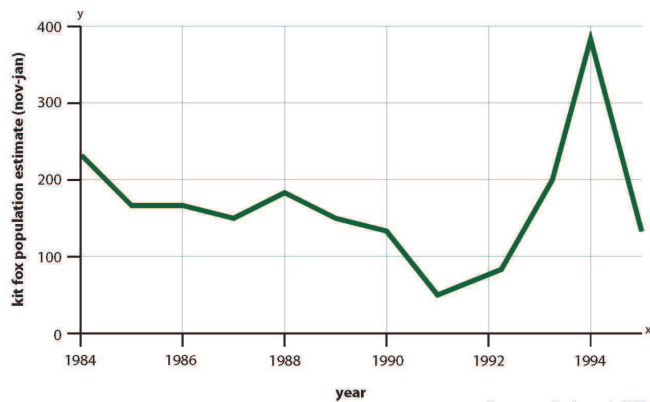
Heather Bell/USFWS, CC BY-2.0

Leporidae (rabbits and hares)

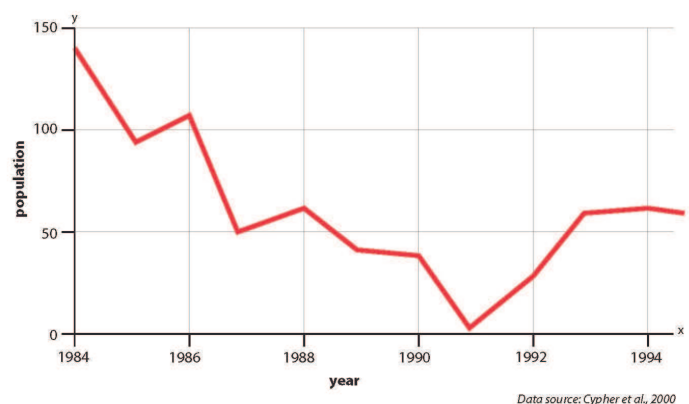


Alan Vernon, CC BY-2.0

Kit Fox Population at Naval Petroleum Reserves



Leporidae Density Estimates



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Giraffe Populations in the Serengeti



Giraffes are the tallest mammals on Earth. They can be as tall as 19 feet, and their legs alone can be up to 6 feet tall!

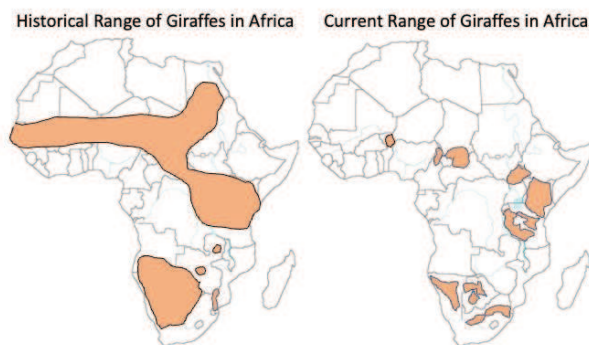
They are only found in sub-Saharan Africa, where they roam the savannahs eating tree leaves. They can often be found in groups of 12, feeding on acacia trees.

Their long legs and necks help them to reach their food, but their legs also make them easy targets for predators like lions, leopards, and hyenas: when they drink water, they must spread their legs wide to maintain stability. Doing this makes it really hard to start running if something comes up behind them.

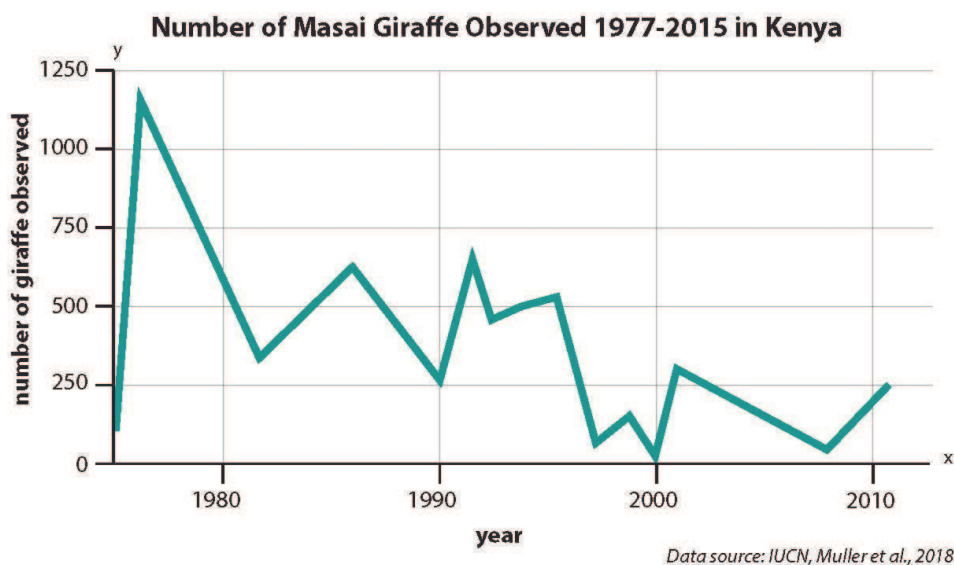
Between 1970 and 2000, sub-Saharan Africa has seen a lot of human population growth and urban development. This has led to a demand for increased food production, and the savannahs are being turned into agricultural fields for corn, soybeans, and livestock.

