

## American Alligator (*Alligator mississippiensis*)

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### Introduction

The American alligator (*Alligator mississippiensis*), or gator, is the most abundant large-bodied predator of the Southeastern United States. Alligators typically inhabit freshwater habitats, such as lakes, ponds, swamps, and rivers. They also occupy saline environments, like coastal marshes and beaches. These large predators can grow to 15 feet in length and can weigh as much as 1,000 pounds. Although, these large sizes are rare in the wild.

### Taxonomy

Order: Crocodylia

Family: Alligatoridae

Genus: *Alligator*

Species: *mississippiensis*



Picture by L. F. Mengak

Crocodylians, members of the Order Crocodylia, occur in tropical regions throughout the world. There are 23 species of crocodylians worldwide. These crocodylians first appeared about 83.5 million years ago. They are the closest living relatives of birds. The family Alligatoridae includes true alligators and caimans. The American alligator is one of the two living species in the genus *Alligator*. It is larger than the other species of “true alligator,” the Chinese alligator (*Alligator sinensis*) (scientific name). The name *Alligator* is derived from the Spanish word *el lagarto*, which means “the lizard.”

### Status

Due to loss of habitat and unregulated hunting, alligators were driven almost to extinction by the mid-1900s. They were intensely hunted for their skins to produce leather products, which were quite fashionable in the late-1800s. In 1967, they were listed as endangered in the United States. Due to intensive management and conservation efforts, they were later de-listed in 1987. Today, they are a species of low risk/least concern globally according the International Union for the Conservation of Nature (IUCN) Red List. However, because of their physical similarity to the threatened American crocodile (*Crocodylus acutus*), they are still listed as “threatened due to similarity of appearance.”

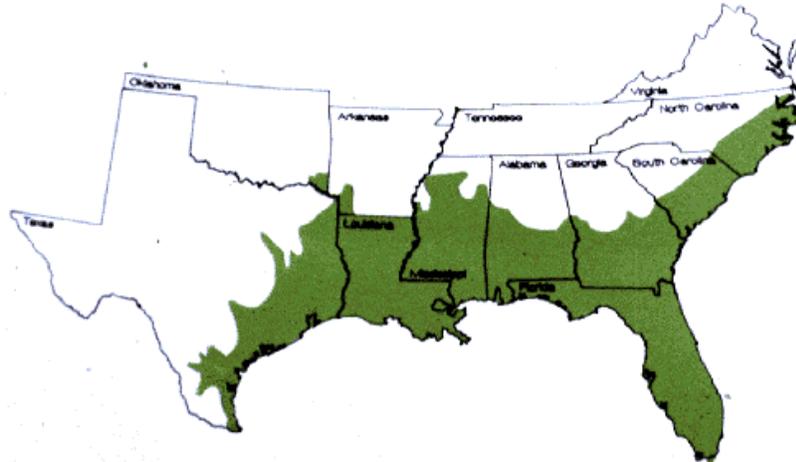
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Today, in most southeastern states, alligators are a game species. These states include Alabama, Arkansas, Florida, Georgia, Mississippi, South Carolina, Louisiana, and Texas. In addition to hunting, alligators are also farmed for consumptive uses. Alligator farming is a large, growing industry in Florida, Texas, Louisiana, and Georgia.

## Distribution

Alligators occur along the Atlantic Coast of the United States from Florida to coastal North Carolina and along the Gulf Coast into coastal Texas. Alligators are restricted to the coastal plain region throughout their range. Within this range, alligators inhabit rivers, lakes, swamps, and wetlands.

### Range of the American Alligator (*Alligator mississippiensis*)



(Map courtesy of Florida Fish and Wildlife Conservation Commission)

## Description

The American alligator has a flat head, broad snout, and thick armored body covered in rows of scutes (bony projections) down its back and tail. When the mouth is closed, the upper jaw covers the lower teeth, a distinguishing characteristic from the American crocodile. They can be olive, brown, gray or black in color and have a cream-colored belly. Alligators have between 74-80 teeth.

Variations in diet and climate can have large effects on the size of alligators. Alligators (and all crocodylians) continue to grow throughout their lives, a phenomenon known as indeterminate growth. The largest alligators are also the oldest. Male alligators can reach sizes of 15 feet in length and can weigh up to 1,000 pounds. Females can grow to a maximum of 9.8 feet. The largest alligator recorded was reported to be 19'2" long; however, most alligators do not reach such large sizes. Males (called boars) average about 11 feet in length and weigh about 500 pounds. Females (called cows) usually average 8.5 feet and weigh around 200

pounds. American alligators in the northern portion of their range, like southern Arkansas and northern Alabama and North Carolina tend to be smaller.

