herpy

CAECILIANS

## Banna Caecilian

# *Ichthyophis bannanicus*

*Ichthyophis bannanicus* is China's only caecilian, a burrowing species from southern China and Vietnam. The adults live in damp soil beside streams and rice paddies, where the female guards her eggs in an earth chamber. The larvae live in water and are predators for about two years before they metamorphose. Care in captivity is almost unknown.

Family: Ichthyophiidae

KEY FACTS

### THE ANIMAL

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|---|---|
| Adult size | **30-40 cm**<br>total length incl. tail |
| Lifespan | **5-10 years** |
| Active | **At night** |
| Lifestyle | **Burrowing** |
| Habitat | **Rainforest and wetland** |
| Skin toxins | **None known** |
| Difficulty | **Experienced** |

### CARE

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|---|---|
| Min. enclosure | **50 × 30 × 35 cm**<br>L × W × H for 1 adult |
| Temperature, day | **22-26 °C** |
| Temperature, night | **21-24 °C** |
| Humidity | **90-100%** |
| Water | **No water dish** |
| UVB | **Not required** |
| Diet | **Insects and worms/snails** |
| Kept | **Singly** |

### BREEDING

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|---|---|
| Reproduction | **Egg-laying** |
| Development | **Larvae in water** |
| Egg-laying site | **On the ground** |
| Eggs per season | **24-68** |
| Larval period | **730 days**<br>from hatching to metamorphosis |
| Larval diet | **Small aquatic invertebrates (daphnia, mosquito larvae)** |
| Parental care | **Guards the eggs** |

### PROTECTION AND PAPERWORK

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

## About the species

*Ichthyophis bannanicus* is a slender, limbless amphibian that looks like a large, glossy earthworm, with many transverse grooves, small eyes under the skin and two small tentacles on the head. Adult size is not documented; the 30-40 cm in the specification box is borrowed from *Ichthyophis kohtaoensis*. Weight, lifespan and reliable external differences between the sexes are also not documented.

The species was found in Yunnan in 1976 and first identified as *Ichthyophis glutinosus*, but was described as a new species in 1984 from animals from Guangxi. It is sometimes regarded as a synonym of *Ichthyophis kohtaoensis*, and both names are used for the same populations. Here *I. bannanicus* is treated as a separate species.

Life is in two parts: an aquatic larva with gills and a terrestrial, burrowing adult. No skin toxicity has been documented for the species, but the skin is thin and delicate, and the animal should be touched as little as possible.

## Distribution and habitat

*Ichthyophis bannanicus* occurs in southern China in the provinces of Yunnan, Guangxi and Guangdong and in Vietnam, both in the north and in the Mekong Delta. Animals from Laos and Thailand have been assigned to the species genetically. Large rivers such as the Red River and the Pearl River separate the populations genetically.

The species is listed as Least Concern (LC) on the IUCN Red List. Locally populations have declined, and the genetic history shows a decline linked to human transformation of the habitats. On the other hand, the species is often more numerous in farmland, especially near rice paddies, than in undisturbed nature.

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

### HABITAT

The species lives in damp, loose soil in forest, scrub and farmland, especially near small streams and rice paddies; the wet, loose soil of the paddies suits it well. The climate is subtropical to tropical with a rainy and a dry season, and the animals are most often seen above ground in the rainy season. The species does not tolerate cold: below 18 °C it goes dormant or dies.

The adults eat mainly snails, earthworms, ants and termites, and the diet shifts between the dry and rainy seasons. The larvae live in water and are predators.

## Care

### THE ENCLOSURE

Little is known about the care of *Ichthyophis bannanicus*. The climate in its range is warm and humid with a rainy and a dry season, and the adults live in wet, loose soil beside streams and rice paddies. The care advice is based on that and on experience with other burrowing caecilians; the close relative *Ichthyophis kohtaoensis* has the same requirements.

An adult is kept in a tight box of at least 50 × 30 × 35 cm with 20-30 cm of loose, damp substrate. The lid must fit tightly and have a weight on top, because the animal squeezes through narrow gaps. Small ventilation holes just below the rim, covered with fine mesh, give air and keep the feeder animals in. Use unbleached paper fibre (paper-based bedding) or unfertilised topsoil; coconut fibre alone can pack together in the gut. The substrate must be damp all the way down, but with no standing water. Bark or a flat piece of wood on the surface provides cover and makes it easy to check on the animal. Replace the substrate every 4-5 months, or sooner if it smells or goes mouldy.