In the last several decades, the giraffe population has been declining. Within the last thirty years, the giraffe population has declined by nearly 30% across sub-Saharan Africa.

This map to the right shows where giraffes have historically lived (on the left) and where they currently live (on the right).



This graph below uses data collected in Kenya by scientists studying giraffe populations in the Athi-Kaupitei ecosystem.



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Louisiana Black Bear Populations



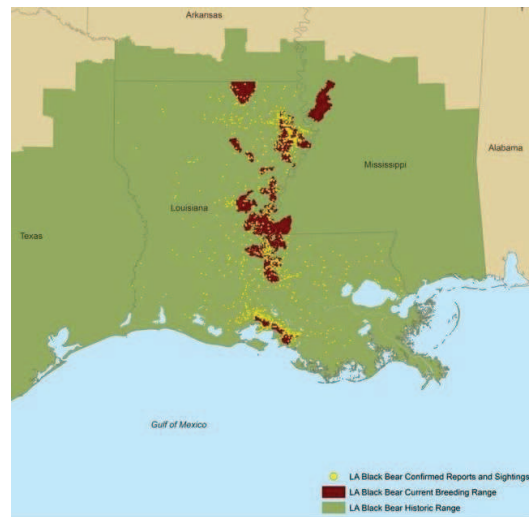
Kevin Phillips

The Louisiana black bear is the state mammal of Louisiana. The Louisiana black bear is a subspecies, or type, of American black bear. It roams the hardwood forests of the Mississippi River valley.

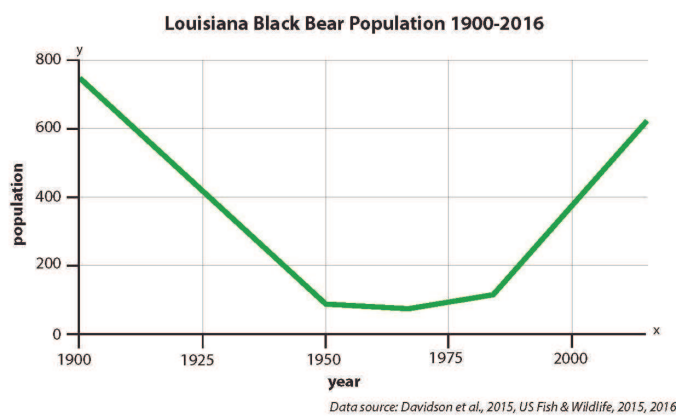
In 1902, President Theodore Roosevelt went on a bear hunting trip to the Mississippi River valley. His hunting guide located and captured a Louisiana black bear. The guide chained the bear to a tree. He brought President Roosevelt to the bear so the president could shoot it, but President Roosevelt refused. He said it was unsportsmanlike. News of this event quickly spread across the country, and a toymaker started making “teddy bears” in honor of the president.

Louisiana black bears eat both plants and animals, but they also find a readily available food source in garbage thrown out by humans. These bears eat by season. In the spring and summer, they forage for berries, while in the autumn, they find acorns and other nuts to consume. These bears need large areas of forest for finding food and spots for dens.

The Louisiana black bear once roamed areas of Texas, Louisiana, and Mississippi. By 1980, more than 80% of the Louisiana black bear’s habitat had been modified or destroyed when forests were converted to farms. This changed their food supply and led to fragmented habitats that isolated the bears from other bears and food sources.



Robert Greco, USFWS.



In 1992, the Louisiana black bear was listed as threatened on the Endangered Species Act list. Once listed, the bear and its remaining habitat were protected. Landowners and other groups worked to restore forest and wetland habitats.

The Louisiana black bear population has doubled since it was originally listed as threatened. The population is now considered to be healthy and in 2016 was no longer listed as endangered or threatened. Louisiana black bears thrive in large areas of forest not disturbed by humans or roads.

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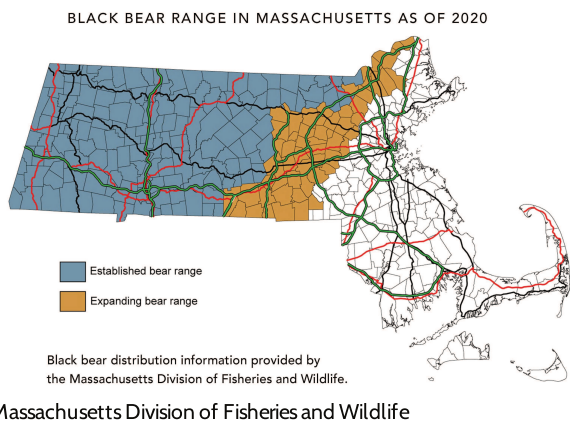
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Black Bear Populations



