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TORTOISES AND TURTLES

False Map Turtle

Graptemys pseudogeographica

Graptemys pseudogeographica is a diurnal, strongly aquatic turtle from the large rivers of the Mississippi drainage in the USA. The female reaches up to about 27 cm and the male 15 cm, and the species requires a large, flowing and very clean water tank with a basking spot and strong UVB. It is shy, easily stressed and best suited to experienced keepers.

Family: Emydidae Former name: *Graptemys kohnii*

KEY FACTS

THE ANIMAL

Adult size	**9-27 cm** total length incl. tail
Weight	**1,100-1,800 g**
Lifespan	**30-35 years**
Active	**By day**
Lifestyle	**Semi-aquatic**
Habitat	**Wetland**
Difficulty	**Experienced**

CARE

Min. enclosure	**150 × 75 × 70 cm** L × W × H for 1 adult
Temperature, day	**24-28 °C**
Basking spot	**35-40 °C**
Temperature, night	**20-24 °C**
Humidity	**50-80%**
Water	**Aquaterrarium** depth 30-40 cm
Water temperature	**22-28 °C**
UVB	**Essential** Ferguson zone 3
Winter rest	**4-6 °C** 8-12 weeks
Diet	**Insects, complete diet, plants, vertebrates and worms/snails**
Kept	**Singly or in groups**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**48-168 months**
Clutch size	**8-22 eggs**
Clutches per year	**2-3**
Incubation	**52-85 days** at 25-30 °C

PROTECTION AND PAPERWORK

CITES	**Appendix III**
EU annex	**Annex C**
IUCN	**Least Concern (LC)**

About the species

Graptemys pseudogeographica is a medium-sized freshwater turtle. The carapace is olive green, brown or black with pale yellow lines that form a map-like network around dark spots; the lines are clearest in young animals. The shell has a low keel along the middle with small spines, especially in the young, and the rear margin is serrated. The plastron is cream to yellow and dark-striped along the seams in the young. The head and legs are greyish green to brown with yellow stripes, and behind the eye is a yellow hook-shaped mark, in some like an inverted L. The eye has a dark cross-bar through the pupil.

All measurements in the text are shell length. The female is far larger than the male and has a broader head: females are 12-27 cm and weigh 1.1-1.8 kg, males 9-15 cm. Females are on average 1.5-1.7 times larger than males. The male has longer claws on the second and third fingers of the forelegs and a longer tail, and the vent lies behind the rear margin of the shell.

There are two subspecies: *G. p. pseudogeographica* and *G. p. kohnii*, which has a more extensive pattern on the plastron. *G. p. kohnii* has previously been regarded as a separate species. The head pattern changes with incubation temperature, so the two forms can look very similar, and they require the same care.

The species is shy and easily stressed. The animals dive at the slightest disturbance. They rarely bite, but may do so when they feel threatened, and often empty the bladder when lifted. They are animals to watch and not animals to be handled. They live many years: over 30 years in captivity.

Read more: Incubating eggs

Distribution and habitat

Graptemys pseudogeographica is found in the central and eastern USA, mainly in the large watercourses of the Mississippi and Missouri river drainages: from Minnesota, Wisconsin, Ohio and Indiana in the north to Louisiana, Texas and south-western Alabama in the south, and from Kansas and the Dakotas in the west to Tennessee and Kentucky in the east. *G. p. kohnii* lives in the southern parts, including Arkansas, Louisiana, Mississippi and Texas, and *G. p. pseudogeographica* further north.

The species is not threatened worldwide, but is rare in the northernmost part of the range, and local populations are threatened by habitat destruction, fishing nets, hunting and collection for the pet trade. The taxonomy is not fully resolved: the two forms have been merged and split several times.

> **Native range:** United States.

HABITAT

Graptemys pseudogeographica lives in large rivers and watercourses with moderate current, aquatic plants and fallen trees or logs where the animals can bask. They are strong swimmers and can also be seen in fast water in the large channels, in backwaters and in lakes along the rivers. They are rare in small ponds and streams.

The animals spend most of the day in the sun on logs, rocks, sandbars and beams near the bank. They are very alert and all dive when one of them enters the water. Activity lasts from late March to mid-October. In winter in the northern regions they dig 10-30 cm down into the river bed or take shelter in a muskrat lodge and emerge again when the water is 4-7 °C, often in April.

The food is animals and plants: snails, mussels, insects and their larvae and, to a lesser extent, aquatic plants and algae. Size determines the diet: females eat larger prey such as mussels, and males eat mostly insects.

