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TORTOISES AND TURTLES

Giant Asian Pond Turtle

Heosemys grandis

Heosemys grandis is one of the largest semi-aquatic turtles in South-East Asia. The shell reaches 35-48 cm and the animal can weigh up to 12 kg. The species needs a very large enclosure with both a large water area and a dry land section with hiding places, UVB and heat all year round. It does not hibernate and is critically endangered in the wild.

Family: Geoemydidae Former name: *Geoemyda grandis; Cyclemys grandis*

KEY FACTS

THE ANIMAL

Adult size	**35-48 cm** total length incl. tail
Lifespan	**25-30 years**
Active	**By day**
Lifestyle	**Semi-aquatic**
Habitat	**Rainforest and wetland**
Difficulty	**Intermediate**

CARE

Min. enclosure	**240 × 120 × 80 cm** L × W × H for 1 adult
Temperature, day	**24-28 °C**
Basking spot	**30-35 °C**
Temperature, night	**20-24 °C**
Humidity	**70-90%**
Water	**Aquaterrarium** depth 35-45 cm
Water temperature	**24-28 °C**
UVB	**Essential** Ferguson zone 2
Diet	**Fruit, complete diet, plants, vertebrates and worms/snails**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**2-6 eggs**
Incubation	**105-180 days** at 28-30 °C

PROTECTION AND PAPERWORK

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

About the species

Heosemys grandis is a large turtle with a broad, oval, highly domed carapace that is flat on top and has a distinct, blunt keel along the middle. The rear edge is serrated. The carapace is brown to greyish brown or black. The plastron is yellow and, in young animals, has dark lines radiating from a large dark blotch on each scute; the pattern fades with age, so old animals are uniformly yellow. The head is broad and greyish brown to greenish with yellow, orange or pink spots, which also fade with age, and all toes are webbed. All measurements in the text refer to carapace length.

Adults have a carapace length of 35-48 cm and weigh up to 12 kg. The male has a thicker, longer tail and a slightly concave plastron; the female has a flat plastron. The species can live for about 30 years in captivity and probably longer. In young animals the sex cannot be seen, and it can take up to four years before it becomes clear.

The species is not a purely aquatic turtle. Young animals are mostly aquatic, and with age they become more terrestrial, so adults spend a lot of time on land. In some males the mating behaviour is rough, and they can be aggressive towards other turtles. The species is critically endangered (IUCN: CR) because of uncontrolled collection for food, medicine and trade, as well as habitat loss. Captive-bred animals are the only responsible choice.

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

Distribution and habitat

Heosemys grandis lives on the South-East Asian mainland: from southern Myanmar through Thailand, Cambodia, Laos and Vietnam to the northern part of Malaysia. Singapore has an introduced population with no known breeding in the wild, and the map shows only the native range.

The species is often kept in the ponds at Buddhist temples, and escaped and released animals therefore turn up outside the native range.

> **Native range:** Myanmar (Burma), Thailand, Cambodia, Vietnam, Laos and Malaysia.

HABITAT

Heosemys grandis is found in fresh water from sea level up to about 400 m: rivers, streams, marshes, swamps, lakes and rice paddies, especially in swamp forest, and also along mountain streams and in deciduous forest. It prefers shallow water and spends a lot of time on the damp banks, where it lies half hidden in the vegetation. It also basks, sometimes on open ground.

The climate is tropical with a wet season and a dry season. The eggs are laid at the end of the wet season (November-December), and the hatchlings emerge at the start of the next (May-June). In the wild the species eats mostly aquatic plants and fruit, but also takes worms, larvae, insects, snails and carrion; the diet is thus mixed, and most food is found both in water and on land.

Care

THE ENCLOSURE

There is only limited detailed husbandry knowledge about *Heosemys grandis*. The enclosure dimensions follow the general rule for aquatic and semi-aquatic turtles based on shell length; the smaller *Cuora amboinensis* from the same region and family is kept on the same principles.

The species needs a large water area and a large dry land section. A single adult needs at least 240 × 120 × 80 cm: five times the shell length in length and half that in width, with the land section counted as part of the floor area. The same size is enough for a pair, with a water area of 160 × 120 cm and a land section of 80 × 120 cm. The land section makes up about a third of the area. This is a project for a large room, a greenhouse or an outdoor facility, and many keepers cannot give the species enough space.

The land section needs several hiding places, for example of cork bark and large plants. Without hiding places the animal stays in the water. Use damp soil or cypress mulch on the land section, and a ramp so the animal can easily get up and down. The water area is easiest to keep clean with no substrate. Avoid gravel, which the animal swallows.

Young animals are kept in a shallow tub with 5-10 cm of water and a dry zone at one end, and moved to larger water as they grow. From a carapace length of about 10 cm they can go into a larger tub with a land section.

Water is heavy: a water area of 160 × 120 cm with 40 cm of water holds almost 800 litres and weighs as many kilograms, so the floor must be able to carry the set-up. Fit a solid lid or a high wall, because the animal is strong and climbs.

A large, escape-proof outdoor pond with hiding places and shade can be used in summer, when the daytime temperature is stable above 22 °C. The animal must be brought indoors as soon as the nights turn cool.

