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TORTOISES AND TURTLES

Chinese Three-striped Box Turtle

Cuora trifasciata

Cuora trifasciata is a medium-sized turtle from southern China with a hinged plastron, a brown carapace with three black lengthwise stripes and a yellow upper jaw. The shell grows to 25 cm. The species is semi-aquatic and needs a large aqua-terrarium with a basking spot, UVB and a land area. It is critically endangered in the wild, and captive-bred animals are the only right choice.

Family: Geoemydidae Former name: *Sternothaerus trifasciatus; Cistudo trifasciata; Cyclemys trifasciata; Pyxiclemmys trifasciata*

KEY FACTS

THE ANIMAL

Adult size	**15-25 cm** total length incl. tail
Lifespan	**25-50 years**
Active	**By day and at dusk**
Lifestyle	**Semi-aquatic**
Habitat	**Wetland**
Difficulty	**Experienced**

CARE

Min. enclosure	**130 × 65 × 60 cm** L × W × H for 2 adults
Temperature, day	**24-28 °C**
Basking spot	**30-32 °C**
Temperature, night	**20-24 °C**
Humidity	**60-80%**
Water	**Aquaterrarium** depth 20-30 cm
Water temperature	**24-28 °C**
UVB	**Essential** Ferguson zone 2
Diet	**Insects, complete diet, plants, vertebrates and worms/snails**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**3-4 eggs**
Clutches per year	**1**
Incubation	**85-90 days** at 26-30 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Critically Endangered (CR)**

About the species

Cuora trifasciata is a medium-sized turtle with a hinged plastron that can be closed against the carapace, protecting the head and limbs. All measurements in this text are carapace length. The carapace is brown with three distinct black lengthwise stripes, and the species name *trifasciata* means "three-banded". The upper jaw is yellow and slightly hooked, and a yellow stripe runs backwards from the corner of the mouth. The plastron is mostly black with a yellow edge.

Adults grow to 25 cm, and males are smaller than females. Weight is not documented. Lifespan is not known for the species either, but freshwater turtles generally live 25-50 years in captivity, so acquiring one is a long-term commitment.

Two subspecies are recognised: *C. t. trifasciata* and *C. t. luteocephala* from Hainan. Animals from Vietnam and Laos, which were previously included, belong to a separate species, *Cuora cyclornata*, which grows larger and has a rounder, often flatter shell and a white, pink or orange chin.

C. trifasciata hybridises readily with other species, both in the wild and in captivity, and the hybrids can be fertile. Several forms that have been described as separate species are hybrids with *Cuora trifasciata* as one parent, for example the cross with *Mauremys mutica*. The species should therefore never be kept with other *Cuora* or *Mauremys* species, and animals of unclear origin should not be used for breeding.

C. trifasciata is shy and not an animal for handling. The species is critically endangered (IUCN: CR) and among the most threatened turtles in the world, because it has been collected on such a scale for traditional medicine and trade that wild animals have become very rare. It is bred in large numbers on Chinese turtle farms and in conservation projects, and captive-bred animals are the only right choice.

Read more: Buying animals: captive-bred, wild-caught and transport

Distribution and habitat

Cuora trifasciata lives in southern China: Guangxi, Guangdong, Hainan and Hong Kong. On the mainland the species has all but disappeared, and the last wild populations are found mainly on Hainan and in Hong Kong. The subspecies *C. t. luteocephala* occurs only on Hainan.

The map shows the original distribution in southern China. Animals from Vietnam and Laos belong to *Cuora cyclornata*. Wild animals are so sought after and expensive that they are almost only traded illegally.

> **Native range:** China and Hong Kong SAR China.

HABITAT

Cuora trifasciata is a turtle from the humid, subtropical climate of southern China. It lives in and near fresh water and is regarded as semi-aquatic: it stays in the water but regularly comes onto land to bask and dry off.

In the wild the species eats mostly fish, frogs and carrion, along with crabs, snails and insects. The climate on Hainan and in Hong Kong has hot, rainy summers and mild winters, and the set-up is based on that. Altitude and the exact type of habitat are not documented.

Care

THE ENCLOSURE

Little is known about keeping *Cuora trifasciata*, because the species is almost only kept in captive breeding and conservation projects. It is semi-aquatic and is kept like the better-known *Cuora amboinensis*: a large water area and a land area where the animal can bask and dry off. Figures that are not known for the species are borrowed from *Cuora amboinensis* and *Cuora flavomarginata*.

The species must be kept in an aqua-terrarium, not a dry enclosure. A pair needs at least 130 × 65 × 60 cm: 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 area is about 85 × 65 cm with 20-30 cm of water, the land area is 45 × 65 cm, and the rim stands at least 30 cm above the water so that the animal cannot climb out. The land area must have room for both animals to lie and bask at the same time. More animals need more space: the third and fourth turtle need at least 10% more floor area, and from the fifth 20% more.

The land area is a mix of unfertilised garden soil, bark and sphagnum, with hides of cork and bark pieces and hardy plants. Provide a slope so that the animal can easily get up and down. Avoid small stones and gravel, which the animal can swallow. The ground under the basking spot should be dry, and the other end damp.

The species is shy. Provide hides both in the water and on land, and make sure the inside of the rim is smooth. Hatchlings are kept indoors in a small aqua-terrarium with shallow water, about 5 cm, an easily accessible land area and hides.

Read more: Heat and temperature

TEMPERATURE

The air temperature should be 24-28 °C by day, and the basking spot should be 30-32 °C, measured with an infrared thermometer on the shell. At night the temperature can drop to 20-24 °C. The water is kept at 24-28 °C with a thermostat-controlled heater. Heat the basking spot with a halogen or reflector lamp, and provide a clear gradient so that the animal can choose between sun and shade.

