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TORTOISES AND TURTLES

Pond Slider

Trachemys scripta

Trachemys scripta is a diurnal, semi-aquatic turtle from the south-eastern and central USA and north-eastern Mexico. The shell grows to about 30 cm, and the animal can live for more than 40 years. An adult needs a large, filtered tank holding about 330 litres of water, a land area with a warm basking spot and powerful UVB.

Family: Emydidae

KEY FACTS

THE ANIMAL

Adult size	**18-30 cm** total length incl. tail
Lifespan	**20-40 years**
Active	**By day**
Lifestyle	**Semi-aquatic**
Habitat	**Wetland**
Difficulty	**Intermediate**

CARE

Min. enclosure	**150 × 75 × 70 cm** L × W × H for 1 adult
Temperature, day	**21-31 °C**
Basking spot	**30-40 °C**
Temperature, night	**20-24 °C**
Humidity	**50-80%**
Water	**Aquaterrarium** depth 30-40 cm
Water temperature	**21-31 °C**
UVB	**Essential** Ferguson zone 3
Diet	**Insects, complete diet, plants, vertebrates and worms/snails**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**2-30 eggs**
Clutches per year	**1-5**
Incubation	**59-112 days** at 22-30 °C

PROTECTION AND PAPERWORK

CITES	**Not listed**
EU annex	**Not listed**
IUCN	**Least Concern (LC)**

About the species

Trachemys scripta is a medium-sized to large freshwater turtle that spends most of its life in the water and only comes onto land to bask, lay eggs or find a new habitat. The shell (carapace) is oval and flat, olive green to brown with pale markings, and the skin is dark with yellow stripes. All measurements in the text are shell length. Females grow larger than males: adult males typically measure about 18 cm and females about 25 cm, and large females reach 30 cm. In rare cases the shell can grow to more than 40 cm. An adult weighs up to about 3 kg.

The species has three subspecies. *T. s. elegans* has a red stripe behind each eye and dark blotches on each plastron scute, and it is by far the most widespread in the trade. *T. s. scripta* has a vertical yellow stripe behind the eye, and *T. s. troostii* has a slanting yellow patch behind the eye and is rare in the trade. The subspecies often interbreed, so many animals are hybrids, and this makes no difference to their care.

The male is recognised by much longer claws on the front legs, a thicker and longer tail and a slightly concave plastron. The female has a flat plastron and a shorter, slimmer tail.

Lifespan is typically 20-30 years, and some animals live for more than 40 years. The species is calm and curious, but not a pet to pick up: it quickly learns to associate you with food and swims back and forth in front of the glass when you approach, but it dislikes being handled. An adult needs about 330 litres of filtered water, powerful heating and UVB for its whole long life.

T. scripta has been among the most traded reptiles in the world and has escaped or been released in large parts of the globe. It is regarded as one of the world's worst invasive species: it matures earlier, grows larger, produces more young and is more aggressive than many of the species it competes with for food and basking sites. The set-up must therefore always be escape-proof, and the animal must never be released into the wild.

Read more: Lighting and UVB

Distribution and habitat

Trachemys scripta is native to the south-eastern and central USA and north-eastern Mexico. *T. s. scripta* lives in the south-east: Virginia, North and South Carolina, Georgia, Alabama and Florida. *T. s. elegans* lives in the Mississippi basin and along the Gulf Coast from Iowa, Illinois, Indiana and Ohio in the north to Texas and eastern New Mexico in the west, and on into north-eastern Mexico (including Nuevo León and Tamaulipas). *T. s. troostii* is found mainly around Tennessee.

Outside its native range the species now occurs on every continent except Antarctica, because animals have escaped or been released, including in many places in Europe. The countries shown on the map are the native range only. The taxonomy of the species complex is unresolved: several forms that were formerly regarded as subspecies are now regarded as separate species, and there is disagreement about how the complex should be delimited.

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

HABITAT

Trachemys scripta lives in ponds, lakes, marshes, slow rivers and other wetlands with a soft bottom, plenty of aquatic vegetation and logs or banks where it can bask. Groups of many animals are often seen basking on logs and branches, even high above the water, and when danger threatens they slip back into the water in a flash and dive.