Care

THE ENCLOSURE

Keep the animal in an aquarium, a large tank or a closed outdoor 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, and at least 30 cm for an adult; deeper is better, because the species seeks security in deep water. The size in the box, 150 × 75 × 70 cm, is the minimum for an adult female of up to 27 cm and 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 rim 30 cm above the water. A male manages with 80 × 40 cm.

The species prefers current, so the water must be moved vigorously by a large filter and preferably a flow pump. Tanks with opaque sides dampen the constant swimming along the glass and make the animal feel more secure. Provide hides in the water in the form of roots, stones and logs, and place them so that the animal can withdraw.

The land area must be large enough for the animal to come completely out of the water and dry off completely. Build it as a shelf or shore with a rough ramp, and make the rim around the land area at least 25 cm high. A female that is to lay eggs needs a box of soil or sand. The lamp and UVB sit directly over the basking spot. The species is social and can be kept in a small group of animals of equal size, but several animals require a tank at least 50 % larger and more basking spots.

The setup must be escape-proof. An outdoor pond from spring to autumn is a good summer home if it is enclosed: fencing that goes down into the ground and mesh or chicken wire over the top against predators. A deep tank without hides where the animal cannot climb out is not suitable.

Read more: Lighting and UVB Read more: Heat and temperature

TEMPERATURE

The surface of the basking spot should be 35-40 °C, measured with an IR thermometer a couple of hours after the lamps are switched on, and the air above it about 30 °C. Use halogen lamps in deep domes with ceramic fittings; two lamps over a large basking spot are better than one. The heat lamp sits close to the UVB tube. The air in the room should be 24-28 °C.

The water should be 22-28 °C in adults and 26-28 °C in young. Set the water heater to the lowest temperature, so that a gradient forms, and give it a plastic guard and an automatic cut-off. Measure the water with a digital thermometer. At night the air may fall to 20-24 °C. The lamps are switched off at night.

Winter rest: In the northern parts of its range the species buries itself 10-30 cm into the river bed in winter and emerges again when the water is 4-7 °C. Animals of the southern *G. p. kohnii* can be kept in an outdoor pond from spring to autumn, but must not overwinter in the pond in a cool northern European climate. A controlled winter rest indoors is possible, but not a requirement; it is only for healthy, well-nourished animals over 3-4 years that become lethargic and stop eating in the autumn on their own, and after a vet check. The light is shortened, the heat lowered and the food reduced gradually over a few weeks, and the animal must have an empty gut before the temperature goes below 10 °C. The animal then overwinters in the dark in a tub with just enough water to cover the carapace, and with dead leaves as a hide, at 4-6 °C for 8-12 weeks, in a frost-free room or a refrigerator without a freezer. Above 10 °C the animal uses up its reserves without resting. Weigh the animal along the way; if it loses more than about 1 % of its weight in a month, it must be woken. If in doubt, keep the animal awake and fed all winter.

HUMIDITY AND WATER

For a turtle, humidity is the water, so the relative humidity of the air is not decisive; 50-80 % in the room is plenty. What is decisive is the cleanliness of the water, because the species is sensitive: only clean, oxygen-rich water keeps it healthy, and dirty water causes fungal infections in the shell.

The animal passes its droppings in the water. Use a powerful filter, and change about 30 % of the water every 1-2 weeks; the filter alone is not enough. Remove food remains with a net after feeding. Feeding in a separate tub is an option that keeps the main tank cleaner.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

The water is the animal's living space, so it must be deep, clean, oxygen-rich and warm. The water depth is 30-40 cm for adults, and the temperature is 22-28 °C (see Temperature). Young can have lower water, 10-15 cm, but they grow quickly.

The filter must be powerful, preferably an external canister filter rated for at least 2 times the water volume. It must filter both mechanically and biologically, and the flow must give the water movement. Undergravel filters and small internal filters are not suitable for an adult animal. Clean the filter at least once a month in water from the tank and not from the tap, so that the bacteria are preserved. Use a water conditioner against chlorine. All electrical equipment near the water must sit behind a residual current device (RCD).

LIGHTING AND UVB

UVB is a necessity: the species is diurnal and basks for many hours a day. Ferguson zone 3 is borrowed from *Trachemys scripta*. Use a T5 HO tube with 5-6 % UVB in a reflector covering about half the length of the setup and sitting over the basking spot, 28-33 cm above the animal's back, if nothing is in between. Glass and plastic stop UVB completely, and dense mesh stops a large part. The tube's output falls, so replace it according to the manufacturer's instructions and at least once a year.

Supplement with a powerful daylight lamp of about 6,500 K. The light should be on for about 12 hours a day, more in summer (about 14 hours) and less in winter (about 10 hours). Outdoors in a pond extra light is not necessary. Never use coloured light.

