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SALAMANDERS AND NEWTS

## Black-spotted Stout Newt

# *Pachytriton brevipes*

*Pachytriton brevipes* is a stout, smooth-skinned and fully aquatic salamander of 14-19 cm from clear, cool and fast-flowing mountain streams in south-eastern China. It is medium to dark brown with many black spots and a broad, oar-like tail. It is territorial and aggressive and requires cool, oxygen-rich water.

Family: Salamandridae

**Mild skin toxins**

KEY FACTS

### THE ANIMAL

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|---|---|
| Adult size | **14-19 cm**<br>total length incl. tail |
| Lifespan | **9-15 years** |
| Active | **At dusk and at night** |
| Lifestyle | **Aquatic** |
| Habitat | **Montane forest and wetland** |
| Skin toxins | **Mild**<br>Wash your hands after contact and keep your fingers away from your eyes and mouth |
| Difficulty | **Intermediate** |

### CARE

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|---|---|
| Min. enclosure | **60 × 30 × 35 cm**<br>L × W × H for 2 adults |
| Temperature, day | **14-18 °C** |
| Temperature, night | **12-16 °C** |
| Humidity | **70-90%** |
| Water | **Aquaterrarium**<br>depth 20-25 cm |
| Water temperature | **14-18 °C** |
| UVB | **Not required** |
| Diet | **Insects, vertebrates and worms/snails** |
| Kept | **Singly or in groups** |

### BREEDING

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|---|---|
| Reproduction | **Egg-laying** |
| Development | **Larvae in water** |
| Egg-laying site | **In water** |
| Eggs per season | **40** |
| Larval period | **80-110 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

*Pachytriton brevipes* is a large and heavily built aquatic salamander. Adults measure 14-19 cm including the tail, most 15-18 cm. The body is thick and the skin smooth, without the warts that most other aquatic salamanders have. The head is large and flat with distinct lip folds that give the mouth a fish-like gape, the legs are short and the toes stubby, and the tail is broad, flattened from the sides and rounded at the tip like an oar. The animal breathes both with lungs and through the skin.

The back, head and tail are medium to dark chocolate brown and covered with many black spots. The colour of the belly varies greatly, from mottled to light brown, yellow or orange in patches and up to entirely black. Males in breeding condition may develop white to bluish-white spots on the tail, but they are less distinct than in the closest relatives in the genus.

The genus *Pachytriton* today contains more than ten described species, and several were described only within the last few years. Animals in the trade are therefore often wrongly identified, and animals sold as *P. brevipes* may belong to other species. In the trade the genus is also confused with *Cynops*, but its species are far more aggressive and live exclusively in water. Lifespan is not documented for the species. Animals of the genus can live at least 9 years in captivity, and the upper limit of 15 years is borrowed from *Paramesotriton hongkongensis*.

The skin toxin has not been studied in *P. brevipes*. Close relatives in the family have a mildly toxic skin secretion, and the species is therefore treated in the same way: wash your hands before and after any contact, and keep your fingers away from your eyes and mouth.

## Distribution and habitat

*Pachytriton brevipes* lives in south-eastern China. Most recorded finds come from the province of Fujian, and in addition the species has been found in Zhejiang, Jiangxi and Guangdong, and there are a few finds from Anhui. Genetically examined animals come from the Wuyi Mountains in Fujian and Junfeng in Jiangxi. Several of the other finds may cover closely related species, because species boundaries in the genus have been unclear.

The species is not assessed as threatened, but its range is shrinking, probably because of pollution and loss of habitat.

> **Native range:** China.

### HABITAT

The habitat is clear, fast-flowing and oxygen-rich mountain streams with cool, nutrient-poor water. Food items are sparse in this kind of water, and the animals cope by holding territories and defending them against conspecifics. The species is almost exclusively aquatic and leaves the water only if it is bullied by a more aggressive animal.

It is a predator that eats worms, insects and small fish, and it takes its food by sucking it in with a quick movement of the mouth.

## Care

### THE ENCLOSURE

Little is known about the care of *Pachytriton brevipes*, and much of what is known about the genus applies to trade animals whose species is not certain. The species lives in clear, cool and oxygen-rich mountain streams in south-eastern China. *Paramesotriton hongkongensis* lives in similar streams further south and makes the same demands on the water.

*P. brevipes* is kept in a clean aquarium with deep, cool and oxygen-rich water. The water must at least cover the animals completely, and deeper is better for their health: 20-25 cm in an aquarium of 60 × 30 × 35 cm is a good size for two animals. Expect at least 20-40 litres per animal and a good filter. Keep the aquarium cool, out of direct sun, and do not heat it with lamps.

Cover the bottom with fine sand or gravel too large to be swallowed; the animals are eager eaters and can suck in the substrate along with the food. There must be at least one hide per animal, and several visual barriers give the animals places to retreat to, so that there are fewer clashes. Hides can be pieces of PVC pipe, clay pots, aquarium decorations and flat stones resting on another stone. Provide a floating platform or floating plants for ailing or weak animals.

The lid must fit tightly: the animals can jump out of the water with the powerful tail, and although they seldom climb, it cannot be ruled out. An animal that constantly rests at the water surface or comes out of the water has a problem and must be observed closely for disease or bullying.

The animals are not kept with other species. Fish are mutilated or eaten, and other salamanders can lose limbs.

### TEMPERATURE

Keep the water at 14-18 °C by day and 12-16 °C at night. 21-24 °C is tolerated briefly, but longer periods above 18 °C harm health. The figures are an estimate for an animal from cool mountain streams, and a lower limit is not documented. In summer a cooling fan or a chiller may be necessary.