Young animals stay in very shallow water with plenty of vegetation, where they find both food and cover. Adults range over greater distances in search of food. Males travel further to find females, and females leave the water to dig nests in the ground.

In winter the species brumates on the bottom of ponds and lakes. The animals become inactive around October, when the temperature falls below 10 °C, neither eat nor pass faeces, lie almost motionless and breathe very rarely. In warmer areas they may come up to bask, but they quickly return to dormancy when it turns cold again.

Read more: Brumation and the seasons

Care

THE ENCLOSURE

Keep the animal in an aquarium, a large tub or a closed indoor pond, not in an ordinary terrarium. The tank must be at least five times as long as the shell and half as wide as it is long, with the land area counted as part of the floor area. The water must be at least twice as deep as the shell is wide. A female of 30 cm therefore needs at least 150 × 75 cm and a male of 20 cm 100 × 50 cm. An enclosure measuring 150 × 75 × 70 cm gives a water section of 110 × 75 cm with 40 cm of water (about 330 litres), a land area of 40 × 75 cm and a 30 cm rim above the water. Bigger is always better.

Set up for an adult from the start. Water is heavy: 330 litres weighs 330 kg, so place the set-up on a floor that can carry it, preferably on the ground floor or in a cellar. Glass aquariums are easy to prepare, but need converting to add a land area and basking spot. Tubs with opaque walls, such as feed tubs and ready-made pond tubs, make the animal feel more secure and reduce the endless swimming back and forth along the glass: in the wild the turtle dives to hide, and in a glass aquarium there is nowhere to hide underwater.

The land area must be large enough for the whole animal to haul out of the water completely, and preferably large enough for it to take a walk. Build it as a beach or a shelf with a rough ramp, and place a large, flat stone as a basking spot, because stone conducts heat evenly and warms from both below and above. The lamp and UVB sit directly above the basking spot. The rim around the land area must be at least 25 cm high so the animal cannot climb out. If the animal is a female, build in a box of soil or sand as a nesting site.

The water is cleaned by a powerful filter, preferably an external canister filter rated for at least 2-3 times the volume of water. Ideally keep only one animal: several animals must be the same size and need a tank at least 50 % larger, and several basking spots.

The set-up must be completely escape-proof. An outdoor pond in summer is only acceptable if it is enclosed: fencing that goes at least 30 cm into the ground to prevent digging, tight fencing against predators and chicken wire over the top. Avoid fine-meshed netting, which cuts out a large part of the sun's UVB.

Read more: Heat and temperature

TEMPERATURE

The surface of the basking spot should be about 40 °C, measured with an infrared thermometer a couple of hours after the lamps are switched on, and the air above it 30-32 °C. Heat with halogen lamps, which give sun-like warmth, in deep domes with ceramic fittings. Two lamps give a larger and more even basking spot than one. The heat lamp must be at the same distance from the basking spot as the UVB tube.

The water should be 21-31 °C for adults; hatchlings under one year need 24-29 °C and slightly larger juveniles 23-24 °C. Adults tolerate cooler water than the small ones because they retain heat better after a spell on the basking spot. Set the water heater to the lowest temperature so that a gradient develops in the tank. The heater must have a plastic guard so the animal cannot burn itself, and an automatic cut-out. Measure the water with a digital thermometer by dipping the probe in; do not leave it in the tank, because the animal will destroy it.

At night the lamps are switched off, and for adults the water heater can also be switched off so the water cools a little as in the wild; hatchlings under one year need warm water around the clock. The night temperature is not well documented; 20-24 °C is suitable.

Brumation is natural for the species and is regarded as beneficial, but it is not a requirement, and an animal that does not itself become sluggish and stop eating in autumn should not be forced. Only healthy, well-nourished animals over 3-4 years old may brumate, and only after a veterinary check. Stop feeding when the animal itself eats less, switch off the heat a week earlier, and then keep the animal at 3-5 °C for no more than 14 weeks (small animals no more than 10 weeks), for example in a ventilated box with damp soil and leaf litter in a refrigerator. Below 2 °C the animal begins to freeze, and above 15 °C it is too cold to eat but too warm to lower its metabolism enough, so it slowly starves. Weigh the animal every 2-4 weeks; if it loses more than about 1 % of its weight, it needs to see a vet. The first time, brumation should take place with the help of a vet experienced with reptiles.