USFWS

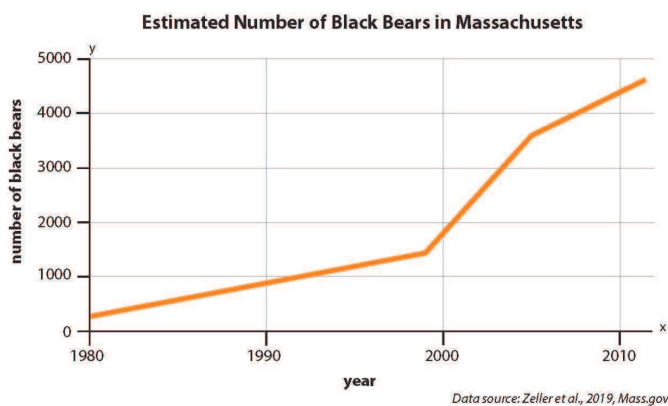
Black bears are found in forested areas throughout much of the United States. In Massachusetts, and in many parts of the United States, black bear numbers have been increasing. As their populations increase, they encounter humans and human development. However, black bears are not aggressive and will most likely run away if they see humans. A recent study in Massachusetts showed that black bears avoid humans by visiting developed areas at night, when human activity is low. Wildlife experts encourage people to take down their bird feeders and secure their garbage to discourage bear encounters.



Black bears typically feed on berries, fish, acorns, and even insects. They have an incredible sense of smell and can sense food from over a mile away! They will travel for food between 2 and 15 miles away. In areas where they live nearby humans, they will sometimes eat birdseed and garbage.

Although eastern Massachusetts is densely populated with humans, much of the western part of the state is forested or in the process of being rehabilitated from agricultural fields to forest. As the bears' range expands, they are getting closer to human development and take advantage of easy food sources like human food waste.

Black bear populations were once low, due to habitat loss and overhunting. However, their numbers have increased dramatically. In Massachusetts, there were an estimated 100 bears in the 1970s, compared to now where there are an estimated 4,500 bears in the state. You can even check out where black bears have been sighted in Massachusetts: <https://massbears.wordpress.amherst.edu/sightings-map/>.



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American Tree Sparrow



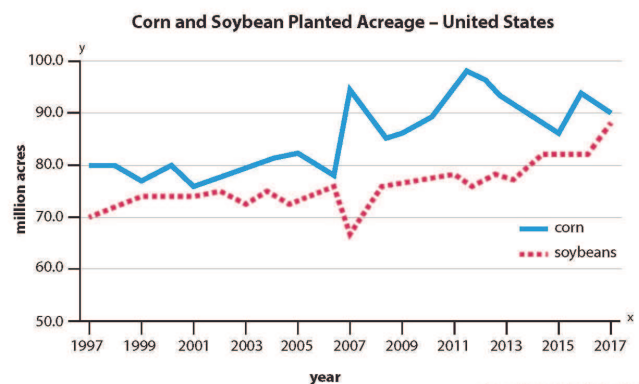
Fyn Kynd, CC BY-2.0

American tree sparrows are a type of songbird found throughout North America. They prefer to spend their time in grasslands, feeding on insects and weed and grass seeds. Tree sparrows also make their nests on the ground, using dried grasses and twigs, or nest near the ground in small shrubs.

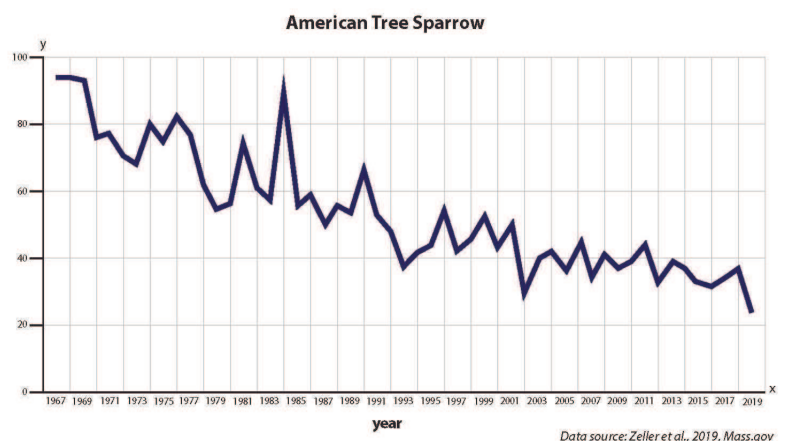
They spend the winter in the lower 48 United States, and in late spring, large groups of tree sparrows migrate to the tundra to spend the summer in the far north of the North American continent.

Since the 1990s, the tree sparrow population has been in a drastic decline in both the United States and Europe. In fact, the songbird population in general has been declining, with 75% of songbirds affected.

Over the last several decades, grassland habitat has been turned into vast agricultural fields for growing food for humans (corn, rice, and soybeans) and for cattle (hay). The graph below shows the change in corn and soybeans planted since 1997.



Each year, the National Audubon Society hosts an “Annual Christmas Count,” where community scientists gather to help keep track of the number of birds in particular areas throughout the United States. Scientists rely on data like these to help them understand which kinds of birds are still abundant and which kinds are declining. The graph below is based on data from the Annual Christmas Count and illustrates what scientists call “abundance,” which is a way to show how much of something still exists each year.



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