### HUMIDITY AND MISTING

Humidity plays no role for a fully aquatic animal. In a closed aquarium it is high by itself; the box's 70-90 % is an estimate. Make sure the air above the water does not become stagnant and warm.

Read more: Humidity, misting and ventilation

### WATER AND WATER QUALITY

The water must be clean, oxygen-rich and moving. A powerful filter (canister filter, undergravel filter or internal filter) is necessary; sponge filters and air stones are less effective and require more frequent water changes. Activated carbon and ammonia-binding resin can be used in the filter. Change 10-20 % of the water every week, whatever the filter. Tap water is treated with a water conditioner against chlorine, chloramine and heavy metals before use.

Animals from streams are sensitive to toxins and fluctuations in pH. The species is hardy and tolerates poor water for a short period, but longer in poor conditions affects health. Avoid soap, cleaning agents and hand cream close to the water.

### LIGHTING AND UVB

UVB is not necessary. The animals live in shaded streams, and the light should not be bright. The lighting can be set according to any plants, and direct sun is avoided because it heats the water.

Read more: Lighting and UVB

### FEEDING

The animals are voracious and eat worms, insects, frozen red bloodworms, beef heart, fish, dry food in pellets and small amounts of lean meat. The food is sucked in, so items must be of a size that is easy to swallow, because larger pieces are fought over. Food remains are removed at once so that water quality holds. Feed, as far as possible, at opposite ends of the aquarium or from the hand, so that the animals do not bite each other during feeding.

### BEHAVIOUR AND HANDLING

*Pachytriton brevipes* is territorial and aggressive. In nutrient-poor streams food becomes scarce, and the animals therefore defend an area against conspecifics. Bites are seen as crooked marks in the skin or missing limbs and can be fatal, sometimes for both animals. In a small aquarium the animals should not be kept together. The species can be kept in small groups if each animal has its own territory (hide), but aggression is still seen at feeding and in disputes over space. When a new animal arrives, the whole layout is changed, so that all animals must establish a new territory.

A well-established animal moves around the aquarium without chasing or hiding. If an animal loses weight, has repeated bite wounds or constantly stays at the surface or on land, the only answer may be to move it to its own aquarium.

The animals communicate with scent substances. Tail waving is seen all year in both sexes and is not always mating behaviour; the male waves wildly when he wants a female to notice him, and both sexes wave lightly when they approach each other or are disturbed. Light nipping at the tail by a female is harmless, but persistent nipping is aggression.

## Breeding

### SEXUAL MATURITY AND SEXING

Sexual maturity is not documented for the species. Males can be recognised when in breeding condition: the cloaca is swollen, and when tense, hair-like papillae 2 mm long may protrude from it, and they have white spots on the last third of the tail. Outside breeding condition the sexes are fairly reliably recognised by the cloacal opening, which is longer in the male, and by the head: in females in good feeding condition the head is at most as wide as the body seen from above, while males' heads are wider in proportion to the body. Males prefer very round females.

### MATING

Mating and egg-laying in *P. brevipes* are not documented. In animals sold in the trade as "*Pachytriton labiatus*", which are probably *Pachytriton granulosus* or *Pachytriton inexpectatus*, the male approaches a round female and waves his tail vigorously towards her, and both sexes may nudge the cloaca to test receptiveness. If the female stops, the male positions himself in front of her and continues to wave; if she flees, he blocks the way. When the female stands still, the male walks away with his tail in narrower and narrower waves, and the female follows, touches the tail and nips it. Then he lifts the tail and deposits the spermatophore on the substrate, and the female picks it up with her cloaca. A female that flees is chased and attacked.

### EGGS AND LARVAE

Captive breeding is rare. Spermatophores have been seen in the species, but eggs are not documented. In the same trade animals ("*P. labiatus*") the clutch is about 40 eggs, which the female lays on the ceiling of excavated or cave-like hides and actively guards during development; the figures in the box are borrowed from there. To bring the animals into breeding condition, the males are kept apart from the females during a winter cooling and put together again in February or March.

Aggression is greatest in the breeding season. A pair is given many hides and fed at opposite ends of the aquarium or from the hand, so that there is no biting.

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

#### METAMORPHOSIS

Hatching time and larval development are not documented for *Pachytriton brevipes*. The larval period in the box (80-110 days) is borrowed from *Paramesotriton hongkongensis*. The larvae are predators and are given small aquatic animals such as daphnia and small bloodworms.

#### REARING THE YOUNG

Rearing of young is not documented for *Pachytriton brevipes*. Young of species that live in streams presumably have the same basic requirements as the adults: cool, clean and oxygen-rich water with water movement, a hide for each animal and frequent water changes. Feed in small portions with food that fits the young's mouths, and remove food remains at once. This is a general recommendation and not knowledge of the species.

## Health and common mistakes

Typical problems and errors:

- Poor water quality and too high a temperature over a long period. Animals from streams are sensitive to toxins, fluctuations in pH and heat.
- Bite wounds and lost limbs after fights between animals. Move the weakest animal to its own aquarium.
- Animals from the trade have often lived in poor conditions. They are hardy and tolerate it for a period, but longer in poor conditions harms health.
- External parasites: animals from the trade may have dark brown, aquatic mites between the toes, in the armpits, at the cloaca and along the large vein behind the forelimbs. They are harmless in small numbers and can be removed with tweezers.
- An animal that constantly lies at the water surface or comes up onto land has a problem.
- Bsal (*Batrachochytrium salamandrivorans*) is a skin fungus that kills many European salamanders. Many East Asian salamanders can carry the infection without symptoms. New animals are therefore quarantined for several weeks, separate from other salamanders and amphibians, with their own tools and good hand hygiene.

See a vet with knowledge of amphibians if the animal stops eating or develops sores, swellings or discoloured skin.

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.