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SALAMANDERS AND NEWTS

Eastern Tiger Salamander

Ambystoma tigrinum

Ambystoma tigrinum is a stout salamander from the eastern half of the USA, typically 15-20 cm long, with yellow to olive-green blotches on a brown to black background. The larvae live in water, while the adults spend most of their lives in self-dug burrows and emerge at night. Some animals never metamorphose and become sexually mature with their gills retained.

Family: Ambystomatidae

Mild skin toxins

KEY FACTS

THE ANIMAL

Adult size	**15-33 cm** total length incl. tail
Lifespan	**12-20 years**
Active	**At night**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Temperate woodland and meadow**
Skin toxins	**Mild** Wash your hands after contact and keep your fingers away from your eyes and mouth
Difficulty	**Beginner**

CARE

Min. enclosure	**50 × 25 × 30 cm** L × W × H for 1 adult
Temperature, day	**18-22 °C**
Temperature, night	**16-22 °C**
Humidity	**80-95%**
Water	**Water dish**
UVB	**Not required**
Diet	**Insects, vertebrates and worms/snails**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Development	**Larvae in water**
Egg-laying site	**In water**
Sexually mature	**5-48 months**
Eggs per season	**100-1,000**
Hatching	**12-50 days**
Larval period	**75-150 days** from hatching to metamorphosis
Larval diet	**Other larvae and small aquatic invertebrates (daphnia, mosquito larvae)**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Ambystoma tigrinum is a thick-bodied salamander with a broad, rounded snout, small, protruding eyes, short, strong legs and a stout tail. Adults that have metamorphosed are typically 15-20 cm long, including the tail, and can reach up to 33 cm. Males are larger than females and have a longer, taller tail.

The back is brown to black with irregular yellow to olive-green spots or blotchy crossbands, and the belly is yellow with dark patches. The pattern varies greatly from population to population. Albinos are very rare. The larvae resemble *Ambystoma mexicanum*, but have a more laterally compressed tail with a fin edge and three pairs of external gills. Large larvae are widely

used as fishing bait and are also sold in the pet trade.

Several forms occur within the species complex: besides ordinary adults there are also gilled adults and a cannibal form with a broader head, a larger skull and an extra row of teeth in the palate. The cannibal form develops when larvae of different sizes are kept together. Some animals never metamorphose and become sexually mature as gilled adults. Adults live 12-20 years in captivity, and gilled animals kept in water can reach up to 25 years.

When threatened, the animal curls up and raises its tail, and the skin glands secrete a thick, white, toxic secretion intended to scare off predators. Wash your hands after handling.

A. tigrinum was described by Green in 1825. The species belongs to a complex of closely related species, in which *A. tigrinum* is the eastern one. Animals in the trade may come from areas where the species meet and may therefore be hybrids. The figure for sexual maturity applies to the complex as a whole.

Distribution and habitat

Ambystoma tigrinum lives in the eastern half of the USA, from New York and the Great Lakes region south along the east coast to Florida and west to Nebraska, Kansas and eastern Texas. The species is absent from the Appalachian highlands.

West of this area the species is replaced by *Ambystoma mavortium*, which was long regarded as the same species.

> **Native range:** United States.

HABITAT

A. tigrinum lives on sandy or loose soil in forests, open country and meadows, usually near the pools where it breeds: ponds, ditches, slow streams, quarries and flooded swamps. Water with predatory fish is avoided. The adults are almost entirely terrestrial and come to the water only to breed.

The adults spend most of the year underground in self-dug burrows or in the burrows of other animals and may lie more than 60 cm down. They migrate to the breeding water in late winter or early spring, typically after a mild rain that has thawed the ground. After the breeding season they migrate back to their home range, up to about 250 m from the water.

Care

THE ENCLOSURE

Adults can be kept in many kinds of container. The simplest is a large plastic box with a tight-fitting lid and many small ventilation holes; a glass terrarium with a wire-mesh lid gives a better view. One adult needs a floor area of at least 50 × 25 cm, and two adults of the same size at least 75 × 30 cm. Floor area matters more than height. The lid must be secure, as the animal is strong and can push off a loose lid.

