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TORTOISES AND TURTLES

Common Snapping Turtle

Chelydra serpentina

Chelydra serpentina is a large, almost entirely aquatic turtle from eastern North America with powerful jaws and a long tail. The shell is typically 25-45 cm, the animal weighs 5-16 kg, and it can live for many decades. The species requires a very large, filtered tank with a bare bottom, is not suited to handling and easily becomes overweight.

Family: Chelydridae

KEY FACTS

THE ANIMAL

Adult size	**25-45 cm** total length incl. tail
Weight	**4,500-16,000 g**
Lifespan	**30-50 years**
Active	**By day and at night**
Lifestyle	**Aquatic**
Habitat	**Wetland and temperate woodland and meadow**
Difficulty	**Experienced**

CARE

Min. enclosure	**200 × 100 × 70 cm** L × W × H for 1 adult
Temperature, day	**24-28 °C**
Basking spot	**29-32 °C**
Temperature, night	**20-24 °C**
Humidity	**50-80%**
Water	**Aquaterrarium** depth 25-40 cm
Water temperature	**23-27 °C**
UVB	**Recommended** Ferguson zone 2
Winter rest	**4-6 °C** 8-12 weeks
Diet	**Insects, complete diet, plants, vertebrates and worms/snails**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**84-240 months**
Clutch size	**25-80 eggs**
Clutches per year	**1**
Incubation	**63-140 days** at 20-30 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Least Concern (LC)**

About the species

Chelydra serpentina is one of the largest freshwater turtles in North America. The carapace is tan to brown or black with distinct keels, especially in young animals, while the plastron is small and cross-shaped, so large parts of the legs and neck are exposed. The head is large, the neck long and thick, and the tail is almost as long as the shell and has serrated keels. The neck and legs are covered with small tubercles. All measurements in the text are shell length.

Adults are typically 25-45 cm and weigh 5-16 kg. Males are larger than females and grow throughout life, although more slowly after sexual maturity. A wild animal has weighed 34 kg, and overfed animals in captivity have weighed up to 39 kg. No subspecies are recognised: the Central and South American forms that were formerly included are now separate species.

The species is defensive and can bite hard with its powerful, flat beak. The neck is so mobile that the animal can reach back over the shell and down to the hind legs, even if it is held by the side of the shell. Under water the animal is more reserved and often flees down into the mud. Lifespan in captivity is 30-50 years, and in the wild it is poorly known, but some animals have probably passed 100 years. The species is not an animal for handling and requires space and time, so it suits only experienced keepers.

Distribution and habitat

Chelydra serpentina lives in eastern North America, from southern Canada (Nova Scotia and New Brunswick, southern Quebec and Ontario, west to Manitoba, Saskatchewan and south-eastern Alberta) and south through the USA east of the Rocky Mountains to the Gulf Coast at Texas and Florida. Central and South American populations, which were formerly included in the species, are now separate species and lie outside this guide.

The species has escaped or been released in parts of the western USA, in Japan, China and Taiwan, and released animals are found in Germany. The countries shown on the map are only the native range.

> **Native range:** United States and Canada.

HABITAT

C. serpentina is found in most permanent bodies of water: shallow ponds, lakes, marshes, slow rivers and streams with a soft, muddy bottom and abundant vegetation, and in places in brackish water in estuaries. It often lies buried in the mud with only the head and nostrils free and stretches the neck up to the surface to breathe. The nostril sits at the very tip of the snout and works as a snorkel.

The animal rarely basks, but can float at the surface with the shell above the water, and in the northern part of the range it lies on fallen trees in spring. The females travel far over land to find sandy soil for laying, and other animals travel when the waterhole dries out.

In the cold part of the range the species hibernates on the bottom of ponds and lakes, where the water is covered with ice for more than half a year. The animal greatly reduces its metabolism and can take up oxygen through the mucous membranes of the mouth and throat. Some animals do not undergo true hibernation, but stay active under the ice.

Read more: Brumation and the seasons

Care

THE ENCLOSURE

Keep the animal in a large tub, a plastic stock tank or a pond, not in an ordinary enclosure. The amount of water determines the size: there must be at least about 15 litres of water per cm of shell length, so an animal of 30 cm needs at least 450 litres and an animal of 40 cm about 600 litres, and the land area comes on top. The box measurements, 200 × 100 × 70 cm, give a water area of about 150 × 100 cm with 30 cm of water (450 litres), a land area of 50 × 100 cm and 40 cm of wall above the water. An animal of 40 cm needs a considerably larger tub.

