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SALAMANDERS AND NEWTS

Sword-tailed Newt

Cynops ensicauda

Cynops ensicauda is the largest living newt in its genus and comes from the southern islands of Japan. It is brown to almost black above, with a yellow to orange belly and a distinct dorsal ridge. It is hardy and long-lived and tolerates more warmth than most of its relatives. The species is threatened by habitat loss and collecting, so captive-bred animals are the right choice.

Family: Salamandridae Former name: *Triturus ensicaudus* **Mild skin toxins**

KEY FACTS

THE ANIMAL

Adult size	**11-18 cm** total length incl. tail
Lifespan	**15-25 years**
Active	**By day, at dusk and at night**
Lifestyle	**Semi-aquatic**
Habitat	**Rainforest and wetland**
Skin toxins	**Mild** Wash your hands after contact and keep your fingers away from your eyes and mouth
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 30 × 30 cm** L × W × H for 2 adults
Temperature, day	**20-24 °C**
Temperature, night	**18-22 °C**
Humidity	**70-90%**
Water	**Aquaterrarium** depth 15-20 cm
Water temperature	**20-24 °C**
UVB	**Not required**
Winter rest	**12-16 °C** 8-12 weeks
Diet	**Insects and worms/snails**
Kept	**In pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Larvae in water**
Egg-laying site	**In water**
Sexually mature	**24-36 months**
Eggs per season	**20-60**
Hatching	**12-18 days**
Larval period	**90-180 days** from hatching to metamorphosis
Larval diet	**Small aquatic invertebrates (daphnia, mosquito larvae)**
Parental care	**None**

PROTECTION AND PAPERWORK

CITES	**Not listed**
EU annex	**Annex D**
IUCN	**Vulnerable (VU)**

About the species

Cynops ensicauda is the largest living species in the genus *Cynops*. Adults measure 11-14 cm, and a few females reach 18 cm. The female's tail is clearly longer than the rest of her body, while the male's tail is about as long as the body or slightly shorter. The male's cloacal region is swollen, especially in the breeding season, and males do not develop the tail filament and blue colour that other species in the genus show when breeding. Some males develop a whitish sheen on the sides of the tail.

The upper side is brown to almost black with a distinct dorsal ridge, which may be reddish to brown. Some animals have a yellow-orange stripe along the side, which can run from the eye to the base of the tail or be broken up into spots. The belly is yellow to orange, rarely red, with a varying number of black dots or patterns, and the yellow follows the lower edge of the tail. The tail is flattened from the sides with a rounded tip, and the head is broader and the skin smoother than in *Cynops pyrrhogaster*, which has more prominent parotoid glands.

There are two subspecies: the nominate form *C. ensicauda ensicauda* and *C. ensicauda popei*. The subspecies *popei* is often slightly darker and has light spots, sometimes joined into stripes, on the back and sides. A few animals are entirely golden. Without a known collection locality it is hard to tell which subspecies an animal belongs to, because some show traits of both. Dorsal colours and stripes are visible even in the young.

The species is long-lived, and animals of over 20 years that are still laying eggs have been recorded. Wild animals carry tetrodotoxin in the skin, a nerve toxin that is dangerous if swallowed and can irritate mucous membranes on contact. Wash your hands before and after contact with the animals and the water, and do not touch your eyes or mouth. The newts should not be handled unless necessary.

Distribution and habitat

Cynops ensicauda occurs only on some of the southernmost islands of Japan, the Ryukyu Islands. The nominate form lives on the islands of the Amami group (Amami-Oshima, Kakeroma, Tokunoshima, Uke and Yoro), and *C. e. popei* lives on Okinawa and several smaller islands nearby, including Sesoko, Hamahiga, Tonaki, Tokashiki, Zamami, Geruma and Aka. Whether the species still occurs on Tokunoshima is unclear. The range is very small, and the population has declined because of building and deforestation: in southern Okinawa the number of animals at the breeding ponds fell to a quarter in 15 years. Many animals also die in concrete roadside ditches they cannot climb out of. Collecting of mature animals has made large animals rare in the wild.

> **Native range:** Japan.

HABITAT

Cynops ensicauda lives in all kinds of still or slow-moving water: ponds, streams, rice paddies, roadside ditches and cattle waterholes. In the breeding season there can be many animals in the same waterhole. Both adults and young may also spend long periods on land in woodland, and the young live on land until they are sexually mature. The climate of the Ryukyu Islands is subtropical, warmer, more humid and rainier than in temperate regions. This explains why the species tolerates more warmth than other species in the genus: one population has been found in water that at times reaches 28 °C. Winters are mild; on Okinawa it is 13-18 °C in January and up to 31 °C in July and August. The breeding season runs from March to July-August, and in parts of the range it begins as early as November.

Care

THE ENCLOSURE

Two to three adults need an aquarium of at least 60 × 30 × 30 cm (about 50 litres). More animals need more space. Furnish the aquarium densely with aquatic plants that thrive in cool water, such as *Egeria densa* and Java moss, and leave part of the floor open so the animals can be fed and can court. The substrate is bare glass or fine sand; gravel can be swallowed and lodge in the gut.

The species can be kept fully aquatic or semi-aquatic, but the animals must always be able to rest above the water. Use a small land area, floating plants, cork bark or driftwood. The aquarium needs a tight, secure lid, because both adults and juveniles climb.

Juveniles live on land until they are sexually mature. For them, a small terrarium with a damp substrate, hiding places and rough surfaces to help shedding is better than water (see the section on rearing).

