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AGAMAS

Chinese Water Dragon

Physignathus cocincinus

Physignathus cocincinus is a large, green, semi-aquatic agamid from wooded streams in South-East Asia. It grows to about 90 cm, of which more than two thirds is tail. The species is diurnal, climbs and dives, and needs a very large, tall and humid enclosure with a deep water section, strong UVB and a warm basking spot. A large share of the animals in the trade are wild-caught.

Family: Agamidae Former name: *Dilophyrus mentager*

KEY FACTS

THE ANIMAL

Adult size	**70-90 cm** total length incl. tail
Weight	**250-600 g**
Lifespan	**10-15 years**
Active	**By day**
Lifestyle	**Arboreal and semi-aquatic**
Habitat	**Rainforest and wetland**
Difficulty	**Experienced**

CARE

Min. enclosure	**180 × 90 × 180 cm** L × W × H for 1 adult
Temperature, day	**25-30 °C**
Basking spot	**35-40 °C**
Temperature, night	**21-24 °C**
Humidity	**60-80%**
Water	**Water section** depth 15-30 cm
UVB	**Essential** Ferguson zone 3
Diet	**Insects, plants and vertebrates**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**5-18 eggs**
Incubation	**60-75 days** at 29-31 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Vulnerable (VU)**

About the species

Physignathus cocincinus is a powerful, laterally compressed lizard with long, muscular legs and five sharp claws on each foot. The tail is very long and makes up more than 70 % of the total length. Males grow to about 90 cm and weigh up to about 600 g, while females are smaller and weigh no more than about 250 g.

The base colour is bright green, often with a turquoise or blue sheen. The tail is ringed in green and brown. Young animals have oblique green or turquoise stripes, which fade with age. Stressed animals turn brown or greyish. The male has a tall, curved nuchal crest, a lower crest at the base of the tail, a large, triangular head and swollen cheeks with pale, knobbly scales, and the throat is yellow, orange, blue or pink. The female has a smaller head, a lower crest and a pale throat. The male's femoral pores are distinct; in the female they are only faint depressions.

The genus *Physignathus* now contains only this one species. *Intellagama lesueurii* was formerly placed in the same genus because the two species are very similar in build and way of life. The name cocincinus is a latinisation of Cochinchina, an old name for southern Vietnam.

The species is popular, but not easy to keep. A large share of the animals that are exported are wild-caught, and they often arrive stressed, emaciated and with injuries to the snout. Animals from European captive breeding are far preferable.

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

Distribution and habitat

Physignathus cocincinus lives in southern China (Guangdong, Guangxi and Yunnan) and on the South-East Asian mainland: Vietnam, Laos, Cambodia and eastern Thailand. Occurrence in Myanmar has not been confirmed.

The species has been introduced to Hong Kong and Taiwan, probably through released pets, and has breeding populations there. These are not part of the native range. In large parts of the native range, populations have declined sharply in recent decades because of hunting for meat, capture for the pet trade and loss of forest along the streams.

> **Native range:** China, Vietnam, Laos, Cambodia and Thailand.

HABITAT

Physignathus cocincinus lives in dense evergreen forest along freshwater streams in a humid climate with mild seasons. It is found from about 50 to about 820 m above sea level, but becomes far less common above about 270 m. Humidity is typically 40-80 % and temperature 27-32 °C.

The animals are diurnal and forage within small territories in the morning and around midday. They sleep at night on branches overhanging the water and bask on rocks and branches. When disturbed, they jump into the water and swim away or stay under water for up to an hour and a half. Males defend territories and are very aggressive towards other males.

In the wild the diet consists mostly of small animals such as termites, ants, grasshoppers, crickets, earthworms, spiders and snails, supplemented with insect larvae, small vertebrates and a little plant material.

Read more: Humidity, misting and ventilation Read more: Feeder animals: keeping and breeding

Care

THE ENCLOSURE

A single adult needs an enclosure of at least 180 × 90 × 180 cm (length × width × height). The species is large and active, climbs and swims, and in a smaller enclosure it becomes stressed and injures itself. An enclosure this large usually has to be custom-built.

Glass is a poor choice. The animals do not perceive glass as a barrier, run into it and rub the snout against the pane, and the injuries can lead to infection, stomatitis and loss of jawbone. Choose solid sides of wood or board and ventilation at the top and bottom, and cover any glass panels at the bottom so the animal cannot see through them.

The enclosure needs a deep water section (see below), many sturdy branches at different heights and angles, a broad basking spot high up and plenty of leaf litter to hide in. Use robust plants, for example *Epipremnum* and *Ficus*, or artificial plants; live plants are often trampled.

The substrate should hold moisture and be soft: soil without fertiliser or coconut fibre with a layer of leaf litter on top. Make it at least 10 cm deep, and replace it completely every 3-4 months. Remove faeces daily.

Young animals can be kept in a smaller enclosure for a short time, but they grow quickly, so move them on in good time.

Read more: Heat and temperature

TEMPERATURE

The basking spot must be 35-40 °C, measured with a digital thermometer on the branch itself. Juveniles need a basking spot at the low end of the range. The air in the cool end must be 25-28 °C. Use halogen spots or heat bulbs above the branch, and cover them with mesh so that the animal cannot burn itself. Heat rocks must not be used.

At night all lights are switched off, but the temperature must not fall below 21 °C. Cold nights make the animals sluggish, make them eat poorly and increase the risk of respiratory infection. If the room is cold, use a heat mat or a ceramic heater that gives no light, controlled by a thermostat.

HUMIDITY AND WATER

Humidity should be 60-80 %, highest in the morning (about 75-80 %) and lower in the evening (about 50-60 %). This is achieved with 1-2 daily mistings or an automatic rain system, a damp substrate and a large water section. Measure with a digital hygrometer in the middle of the enclosure.