## Similar Species

The American crocodile is often mistaken for the American alligator. Crocodiles range from southern Florida and the Caribbean to the northern regions of South America. The American alligator overlaps in the southernmost portion of its range with the American crocodile. The alligator can be distinguished from its neighbor by its broader snout, overlapping jaws, and darker coloration. It is also less tolerant of saltwater environments but more tolerant of cooler climates than the American crocodile.

## Ecology

**Reproduction:** Unlike most mammals and birds, alligators reach sexual maturity at a certain length (about six feet), instead of a certain age. The breeding season begins in May. By mid to late June, pairs have mated, and females begin building their nests. Alligators have elaborate courtship displays. Breeding displays occur in open water and often in large groups. Males will “bellow” to attract females. Bellowing can cause the surface of the water near the alligator’s back to splash in what is called the “water dance.” Some of their other vocalizations are below the threshold that humans can hear. Alligator courtship will also involve body posturing, water slapping, snout rubbing, bubble blowing, and scent signals.

After mating, females construct mound nests from vegetation and mud along the shoreline. In June and July, females lay between 20-60 eggs. The temperature inside the nest mound determines the sex of the hatchlings. In general, constant temperatures below 87.8°F produce only females. Temperatures between 90.5 and 91.4°F produce only males. Intermediate temperatures ranges produce both males and females. It takes about two months for the hatchlings to develop and emerge from the egg. Skunks (*Mephitis mephitis*), raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), and feral hogs (*Sus scrofa*) often eat alligator eggs. At hatching time, the babies make a high-pitched call that attracts the female. She uncovers the nest by digging with her front feet. She will often carry her young in her mouth from the nest to the water. The young look like tiny adults but with a series of yellow bands around their bodies that function as camouflage.

Female alligators will fiercely protect their young until they are about three years old. It is very dangerous to approach alligator nests or young, as the mother is often close by. Hatchlings stay together in a “pod” for 1-3 years. If threatened, they will make a distress call to alert their mother. Despite the mother’s protection, many hatchlings are prey for a variety of animals, like wading birds, bass, snakes, bobcats, larger alligators, and sometimes bullfrogs.

**Feeding:** Alligators are carnivorous and will eat almost anything they can catch. Juveniles eat insects, snails, crayfish, small fish, and amphibians. Adult alligators feed on fish, crabs, turtles, snakes, wading birds, waterfowl, mammals, and smaller alligators. Alligators typically hunt from the water. They are ambush predators. They will often ambush prey from the water’s edge and

pull them into the water. Alligators have excellent eyesight to help them locate food. They also have a protective membrane over their eyes, enabling them to open their eyes underwater. Alligators also have hundreds of pressure sensors on their snouts. These bumps help them locate prey in the water. They are so sensitive that they can detect ripples from a single drop of water.

**Behavior:** As a top predator, the American alligator functions as a keystone species. A keystone species is a species that plays a unique and crucial role in the way the ecosystem functions. Alligators are also ecosystem engineers. An ecosystem engineer is an animal that modifies its environment such that other species benefit as well (think: beaver). Alligators create “gator wallows,” or shallow depressions in low-lying dry areas. A gator will create a wallow by scooping out dirt with its snout and back legs. The wallow will fill with water when it rains. The alligator will use the wallow to cool off during the hot, dry summer months. During dry periods, these wallows can also benefit other animals, like amphibians who will often lay eggs in the wallows. Other animals will also use the wallows to cool off or for fresh water.

Because alligators are “cold-blooded,” their activities depend on the water and air temperature. On hot days, they can be seen basking with their mouths open. This cooling mechanism is equivalent to a dog panting. Alligators can frequently be observed on the banks of water bodies, basking in the sun to regulate their body temperature. Gators will stop feeding if water temperatures are below about 70°F. Alligators will construct dens, which are cave-like structures in the banks. They will remain inactive, or dormant, during the winter in these dens. If they are in water, alligators will also demonstrate an “icing behavior” in extreme cold. Before a pond freezes, an alligator will move to shallow water, put its nostrils out of the water, and let its snout become frozen into the ice. Occasionally, alligators may be completely trapped below ice and have been known to survive over 8 hours without taking a breath.