Floor area is more important than water depth, because the species does not swim much but walks along the bottom and stretches its neck up for air. The tub must be at least 3 times as long as the shell and half as wide, and the water 25-40 cm deep. Young animals can be started in a smaller tub with shallow water, but they grow fast; plan for an adult animal from the start.

Water is heavy: 450 litres weigh 450 kg, and a glass aquarium of that size is unsuitable. Choose a sturdy polyethylene tub, a fibreglass pond or a built pool with a liner, and place it on a floor that can bear the weight, preferably in a basement or on the ground floor.

Keep the bottom bare or cover it with large, flat stones that are too big to swallow. Fine sand is an option in part of the tub if the animal is to be able to bury itself. Avoid gravel and plastic plants, which the animal swallows. Build a strong, solid land area or ramp that can bear the animal's full weight; floating basking platforms for small turtles are too weak. The species digs and climbs well, so the tub must have a firm lid or a high wall, and the water level must lie 5-8 cm below the rim.

Always keep one animal in the tub. The species eats fish, amphibians and other turtles, so it cannot be kept with other animals.

A large, deep and escape-proof garden pond is also an option, and the species can overwinter in a pond that is at least 100 cm deep and has a soft bottom the animal can bury itself in.

TEMPERATURE

The water should be 23-27 °C. Below about 21 °C the animal loses its appetite and digests poorly, and above about 29 °C it becomes stressed and more aggressive, and the bacteria in the water multiply faster. The surface of the basking spot (if the animal uses it) is 29-32 °C, and the air above the water is at least 24 °C. The night temperature is not known in detail; 20-24 °C is suitable.

Put the water heater in a protective PVC pipe with holes or use an inline heater in the filter return, because the animal bites and knocks over everything in the tank. Measure the water with a digital thermometer.

Hibernation is optional. In the wild the species hibernates on the bottom under the ice, but an animal in captivity can be kept active and fed with light and warmth all year. Only healthy, well-nourished animals may hibernate, and only after a vet check. In an outdoor pond that is at least 100 cm deep, the animal decides the start and end itself; never break the ice, but if necessary keep a small hole free of ice with an air stone. Indoors the animal is not fed for at least 2-4 weeks while still warm, so that the gut is empty, and then the temperature is lowered gradually. The animal overwinters in water at 4-6 °C for 8-12 weeks, never below 2 °C, and is weighed every 2-4 weeks; if it loses more than about 1 % of its weight in a month, it must be woken. If the animal is newly acquired, ill or underweight, or if there is doubt, it is kept awake and fed all winter.

Read more: Heat and temperature

HUMIDITY AND WATER

The turtle's humidity is the water itself, so the relative humidity of the air is not decisive and not documented in detail for the species; 50-80 % in the room is ample. What is decisive is the cleanliness of the water.

The animal produces a great deal of waste, and the water quickly becomes dirty and gives high values of ammonia and nitrite. Change 25-50 % of the water every week, even with a powerful filter. Remove food remains quickly.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

The water is the animal's living space, so it must be deep enough, clean and warm. Adults do well in 25-40 cm of water. The temperature is 23-27 °C.

Filtration is the most important part of the equipment and should be sized for 2-3 times the volume of water. An external canister filter is best, and hoses and inlets and outlets must be protected with PVC pipe or stainless mesh, because the animal bites them. Internal filters are too weak and get smashed. Feed in a separate tank, so that cleaning is easier. Connect all electrical equipment near the water to an RCD (residual current device).

Plants and fish in the tank end up as food.

LIGHTING AND UVB

UVB is recommended, but less essential than for aquatic turtles that bask a great deal, because the animal gets D3 through whole prey. The Ferguson zone is not documented for the species; zone 2 is an estimate based on the species basking rarely. Put a high-quality UVB tube over the land area, with no glass or plastic in between, and replace the tube regularly, as its strength falls.

Young animals often use a basking spot, while adults rarely do. Leave it there anyway, so that the animal can choose. The light should be on for about 12 hours a day. Let the animal be able to retreat into shade, because it uses light and shade to hide.