HUMIDITY AND WATER

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

The animal passes its faeces in the water, so the water quickly becomes dirty, and dirty water is a health risk to both the animal and you. Use a powerful filter and change the water every 1-2 weeks; the filter alone is not enough. Remove food remains and debris with a fish net after feeding. An air stone gives extra oxygen, but is not a filter.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

The water is the animal's living space, so it must be deep, clean and warm. The water must be at least twice as deep as the shell is wide, and 30-40 cm suits adults. The temperature is 21-31 °C for adults (see Temperature).

The filter must filter both mechanically and biologically. The mechanical part removes food remains and faeces; the biological part, with sponge or ceramic rings, houses beneficial bacteria that convert toxic nitrogen waste. The bacteria need flowing water; if the water stands still they lack oxygen, and the water becomes unhealthy. A filter rated for fish is often too weak, so choose one rated for at least 2-3 times the volume of water. Undergravel filters, small internal filters and hang-on filters are not suitable for an adult.

Clean the filter at least once a month. Rinse the filter media in water from the tank, not from the tap, so the bacteria are preserved, and never use soap or chemicals. Unplug it with dry hands before touching the filter, and connect all electrical equipment near the water to a residual current device (RCD).

LIGHTING AND UVB

UVB is essential. The species belongs to Ferguson zone 3, and the UV index at the surface of the basking spot should be 3.0-4.0 and lower elsewhere in the set-up, so the animal can choose. Use a T5 HO tube with a reflector, covering 50-75 % of the length of the set-up and positioned over the basking spot.

The distance from the tube to the animal's back is 28-33 cm for a tube with 5-6 % UVB and 43-53 cm for a tube with 10-12 % UVB. Never hang the tube closer than 25 cm to the basking spot, because then the radiation does not cover the animal evenly. Plastic and glass block UVB completely, and dense mesh blocks up to 40 %, so there must be nothing between the tube and the animal. UVB tubes lose strength and must be replaced regularly.

Supplement with a powerful daylight lamp of about 6,400 K. The light should be on for 11-13 hours a day, shortest in winter and longest in summer. Never use coloured light, not even at night, because the animal's eyes are very sensitive to colour and it stresses the animal.

FEEDING

T. scripta is omnivorous and in the wild eats small animals, crustaceans, snails, worms, small fish, tadpoles and other animals, but also large amounts of algae and aquatic plants; adults are almost herbivorous. The turtle lacks salivary glands, so it can only eat in the water; throw the food into the tank.

Animals under 1 year get 50 % animal food and 50 % greens: animal food every day, greens every day and pellets every other day. Animals over 1 year get 25 % animal food and 75 % greens: animal food 1-2 times a week, greens every day and pellets 2-3 times a week. A portion of animal food is what the animal can eat in 5-10 minutes. A portion of greens is the size of the shell, and a portion of pellets the size of the head. Pellets should make up no more than 25 % of the diet.

Animal food: cockroaches, crickets, earthworms, mealworms, silkworms, shrimp and krill, farmed snails and small livebearing fish such as guppies and platies. Whole animals are better than pieces, because pieces are not fully nutritious. Goldfish and some other carp fish contain thiaminase, which breaks down vitamin B1, and should only be an occasional treat. Frozen chicks, quail and pinkie mice are only treats.

Greens: dandelion, clover, chickweed, leaf lettuce, endive, kale, chard, spinach and turnip tops. Fruit is an occasional treat. Never give avocado, onion, tomato, citrus fruit, mushrooms, aubergines, rhubarb or hot peppers. Wash plants from the wild and only use ones that have not been sprayed and are positively identified.

The animal gets calcium from pellets and a cuttlebone in the tank, which also keeps the beak worn down. Always remove the hard plastic backing first, because it makes the animal very ill if swallowed, and replace the cuttlebone every 1-2 months.