TEMPERATURE

The water should be 20-24 °C for most of the year. The species tolerates up to 30 °C briefly in summer, but the water should not stay above 28 °C for long. Larvae and juveniles do best above 20 °C. In a home no extra heating is usually needed.

In winter, lower the water temperature to 12-16 °C for at least 8 weeks, as this encourages breeding behaviour. A true hibernation or an even cooler winter is not necessary. At night the temperature may fall to 18-22 °C.

Read more: Brumation and the seasons

HUMIDITY AND MISTING

The species lives in and near water, so humidity is not critical. Under a tight lid it is high, around 70-90 %. Any land area should be damp. Misting is not necessary.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

The water level should be 15-20 cm. The water is filtered, but without a strong current, and changed regularly: about a quarter every week. Remove uneaten food. Use dechlorinated water at 20-24 °C. Sponge filters with an air pump are well suited.

LIGHTING AND UVB

The species is active both by day and at night and does not need special lighting. UVB is not necessary. Ordinary aquarium lighting suits the plants, and the days are shortened in winter.

Read more: Lighting and UVB

FEEDING

The species takes almost anything that moves and is easy to feed. Offer earthworms (chopped if large), blackworms, white worms and, for example, freshwater shrimp, and dead food such as frozen bloodworms, brine shrimp, mysis and lean strips of beef heart or fish. Variety matters, and live food makes the animals hunt as they do in the wild. Introduce new foods mixed with familiar ones so the animals get used to them.

Adults are fed two to three times a week, less often in winter. Remove uneaten food.

BEHAVIOUR AND HANDLING

The species is the least territorial and aggressive in the genus, so adults and juveniles of different ages can be kept together. Make sure every animal is eating so none loses out. The animals eat eggs and small larvae of their own species, so the offspring are kept separately. Do not keep the species with other amphibians, because many secrete substances from the skin that are harmful in a closed aquarium.

Breeding

SEXUAL MATURITY AND SEXING

Males are recognised by the swollen cloacal region and the shorter tail. The animals become sexually mature after 2-3 years, and males can mature up to a year before females.

MATING

In the wild the species breeds from March to July-August, in parts of the range from as early as November, while captive animals can breed almost all year, with a peak from October to June. A cool winter at 12-16 °C encourages breeding behaviour. Courtship has five phases: the male follows the female, fans the tip of his tail towards her, creeps slowly away, deposits the spermatophore when the female touches his tail, and the female follows and picks it up with her cloaca. Several males may compete for the same female.

EGGS AND LARVAE

The female lays her eggs singly over several weeks, several dozen eggs per season in all; large, older females lay up to 60. The eggs are sticky at first and attach to submerged plants or other surfaces; sometimes they are also laid on damp ground beside the water. They are about 3 mm across and sit in a gelatinous sphere of 4-5 mm. Check regularly for eggs, because the adults eat them.

The egg develops in 12-18 days, depending on water temperature. Eggs that turn white are dead and must be removed at once. Move the eggs to a small container with gentle aeration and aquatic plants. The newly hatched larvae are 12-15 mm and live on the yolk sac for the first week. After that they take the smallest plankton organisms, in practice newly hatched brine shrimp, and later microworms, daphnia, white worms, blackworms and frozen bloodworms. The larvae are kept in a

small aquarium or a clear plastic container where they are easy to follow, with some plants for cover. Keep larvae of different sizes apart, and do not overcrowd the container, or the larvae will bite off each other's legs. The legs grow back within a few weeks.

METAMORPHOSIS

The larvae metamorphose after 3-6 months, depending on temperature. With few larvae in the container, they grow larger and metamorphose later. Before metamorphosis the larvae are 40-45 mm, but larvae of up to 65 mm also occur. The gills disappear, and the young newt leaves the water. Newly metamorphosed animals can drown, so give them a way out of the water: floating cork bark, an island or a lower water level so that parts of the floor stand above the water.

Read more: Rearing tadpoles

REARING THE YOUNG

The young newts can be reared both on land and in water. On land, a terrarium works with damp paper towel, soil or moss as a substrate, hiding places and rough surfaces to help shedding. The substrate should be damp, not soaking, or the soil will rot. Food: springtails, wingless fruit flies, small crickets, aphids, termites and small silverfish, and with tweezers blackworms, white worms and chopped earthworms according to size.

If the young are to return to the water, they are accustomed gradually: first 1-2 cm of water with many plants and a small land area, so the animals can rest with their heads above water. When they hunt under water, the water level is raised slowly. They climb a lot during this period, so the lid must be tight. Animals that do not eat in the water after a few days are reared on land. The aquatic phase makes them easier to feed and follow.

Read more: Feeder animals: keeping and breeding

Health and common mistakes

Cynops ensicauda is hardy as long as the water is clean and cool. The typical problems are:

- Prolonged heat above 28 °C, which stresses the animals and makes them prone to infection.
- Poor water quality, with fungal and bacterial skin infections, often after uneaten food.
- Gut blockage after swallowing gravel.
- Drowning of newly metamorphosed juveniles.
- Undernourishment of weak animals in a group where the strong eat first.

Bsal (*Batrachochytrium salamandrivorans*), a fungal disease that is fatal to many salamanders, occurs naturally in *Cynops* on Okinawa and Amami without causing known deaths. The species can therefore carry the fungus without showing signs itself. Quarantine new animals for several weeks, keep separate equipment for each aquarium, and wash your hands between aquariums. Never release animals or water into the wild. Contact a vet with amphibian experience if an animal wastes away, develops sores or white patches, swells up or behaves unusually.

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.