TEMPERATURE

The water should be 24-28 °C all year, and the air 24-28 °C during the day. The basking spot should be 30-35 °C, measured with an infrared thermometer; this figure is an estimate borrowed from related species. The animal must always be able to retreat to the cooler part of the land section or into the water. At night the temperature may fall to 20-24 °C. Use a water heater with a guard and a thermostat, and a digital thermometer.

The species is tropical and should not be hibernated. Keep heat and light up all winter. The temperature may vary slightly over the year, so that there is a cooler, drier period like the dry season in the wild. The species tolerates short cool spells, but the night temperature should not stay below 20 °C for long.

Read more: Heat and temperature

HUMIDITY AND WATER

The land section should be damp, so that the animal can lie hidden in moist material, as it does in the wild. Humidity should be 70-90%; this figure is an estimate based on the habitat. Soil or cypress mulch on the land section retains moisture and should be replaced when it becomes soiled or clumped.

The animal defecates in the water, so the water quickly becomes dirty. Remove uneaten food immediately.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

The water is where the animal spends its time, but the species is not a strong swimmer. The deepest part equals the carapace length, that is 35-45 cm for an adult, and deeper is not necessary; the rest of the water area is shallower, and the animal must be able to walk on the bottom and reach its head up. The temperature is 24-28 °C.

Use a powerful external filter rated for more than the volume of water. Rinse the filter media in tank water, not tap water. Connect all electrical equipment near the water to a residual-current device (RCD). Change part of the water regularly. Preferably feed in a separate tub, so that the main tank stays clean.

LIGHTING AND UVB

UVB is necessary for vitamin D3 and calcium. The Ferguson zone is not documented for the species; zone 2 is an estimate based on the animal living in shaded swamp forests but basking. Use a high-quality UVB tube over the basking spot, with no glass or plastic in between, and measure the UV index with a meter. Replace the tube regularly, because its output declines.

The light should be on for 11-13 hours a day. Provide both sun and shade, so that the animal can choose for itself.

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

FEEDING

Heosemys grandis is omnivorous: plants and fruit make up a large part of the diet, and the animal also takes worms, snails, insects, whole small fish and lean meat. It eats almost anything edible and easily becomes overweight. The species rarely takes live prey, and some animals will not eat fish.

The staple is varied leafy greens and aquatic plants (for example Canadian pondweed, hornwort, vallisneria and *Azolla*), plus fruit in small amounts, snails, worms and good-quality floating pellets. Adults are fed a few times a week in small portions, young animals more often. The feeding figures are borrowed from related species and are not documented for the species.

Dust the food with calcium. A cuttlebone in the tub provides calcium and keeps the beak worn down; remove the hard backing. Give a vitamin supplement if frozen fish is a regular part of the diet.

BEHAVIOUR AND HANDLING

Heosemys grandis is strong, climbs well and is not an animal for handling. It rarely bites, but the beak is powerful, so watch your fingers. Pick it up by the shell with both hands, and wash your hands afterwards.

Keeping it singly is the safest option. Males start mating without courtship and bite the female's neck, legs and head, so a pair needs a lot of space, many hiding places and the option of separating the animals. Towards other turtles the species is usually peaceful, but some adult males are aggressive towards all other turtles and must be kept apart. Hungry animals may bite other turtles, so mixed set-ups are not recommended.

Breeding

SEXUAL MATURITY AND SEXING

The age at sexual maturity is not documented. The male has a thicker, longer tail and a slightly concave plastron, while the female has a flat plastron. Females are on average slightly smaller than males. In young animals the sex cannot be seen.

MATING

The male does not court but goes straight to the point and bites the female's neck, legs and head. Keep a pair only in a very large facility with many hiding places and the option of separating the animals, and check the female for wounds.

EGG-LAYING AND CLUTCHES

The female lays 2-6 elongated eggs per clutch, and the number depends on her size. The eggs are 55-65 mm and weigh 50-60 g. The number of clutches per year is not documented. The female needs a large nesting site with damp, deep soil. Some females dig and wander around even after egg laying.

INCUBATION

The eggs are incubated at 28-30 °C and almost 100% humidity and hatch after 105-180 days (3.5-6 months). Sex is determined by incubation temperature. At hatching the young weigh about 23 g and have a large soft patch in the middle of the plastron, which closes over time.

Read more: Incubating eggs

REARING THE YOUNG

The young fend for themselves from hatching and are mostly aquatic. They are kept in shallow water with a dry zone and given small amounts of food daily. Overfeeding causes deformities of the shell, so feeding should be moderate. Provide calcium and UVB from the start.

Health and common mistakes

Captive-bred animals are robust, but wild-caught animals often arrive with parasites and in a weakened state. The most common problems are: - Intestinal worms and amoebae (for example *Entamoeba*), which cause diarrhoea. - Shell rot and skin infections in dirty water. - Obesity from too much food. - Calcium deficiency and bone and shell disease from too little UVB or calcium. - Dehydration and starvation in newly collected animals.

Take a fresh faecal sample to the vet as soon as you acquire an animal. Animals that do not eat must be examined quickly. Always keep the animal warm.

All reptiles can be symptom-free carriers of *Salmonella* and infect people. Wash your hands before and after contact with the animal, the water and the equipment, and do not let children under 5 handle the animal. See a vet with reptile experience if the animal loses weight, does not eat, has an open mouth or seems lethargic.

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.