The substrate must be at least 10 cm deep and moisture-retaining, so that the animal can burrow. Use topsoil without fertiliser or additives, coconut fibre or a mixture of the two. Make the substrate moister at one end than at the other, so that the animal can choose. Avoid peat and other acidic substrates: they can cause loss of salts from the body and, in the worst case, death. Cedar and pine bark and chips must not be used either, as the oils are toxic to amphibians. Remove droppings and food remains several times a week, and change the substrate every month or every second month. Provide at least one large hide per animal, for example half a tube, a piece of cork bark, a root or a flat stone. Damp, unbleached kitchen paper with crumpled pieces as hides is good for quarantine.

Do not use gravel, which the animal can swallow when it strikes at prey; decorative stones must be larger than the animal's head. Live plants get dug up, so use artificial ones. Larvae and neotenic animals are kept in a separate tank, as long and wide as possible, with a cycled filter, a hide for each animal and screening between them. Allow no more than one large larva per 20 litres of water. Newly acquired animals are quarantined for 60 days.

Read more: Quarantine and hygiene

TEMPERATURE

Ambystoma tigrinum needs 18-22 °C by day, both as a larva and as an adult, and at night the temperature may fall to 16 °C. The species tolerates cold better than heat. The larval tank is not heated, and the water must not exceed 24 °C. Above 25 °C for a prolonged period is stressful and can be life-threatening for adults. Below 18 °C the larvae eat less.

Place the container somewhere cool, out of direct sun and without heat lamps.

HUMIDITY AND MISTING

The substrate must be moist, but never wet or muddy, as the animal absorbs water through its skin. Humidity is not documented for the species; 80-95 % is borrowed from *Ambystoma mavortium*. What matters is the moisture in the substrate. Mist the substrate with treated water when it looks dry.

Good ventilation is important: an environment that is too wet and closed causes skin infections.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

Adults do not need a water section: they are poor swimmers and can drown. A shallow, heavy water bowl is not necessary, but it is a good safeguard, because if the substrate becomes too dry the animal seeks out the bowl. Some animals take the occasional dip. Change the water every few days, or when it is dirty.

Use tap water treated against chlorine and chloramine, or spring water; distilled and demineralised water must not be used. The pH must be between 6 and 8. Water for larvae and neotenic animals must be treated in the same way, and the filter must be cycled before the animals go in, otherwise ammonia and nitrite rise, which are toxic to amphibians. Change the water daily until the filter is established.

LIGHTING AND UVB

Ambystoma tigrinum is nocturnal and does not need any special lighting. There is no evidence that the species needs UVB, and strong UV light can damage the eyes and skin of amphibians. Ordinary daylight in the room, or an ordinary fluorescent tube by day and darkness at night, gives a good daily rhythm. The container must not stand in direct sun.

Read more: Lighting and UVB

FEEDING

Larvae and neotenic animals eat earthworms, compost worms, suitably sized crickets, waxworms and small fish (not goldfish). Meat can be given as an occasional meal, but not as the staple food, because meat lacks vitamins and minerals. Thawed frozen fish must not make up a large part of the diet, as it can cause thiamine deficiency. At 18-22 °C feed two to three times a week, until the animals stop hunting. Remove uneaten food so that the water is not polluted.

Newly acquired larvae that have been starved cannot cope with large meals and may go into shock. Give them small, frequent meals, for example pieces of earthworm, daily for several weeks, and then switch to larger portions two to three times a week.

Adults eat earthworms, crickets, cockroaches and other invertebrates. Earthworms are the best staple food. Crickets are low in calcium and must be gut-loaded or dusted with calcium and vitamins, typically once or twice a week. Fatty food such as waxworms and newborn mice is given only rarely. At around 22 °C adults are fed two to three times a week; at 16 °C or below once a week is enough. Remove uneaten crickets after 24 hours, as they can bite the animal. Adults easily become too fat.