The animals drink from the water section and from droplets on leaves and walls. Good ventilation is important so the moisture does not stagnate.

WATER AND WATER QUALITY

The water section must be large enough for the animal to dive and swim: at least 15 cm deep, preferably more, and it should cover a third to a half of the floor. The species can stay under water for a long time and sometimes sleeps in the water. Make sure the animal can easily climb out, for example via rocks or a slope.

The animals often defecate in the water, so it must be changed at least once a week and more often when it is dirty. Scrub the water section with a disinfectant that is safe for animals before refilling it. A pump with a hose makes this easier. The water can be at room temperature.

Read more: Quarantine and hygiene

LIGHTING AND UVB

The species is diurnal and needs strong UVB corresponding to Ferguson zone 3. Use a T5 HO tube with 10-12 % UVB in a reflective fitting on the same side as the heat lamps. If the tube is above mesh, the basking branch should be about 30 cm below it; if it is inside the enclosure, about 45-50 cm below. Replace the tube after 6-12 months.

An extra lamp with a daylight spectrum (about 6,500 K) gives more light and helps the plants. The lights are on about 11 hours a day in winter and about 13 hours in summer and are switched off completely at night. Plant lights give no UVB.

Read more: Lighting and UVB

FEEDING

Physignathus cocincinus is omnivorous, but lives mostly on insects. Young animals eat almost only insects, and plants are added with age.

- Hatchlings under 3 months: small crickets every day.
- Young animals under about 40 cm: insects and salad every other day.
- Adults: insects every 3-5 days and salad daily.

Give as many insects as the animal eats in about 5 minutes. Use crickets, grasshoppers, cockroaches (for example dubia roaches), silkworms, earthworms, tobacco hornworms and hornworms, and captive-bred snails. Newborn mice, livebearing fish and fruit are occasional treats. Greens include mustard greens, kale, dandelion, rocket, pak choi and cactus pads.

The species is very active and has difficulty maintaining its weight, so the diet must be plentiful and varied. The insects must have been fed a good diet before they are given. Dust them lightly with a calcium supplement with vitamins; it does no harm to skip a dusting now and then.

Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Physignathus cocincinus is shy and sensitive to stress, especially wild-caught animals. Let a new animal settle in without handling, and then begin feeding from tweezers so the animal comes to you. Never grab it from above; lift the animal from below, and support as much of the body as possible. The claws are sharp, so gloves are an advantage.

Most animals prefer to be left alone, but some get used to contact. Threatened animals lash with the tail or flee and may bite.

Males must be kept separately. A male and a female can live together, but females can be aggressive too, especially at feeding. An animal that does not eat or bask is often being held down by another. Several animals require a much larger enclosure with several basking spots, for a trio at least 180 × 180 cm floor area. Singly is the safest.

Breeding

SEXUAL MATURITY AND SEXING

The male has a larger head, a stronger nuchal crest and swollen cheeks with pale, knobbly scales, while the female is more slender and has a smaller crest. Sex can be seen in half-grown animals. The animals become sexually mature within the first year of life.

Breeding should be left to experienced keepers, because the female easily becomes exhausted.

MATING

Under good conditions the species can breed all year, and a female can lay a clutch every month or every other month. This takes a heavy toll on her: calcium and fat go into the eggs, and she can develop bone disease and problems with egg laying. Separate the animals between clutches, so the female can recover and put on weight.

The male is violent during mating and can injure the female's crest and neck, so the wounds need time to heal. A female kept alone can also lay eggs, and the species is the only agamid in which parthenogenesis has been demonstrated: a few eggs from a female without a male have produced viable young.

EGG-LAYING AND CLUTCHES

A clutch is 5-18 eggs, most often 10-18. The female is reluctant to lay eggs when the male is nearby, because he takes her raised tail as an invitation and tries to mate. Move a gravid female to a separate box with 15-30 cm of warm, damp soil, where she can dig for hours before choosing a spot.

In the wild the eggs are laid in sandy riverbanks at the end of the dry winter.

INCUBATION

Carefully dig up the eggs after laying, and place them in damp vermiculite so that the upper half of the egg is exposed. The temperature must be stable at 29-31 °C and the humidity 70-80 %. Below 65 % the eggs may collapse, and fluctuating temperature causes deformities and dead hatchlings.

The eggs hatch after about 60-75 days.

REARING THE YOUNG

Newly hatched young measure about 5 cm from snout to vent and up to about 20 cm in total and can run at once. Leave them in the incubator for about an hour so they absorb the rest of the yolk. They begin to eat after about three days.

Keep the young in a humid, warm enclosure with a basking spot, UVB, a water section and plenty of hides. Give small crickets daily, dusted with calcium. They grow strongly between 5 months and 1 year. Young can be kept together at first, but must be separated if they become aggressive.

Read more: Incubating eggs

Health and common mistakes

Most diseases are caused by faults in husbandry. Typical problems are:

- Injuries to the snout and jaw when the animal runs into glass or is kept in an enclosure that is too small. They can lead to stomatitis and loss of jawbone.
- Metabolic bone disease from too little UVB, calcium and heat.
- Respiratory infection from low temperatures and stress.
- Intestinal parasites, especially in wild-caught animals. Have a faecal sample examined when the animal is new.
- Abscesses after injuries and bites.
- In females: eggs that are not laid, and ovaries in which mature eggs stay in place without detaching (follicular stasis). This is one of the most common reproductive diseases in the species and usually requires surgery. Signs are loss of appetite, lethargy and a distended belly.
- Emaciation in females that lay too often.

See a vet with reptile experience if the animal stops eating, has swellings in the jaw or legs, laboured breathing or sores that do not heal.

Read more: Common diseases and signs of illness

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.