In the winter months a cool period of 18-22 °C with 8-10 hours of light can be given. A true hibernation is not necessary, and temperature and duration are not documented for the species. Animals that are not doing well should not be given a cool period, and hatchlings should be kept warm all year round.

Overheating is dangerous. The animal must always be able to get away from the lamp, and the air must not become stagnant and hot.

Read more: Brumation and the seasons

HUMIDITY AND WATER

Humidity should be 60-80%, and the land area should be damp but not wet. *Cuora trifasciata* comes from a humid climate, and hatchlings dry out quickly. Mist the land area every day, and let the substrate dry out a little between mistings so that mould does not develop. Keep one end damper than the other so that the animal can choose. A ventilated lid retains humidity without trapping stale air.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

The water should be 24-28 °C and about twice as deep as the shell is wide: 20-30 cm for adults. Also provide a shallower zone where the animal can stand on the bottom and reach its head above the surface, as well as slopes and ramps that are easy to climb.

The species passes faeces and leftover food into the water, so the water must be filtered with a powerful external filter, and a third to a half should be changed every week. Use dechlorinated water, and avoid internal filters and pumps that can suck in limbs and head. Feeding in a separate container helps keep the water area clean.

LIGHTING AND UVB

UVB light is necessary for an animal kept indoors. Zone 2 is borrowed from the close relatives and suits a species that basks beside fresh water; the requirement has not been measured for the species. Use a high-quality UVB tube over the basking spot with no glass or plastic in between, measure the UV index with a meter, and replace the tube according to the manufacturer's instructions, as its output declines. The light should be on 10-12 hours a day in summer and 8-10 hours in winter. Outdoors, natural sunlight provides everything the animal needs, but only in warm weather and with shade, hides and water.

Read more: Lighting and UVB

FEEDING

Cuora trifasciata is omnivorous but eats mostly animal food. Offer a varied diet of fish (whole, small, low-fat species), earthworms, slugs without shells, mealworms and feeder grasshoppers, plus good-quality dry food for aquatic turtles and the occasional bit of greens and fruit. Frozen, thawed fish and small bones provide calcium, but avoid fatty fish and meat. Avoid cat food and dog food, which are far too fatty.

Adults are fed every other day, hatchlings daily in small amounts. Overfeeding causes growth that is too rapid and growth deformities, so adjust the amount so that the animal can eat its fill in half an hour. Hatchlings take small earthworms, water fleas and small fish most readily, and they should be offered dry food from the first day.

Supplements: dust the food with calcium without D3 two to three times a week and a vitamin supplement once a week. The feeding figures are borrowed from the close relatives and are not documented for the species.

Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Cuora trifasciata is shy and cautious. The animal withdraws and closes its shell when frightened, and seeks cover again. It is most active by day and at dusk. It is not an animal for handling. Pick it up with both hands under the shell, and wash your hands afterwards.

The species can be kept as a pair. Do not keep several males together, and never keep the species with other *Cuora* or *Mauremys* species, because they hybridise. If the female is chased hard, the animals must be separated.

An animal that hides all the time, will not eat or is losing weight is either stressed or ill.

Breeding

SEXUAL MATURITY AND SEXING

The male is smaller than the female and has a longer, thicker tail. Age and size at sexual maturity are not documented. Young animals should be allowed to finish growing before they are used for breeding.

MATING

Mating is not described in detail for the species. Keep a pair together and observe the animals: the male often chases and bites the female during the mating season, and if the female gets wounds or is stressed, the animals must be separated. A cool period in winter followed by warmth and longer days is part of the breeding of the relatives, but is not documented for the species. The female should be in good condition and have access to sun before she lays.

EGG-LAYING AND CLUTCHES

The female lays once a year, on average 3-4 eggs. The eggs are elongated, about 48 × 26 mm, and weigh about 24 g. In captive breeding often only about half of the eggs are fertile. Provide the female with a nesting site of at least 30 × 30 cm with 15 cm of loose, damp soil and sand in shade, and keep an eye on her when she digs.

INCUBATION

The eggs must not be turned or shaken. Move them carefully to an incubator with damp vermiculite at 26-30 °C. Incubation lasts on average about 88 days, which corresponds to an average incubation temperature of about 28 °C, and about 80% of the fertile eggs hatch. Sex depends on incubation temperature. The hatchlings are about 45 mm and weigh about 26 g at hatching.

Read more: Incubating eggs

REARING THE YOUNG

The hatchlings are about 45 mm and more delicate than the adults: they dry out quickly and must be kept indoors under controlled conditions for the first few years. Keep them in a small aqua-terrarium with shallow water, an easily accessible land area and hides, at about 28 °C, with UVB. Feed them daily with small earthworms and water fleas, and offer dry food from the first day. Overfeeding causes deformities of the shell. The rearing figures are borrowed from the relatives.

Health and common mistakes

Wild-caught animals often carry parasites, and all new animals should be examined. The most common problems are: - Dehydration, especially in hatchlings and wild-caught animals. - Shell rot and skin infections if the water is dirty. - Respiratory infection from draughts, cold and damp air without warmth: runny nose, wheezing and open-mouth breathing. - Bacterial hepatitis in hatchlings: lethargy and loss of appetite. Treatment is antibiotics chosen on the basis of sensitivity testing by the vet. - Calcium deficiency and growth deformities from too little UVB or calcium or from growth that is too rapid. - Obesity and liver disease from food that is too fatty.

Take a fresh faecal sample to the vet as soon as you have acquired an animal. Animals that are not eating, are losing weight or have swollen eyes must be examined. All reptiles can be symptom-free carriers of *Salmonella*, so wash your hands before and after contact, and do not let children under 5 handle the animal.

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/cuora-trifasciata