FEEDING

G. pseudogeographica is omnivorous and eats only in the water. In the wild, females take snails, mussels, insect larvae and aquatic plants, while males mostly take insects and their larvae, snails and carrion of fish and only a little plant matter. Adults eat more animal food than many related aquatic turtles, and it is easy to overfeed: too much protein causes rapid growth, obesity and a pyramided shell.

The foundation can be pellets for aquatic turtles, supplemented with shelled snails, shrimp, freshwater crayfish, earthworms, roaches, crickets and small livebearing fish such as guppies and platies. Females readily take larger prey such as snails and mussels. Avoid fatty fish. Greens such as duckweed, waterweed, dandelion and endive are given regularly; place them in the water or clip them in place. Fruit is only an occasional treat.

Young are fed every day. Adults are fed 2-3 times a week. Give only what the animal can eat in 4-5 minutes. Feeding in a separate tub keeps the water cleaner. Keep a cuttlebone available as a calcium source, and remove the hard back first.

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

BEHAVIOUR AND HANDLING

G. pseudogeographica is shy and sensitive and dives at the slightest disturbance. It is not an animal to be handled: it is easily stressed and may bite when it feels threatened. Feeding with tweezers is the gentlest contact. If the animal has to be lifted, take it from underneath with both hands, and keep your fingers away from the head. Wash hands before and after and do not let children under 5 handle the animal.

The animals are social and readily bask together, and the species can be kept alone or in a small group of animals of equal size. Animals of very different sizes cause fighting over the basking spot and food. An animal that swims back and forth along the glass often has too little space or no cover.

Breeding

SEXUAL MATURITY AND SEXING

The male has longer claws on the second and third fingers of the forelegs and a longer tail, and the vent lies behind the rear margin of the shell; the female is much larger with a broader head. Males become sexually mature after about 4-6 years and females after about 8-14 years, measured in the wild; in captivity it goes faster.

MATING

Mating takes place in spring (April) and in autumn (October-November) in the wild. The male strokes the female's head and neck with his long foreclaws and drums them over her eyes. If she becomes calm, he mates with her. Mating can last from a few seconds to several hours, and the male curls his tail around hers. Give the female space and hides so that she can get away from a persistent male.

EGG-LAYING AND CLUTCHES

The female lays 8-22 eggs per clutch and 2-3 clutches a year. Egg laying takes place from mid-May to the end of July. She digs a hole 10-16 cm deep with her hind legs in open sand or soil, most often in the morning, lays the eggs and covers them. In the last weeks before laying she spends less time in the water and searches for a place to dig. Provide the female with a box of soil or sand on the land area, even when she is alone.

INCUBATION

The eggs are elongated, 32-41 mm long and weigh 6-11 g. Incubation lasts 52-85 days. Sex depends on temperature: at 25 °C and below mostly males appear, and at 30 °C and above mostly females. The eggs are carefully moved, without being turned, to an incubator with a moist, but not wet, substrate. Incubation temperature also changes the head pattern and the frequency of shell abnormalities. The young often remain in the shell for a day or two while they absorb the yolk.

REARING THE YOUNG

The young fend for themselves from hatching; the parents care for neither eggs nor young. They have an almost round shell with a taller keel and with darker markings than adults. Young need shallow water, 10-15 cm, warm water of 26-28 °C around the clock, plenty of hides, a basking spot they can easily climb onto, UVB and animal food every day together with greens. If several young are kept together, they must be of equal size, and all must get food.

Health and common mistakes

The species is hardy, but sensitive to the water, so most problems are caused by husbandry. Weigh and measure the animal 1-2 times a month and keep a log of weight, appetite and behaviour; weight loss is often the first sign of illness.

- Fungal infections in the shell: grey patches that spread, caused by dirty water or too little UVB. Requires a vet and correction of water and light.
- Dirty and oxygen-poor water: is the commonest cause of illness in the species.
- Calcium deficiency and diseases of bone and shell from too little UVB or calcium.
- Pyramiding and obesity from too much protein and too frequent feeding.
- Swallowed plastic from cuttlebone or furnishings.
- Wrong furnishing without a land area or without hides, where the animal cannot get out of the water or withdraw.

All reptiles can be symptom-free carriers of *Salmonella*. Wash hands before and after contact with the animal, water and equipment. After a bite the wound must be rinsed under running water for about five minutes and cleaned. Seek a vet with reptile experience if the animal loses weight, does not eat, has an open mouth, swollen eyes or swims lopsidedly.

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.