Read more: Feeder animals: keeping and breeding

### TEMPERATURE

Keep 22-26 °C by day and 21-24 °C at night with small, slow fluctuations. The temperature must never fall below 18 °C, because then the species goes dormant or dies. A heat mat under a small part of the substrate creates a gradient so that the animal can choose. Check the moisture more often above the heat mat, because the substrate dries out faster there.

Read more: Heat and temperature

### HUMIDITY AND MISTING

Humidity must be 90-100 %, and the substrate must be evenly damp throughout its depth. Mist as needed, and leave part of the substrate slightly drier so that the animal can choose. Moisten with rainwater or chlorine-free water.

Read more: Humidity, misting and ventilation

### WATER AND WATER QUALITY

Adults do not need a water bowl or an aquatic section; they get moisture from the wet substrate and from condensation on the walls. Water is only necessary for the larvae, which live in water from hatching until metamorphosis. See the section on breeding.

Read more: Rearing tadpoles

### LIGHTING AND UVB

The species lives underground and does not need UVB. The normal day-night rhythm of the room is enough. The box is kept dark and must not stand in direct sunlight or by a window.

Read more: Lighting and UVB

### FEEDING

Small and medium earthworms are the staple; cut them up for young animals. Small snails and termites can be offered for variety, because they are a large part of the diet in the wild. Put 5-10 worms in the box each week, and dig for leftovers every other week: many unused worms mean that the animal is not eating. The worms survive in a damp substrate and do not rot. Gut-load the worms with calcium and vitamins in their soil a few days before feeding.

The animal finds food by smell with its tentacles, even in the dark, and is rarely seen eating.

Read more: Calcium, vitamins and supplements

### BEHAVIOUR AND HANDLING

The species lives hidden and burrows down, and a healthy animal lies buried most of the time. It is calm, but escapes through even small gaps. Keep one animal per box, so that competition for food is avoided and it is easy to follow whether the animal is eating. The animal should not be handled; if it must be moved, use clean, wet hands and keep it brief.

## Breeding

### SEXUAL MATURITY AND SEXING

Age and size at sexual maturity are not documented, and the sexes cannot be reliably told apart externally. Captive breeding has not been described.

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

### MATING

Fertilisation is internal. Mating has not been described, but eggs have been found in the middle of the rainy season, so the breeding season presumably follows the rains. A period of clearly damper substrate can imitate the rainy season, but the effect is not documented.

### EGGS AND LARVAE

The female lays 24-68 eggs in a chamber underground close to a small stream or a rice paddy. The chamber has two small openings to the surface, and one or two adult females lie with the eggs and guard them. The eggs must not be moved or allowed to dry out. The embryos have three pairs of external gills before hatching. There is no parental care after hatching. How long the eggs take to hatch is not documented.

### METAMORPHOSIS

The larvae hatch with gills and need water. Give them an aquarium with clean, still water and small aquatic animals as food, for example mosquito larvae; they are predators. The larval period is about two years. At metamorphosis the gills and the tail fin disappear, and the animal then needs access to land with a damp substrate so that it can crawl out and dig in.

### REARING THE YOUNG

After metamorphosis the animal is moved to a box with damp substrate like the adults' and given small worms or pieces of worm. Keep humidity high and the temperature even, and check the substrate often so that the small animals neither dry out nor lie in standing water. Further rearing is not documented.

## Health and common mistakes

There is almost no knowledge about diseases in the species in captivity. In caecilians generally, skin infection is the most common known cause of death. The most important mistakes in care are:

- A substrate that is too wet or too dry: the animal stays on the surface. Correct the moisture, or replace the substrate.
- Too cold: below 18 °C the species goes dormant or dies. Keep the temperature stable.
- Escape through gaps: the animal dries out. Use tight lids with a weight.
- Dirty substrate and dead worms cause skin problems. Remove leftovers continually.
- White coatings, lesions or swellings require a vet.

Chytrid fungus (Bd) occurs in wild animals of the species: in one population about one animal in twelve is infected. New animals are therefore quarantined, and hands and equipment are washed between boxes. See a vet experienced with amphibians if the animal does not eat, stays on the surface for several days or develops lesions.

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.