Read more: Feeder animals: keeping and breeding Read more: Calcium, vitamins and supplements Read more: Rearing tadpoles

BEHAVIOUR AND HANDLING

T. scripta is diurnal and curious and quickly learns to associate you with food. Most animals do not like being touched and stroked. Trust is best built by feeding with soft tweezers, not with your fingers, because otherwise you risk being bitten. The species has no teeth, but a sharp beak, and a bite hurts and can draw blood.

If the animal has to be lifted, take it from below with the palm of your hand and hold the shell with both hands so that body and legs are supported. Hold firmly, but not tightly: a fall can injure or kill. Wash your hands thoroughly before and after, and do not let children under 5 handle the animal.

The animal thrives alone. Several animals together can lead to bites, fighting over the basking spot and cannibalism, so it is best to keep one. An animal that constantly swims back and forth along the glass often has too little space.

Breeding

SEXUAL MATURITY AND SEXING

The male has much longer claws on the front legs and a thicker and longer tail, and the cloaca lies beyond the rear edge of the shell; the female's cloaca lies at or below the rear edge, and her plastron is completely flat. Males are sexually mature at 9-11 cm shell length, typically after 2-6 years, and females at 15-20 cm, typically after 5-8 years.

MATING

In the wild, mating takes place between March and July under water. The male swims in front of the female and vibrates his long claws against her face, and the female sinks to the bottom if she is receptive; otherwise she may react aggressively. Courtship can last 45 minutes, the mating itself about 10 minutes.

A male kept with a female often courts her persistently; if the animals are kept together, there must be room for the female to get away.

EGG-LAYING AND CLUTCHES

A female lays 2-30 eggs per clutch, typically 6-11, depending on size and age, and 1-2 clutches a year, occasionally up to 5, with 12-36 days between them. She digs a hole with her hind legs and lays the eggs in it. In the last weeks before laying she spends less time in the water and sniffs and scratches at the ground in search of a place to dig. Females can store sperm and lay fertilised eggs in the season after a mating.

A female must always have a box of soil or sand on the land area, even when kept alone, so she has somewhere to dig.

INCUBATION

In the wild the eggs hatch after 59-112 days, most often after 60-95 days. The sex is determined by the incubation temperature: at 22-27 °C only males hatch, at higher temperatures females. The upper limit in the enclosure (30 °C) is an estimate.

The eggs have a soft, flexible shell that absorbs water from the surroundings. If they get too much water, they may split or be attacked by fungus. The hatchlings often stay in the shell for the first day or two after hatching while they absorb the rest of the yolk.

Read more: Incubating eggs

REARING THE YOUNG

The young fend for themselves from hatching; the parents look after neither eggs nor young. In the wild they stay in very shallow water with plenty of vegetation, where they find food and cover and seek out the warmest water themselves.

Hatchlings under one year need water at 24-29 °C around the clock, plenty of cover and a basking spot they can climb onto easily. They get animal food and greens every day and pellets every other day (see Food). If several young are kept together, they must be the same size, and you must make sure that all of them get food.

Health and common mistakes

Turtles hide illness, so watch for changes. Weigh and measure the animal 1-2 times a month, and keep a weekly log of weight, appetite and behaviour. Sudden weight loss is often the first sign of illness, and a steady weight shows that you are neither overfeeding nor underfeeding.

Typical problems and care mistakes: - Dirty water: the water quickly becomes a health risk if the filter is too weak or the water is not changed. - Calcium deficiency and bone and shell disease from too little UVB or calcium. Provide UVB and a cuttlebone without the plastic backing. - B1 deficiency (thiaminase) from too many goldfish or similar carp fish. - Swallowed plastic from the cuttlebone or furnishings. - A wrong set-up, where the animal cannot get out of the water or cannot hide.

All reptiles can be symptom-free carriers of Salmonella and infect humans. Wash your hands before and after contact with the animal, water and equipment, and do not let children under 5 handle the animal. After a bite, rinse the wound under running water for about five minutes and clean it with mild soap; see a doctor for deep, bleeding or infected wounds.

See a vet experienced with reptiles if the animal loses weight, does not eat, has its mouth open or seems sluggish.

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.

The full guide with map and updates: herpy.org/en/tortoises-and-turtles/trachemys-scripta