Read more: Feeder animals: keeping and breeding Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Adults dig and lie hidden for most of the day. They are nocturnal and hunt by ambush. Many animals learn to recognise their keeper and beg for food. Outside the breeding season the species is solitary and does fine alone. Two adults of the same size can share a container of at least 75 × 30 cm, but eager animals may nip each other's tails and toes at feeding.

The skin is thin and permeable, and salts and oils from the hands can damage it. Handle the animal as little as possible, with clean, wet hands, and wash your hands afterwards. Never keep larvae of different sizes together: the largest eats the smaller ones, and it is precisely that combination that triggers the cannibal form.

Breeding

SEXUAL MATURITY AND SEXING

The animals become sexually mature after 5 months to 4 years, depending on temperature, food supply and crowding. The male is recognised by the longer, taller tail and, in the breeding season, by a larger vent than the female's.

MATING

The breeding season runs from late winter to early spring. The animals gather in pools and breed together at night: the male nudges the female with his snout, and she touches his tail and vent, so that he deposits a spermatophore, which she picks up. What triggers the breeding migration is poorly understood.

Terrestrial animals are very difficult to get to breed indoors, and captive breeding is rare. Neotenic adults can breed in the same way as *Ambystoma mexicanum*.

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

EGGS AND LARVAE

The eggs are laid at night, normally 24-48 hours after mating. The female attaches them to twigs, grass and leaves on the bottom of the water. Each mass holds up to about 100 eggs, and a female lays 100-1000 eggs per season. The eggs hatch after 12-50 days, depending on the water temperature.

The larvae are predators and need live, small aquatic animals such as daphnia, mosquito larvae and small crustaceans. There is no parental care. Keep uniform larvae together, and sort them often by size to avoid cannibalism.

METAMORPHOSIS

The larvae stay in the water for 2.5-5 months before they metamorphose. Metamorphosis is recognised by the gills becoming shorter and disappearing, the fin edge on the tail becoming smaller, and the tail becoming rounder. The adult colours appear gradually and are fully developed after weeks to months.

When the signs appear, the water level is lowered and the tank is tilted, or easy access to land is provided. Feeding continues, as the gut does not change as it does in frogs, but some animals refuse food for a period. Take care that the shallow water is not polluted by uneaten food. When metamorphosis is complete, the animal is moved to the adult setup. Some animals never metamorphose and become gilled adults.

Read more: Rearing tadpoles

REARING THE YOUNG

The newly metamorphosed young are moved to an adult setup with damp kitchen paper or a damp substrate without peat and with hides, once metamorphosis is entirely complete. Give small feeder animals such as small earthworms, small crickets and pieces of worm, and feed them more often than adults. Amounts and intervals for the young are not documented.

Sort the young by size so that they do not eat each other. Keep the substrate damp and cool, not above 24 °C.

Health and common mistakes

The species is hardy and forgives small mistakes, but these problems are common:

- Too warm: above 25 °C for a prolonged period can be life-threatening.
- Obesity in adults: feed moderately, and use fatty food rarely.
- Starved, newly acquired larvae given meals that are too large: they can go into shock and die. Feed small, frequent meals.
- Biting between larvae: damage to gills and legs. Keep uniform animals together.
- Acidic substrate, for example peat: causes loss of salts. Avoid peat.
- Crickets without calcium supplements: can cause bone disease.
- Swallowed gravel: can cause intestinal obstruction and be fatal.
- Ammonia and nitrite in the larval tank: require a cycled filter and water changes.
- Dehydration: provide a water bowl and a damp substrate.

Salamanders can carry the fungal disease Bsal (*Batrachochytrium salamandrivorans*), which is fatal to many species. Quarantine new animals for at least 60 days, and wash hands and equipment between containers.

See a vet with amphibian expertise if the animal refuses food for a prolonged period, has open sores or leans to one side when swimming.

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.