**Habitat:** Alligators are generally a freshwater species, inhabiting ponds, swamps, lakes, rivers, and other large bodies of freshwater. Although they lack salt glands, they also often use salt water or brackish water systems. Because of this, alligators in coastal environments may routinely use freshwater areas for resting and brackish and salt marsh areas for feeding.

Alligator habitat preferences vary by sex, age, and size. Adult males typically inhabit deep, open water with large ranges. Adult females will use open water for breeding but then move to marsh and lake edges during nesting season. Juvenile alligators typically use marshes or other wetlands with dense vegetation. These smaller alligators also often use more saline environments, probably to avoid conflict with larger males.

**Enemies:** Once reaching about four feet in length, alligators have no natural predators, except occasionally other, larger alligators. As mentioned above, alligators are a game species (game species can be legally hunted as defined by the laws of individual states).

**Lifespan:** In the wild, the American alligator’s lifespan is typically 35-50 years. In captivity, alligators typically live 65-80 years.

## **Disease and Parasites**

Very little is known about wild alligator disease and parasites. Disease and parasites are not considered a significant problem for alligators.

## **Economic Value**

Alligators are a particularly coveted game species. Most alligator hunting regulations require the hunter to restrain the alligator before dispatching it. These regulations make for a unique hunting experience.

Alligator farming is a fast-growing industry in the Southeast. Georgia, Florida, Texas, and Louisiana produce about 45,000 alligator hides annually. Additionally, these alligator farms produce about 300,000 pounds of alligator meat annually. According to the Florida Department of Agriculture and Consumer Services, alligator meat contains approximately 200 calories per 3-oz serving of which 27 calories come from fat (compared to about 215 calories in a 3-oz steak with 115 calories from fat).

## **Medicinal Value**

There is no known medicinal value for the American alligator.

## **Damage- Human/Gator Conflicts**

Alligators do not usually cause property damage. However, expanding development into alligator habitat and recovery of alligator populations has increased interactions with people. Alligators will sometimes use backyard pools or golf course ponds when searching for territory or mates. Alligators are usually non-aggressive. The chance of an alligator attacking a person is very low. On average, there are fewer than 10 attacks a year. Normally wary of people, most alligator attacks occur either because alligators have lost their fear of humans or are defending their territory or young.

People can reduce the risk of conflict by following these rules:

- Do not feed alligators. When fed by people, alligators may overcome their wariness and can become accustomed or attracted to people.
- Do not swim where large alligators are present, particularly at night or dusk when they are most active.
- Do not approach a nest or hatchlings. The adult female alligator is usually not far away and will protect her young.
- Do not let unsupervised children (or pets) play in or around water where alligators may be present.

## **Threats**

Alligators face pressure from expanding human development that may cause increased human-gator conflicts. In particular, coastal alligators may be at risk from both expanding

commercial development and shrinking marshes due to sea level rise. In some coastal regions, rising sea levels may submerge large areas of tidal marsh. Additionally, salt marsh may move inland converting freshwater marsh to brackish marsh. Coastal alligators use areas of brackish marsh to feed and avoid larger alligators. The increase of brackish marsh may allow alligators to be more resilient to changes in marsh salinity. However, as marsh area is lost due to rising sea levels, alligators may be forced to live near urban areas. Conflicts with people may increase because of these changes. To reduce conflict, people should follow the suggestions for living with alligators listed above.

## Legal Aspects

The American alligator is a conservation success story. After being listed as protected under the Endangered Species Preservation Act of 1967 the alligator made a gradual recovery. Alligators were delisted in 1987 from “total protection” status and management returned to states. Today, the alligator is listed as “threatened due to similarity of appearance” because of its likeness to other crocodylians, particularly the American crocodile. Even though listed because of appearance, alligators can be treated as game species by the states with appropriate safeguards and permits for harvest.

## Control to Reduce

All states that have populations of alligators have a nuisance alligator program. Through these programs, licensed trappers can capture and in most cases, harvest specific nuisance alligators over four feet in length. Nuisance alligators may exhibit aggressive behavior towards humans, attack domestic animals, inhabit waters used primarily for swimming, or show symptoms of some serious illness or injury. In most instances, alligators are not relocated but are harvested. Alligators are not relocated because of several reasons. They would need to be moved to remote areas that likely already have healthy alligator populations. Moving an alligator into these areas would disrupt established social structures and may introduce disease or parasites potentially carried by the relocated alligator.

## Additional Resources

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