Read more: Lighting and UVB Read more: Calcium, vitamins and supplements

FEEDING

C. serpentina is omnivorous and in the wild eats small animals, fish, frogs, amphibians, crustaceans, snails, worms, reptiles, carrion and large amounts of aquatic plants. In captivity feed whole prey or pieces with bone, for example fish, earthworms, cockroaches, prawns and crayfish, lean meat and offal, and good-quality floating pellets. Young animals get pellets and small animals, and adults move on to whole prey. Also provide greens such as aquatic plants and leaves; not all animals take them.

The species easily becomes overweight, and obesity burdens the kidneys and liver and shortens life; adult animals in captivity have weighed up to 39 kg. Do not give more than the animal eats in a short time, and keep the fat content down. Feeding frequency is not documented for the species. As for other aquatic turtles, daily feeding suits young and feeding 1-3 times a week suits adults, and the amount is cut back if the animal becomes fat. Feed in the water. Frozen fish have lost vitamin E and thiamine, so provide varied food and a supplement if fish are a regular part of the diet.

Whole prey provides enough calcium and D3. If the animal gets mostly pellets and meat, add a cuttlebone to the tank, and remove the hard backing first.

BEHAVIOUR AND HANDLING

C. serpentina is defensive and bites quickly and hard when picked up or when it feels threatened; a bite can cause deep wounds. The neck is long and mobile, so the animal can reach back over the shell. The species is not an animal for handling, and no children may come near it.

If the animal must be moved, lift it by the shell behind the hind legs, so that the hands are out of reach of the beak and claws. Never lift the animal by the tail, because it can damage the spine. It is safer to use a blanket or a board and a shovel under the rear edge of the shell. When the animal is stressed, it gives off a musky scent from the hind legs.

Keep one animal. The species attacks its own kind and eats other turtles, and injuries from fighting are common, especially in tanks that are too small. The animal is inquisitive and quickly learns to associate you with food, but it cannot be tamed.

Breeding

SEXUAL MATURITY AND SEXING

Males are larger than females, and almost all animals over 10 kg are old males. Sexual maturity comes later in animals in the northern part of the range (15-20 years) than in the south (about 12 years). In captivity the animals become sexually mature at 7-20 years.

MATING

Mating takes place from April to November. The male sits on top of the female's shell and bends the tail down, so that the two cloacal openings meet. The female can store sperm for several years and lay fertilised eggs without new mating. The species is aggressive towards its own kind, so a pair may only be kept together in a very large tank with the chance to get away from each other.

EGG-LAYING AND CLUTCHES

The female lays 25-80 eggs once a year (occasionally up to 83), mostly in June and July. She leaves the water to dig a nest in sandy soil, often far from the water, and covers the eggs with the hind legs. The eggs have a leathery, flexible shell and are 26-28 mm in diameter. The female needs a large, deep laying area with sand or soil on the land area.

INCUBATION

The eggs hatch after 9-20 weeks, depending on temperature: at 30 °C after about 63 days and at 20 °C after about 140 days. Temperature also determines sex: females result at low and high temperatures and males at intermediate temperatures. The young hatch and leave the nest by themselves; the parents look after neither eggs nor young.

REARING THE YOUNG

The young have a small, ridged shell, a relatively long tail and a large head. They are active, greedy and eat almost anything. They are kept in shallow water with hides and plants and are given pellets and small animals such as earthworms and small fish. They grow quickly and must be moved to larger tanks after a few months. Small animals bite each other's tails, so the young are kept separate.

Health and common mistakes

Typical problems and husbandry errors: - Obesity and fatty liver with too much and too fatty food. - Injuries from fights and bite wounds, often on the tail, especially in animals kept too close together. - Dirty water, which causes infections of the shell and skin. - Shell fungus and deformities with a lack of UVB, calcium or a varied diet. - Swallowed plastic or pebbles.

Animals hide illness, so weigh and measure them regularly, and keep a log of weight and appetite. Sudden weight loss is often the first sign. Only a vet experienced with reptiles should treat a sick animal, and contact the clinic in advance, so that the animal can be received safely.

All reptiles can be symptom-free carriers of *Salmonella* and infect people. Wash hands before and after contact with the animal, water and equipment, and do not let children under 5 come near. A bite should be rinsed under running water for about five minutes and cleaned; seek a doctor for deep or inflamed wounds.

Read more: Quarantine and hygiene

Always ask someone who knows

This guide is a good place to start, but it cannot replace experience. Animals differ, and much of what matters most is learned from people who have kept the species for years. Talk to a breeder, an experienced keeper or a vet who knows reptiles and amphibians before you get the animal - and again if anything looks wrong.