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ANGUIDS

Southern Alligator Lizard

Elgaria multicarinata

Elgaria multicarinata is a robust, long-tailed lizard from the Pacific coast of North America, from Washington to northern Baja California. It grows to 20-40 cm, is active by day and at dusk, even at low temperatures, and eats anything it can overpower. It needs a cool enclosure with many hides and a cool winter period, and it is an animal to watch, not to handle.

Family: Anguidae Former name: *Gerrhonotus multicarinatus*

KEY FACTS

THE ANIMAL

Adult size	**20-40 cm** total length incl. tail
Lifespan	**10-15 years**
Active	**By day and at dusk**
Lifestyle	**Arboreal and terrestrial**
Habitat	**Semi-desert and temperate woodland and meadow**
Difficulty	**Intermediate**

CARE

Min. enclosure	**100 × 50 × 60 cm** L × W × H for 1 adult
Temperature, day	**18-30 °C**
Basking spot	**30-35 °C**
Temperature, night	**12-16 °C**
Humidity	**40-70%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 2
Winter rest	**6-10 °C** 8-12 weeks
Diet	**Insects, vertebrates and worms/snails**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**18 months**
Clutch size	**5-20 eggs**
Clutches per year	**1-3**
Incubation	**50-55 days** at 24-28 °C

PROTECTION AND PAPERWORK

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

About the species

Elgaria multicarinata is a heavily built lizard with short legs, a large head, powerful jaws and a long tail that can grow to twice the length of the head and body combined if it has never been lost. Large, keeled scales cover the back, sides and legs, and bony plates under the scales make the body stiff. Along each side runs a fold of small, granular scales between the dorsal and ventral scales, so that the body can expand when the lizard has eaten a lot or when the female is carrying eggs.

The colour varies from brown, grey and reddish to yellowish, with dark crossbands on the back, sides and tail and white spots in the bands. The eyes are yellow. The young are patterned differently: they have a broad, pale stripe along the back in beige, red, yellow or grey, and the crossbands are fainter. Adults measure 7-18 cm from snout to vent and typically grow to about

30 cm including the tail; a few animals with an intact tail reach a little over 40 cm. The sexes are hard to tell apart: the male often has a slightly broader head.

The tail is slightly prehensile and grips branches when the lizard climbs. The tail can be dropped and grows back, but shorter and with a different pattern. The loss costs a lot of energy and can mean that a female skips a breeding season. The species was described in 1835 by Henri Marie Ducrotay de Blainville and was formerly placed in the genus *Gerrhonotus*. Up to five subspecies have been described, but the classification is uncertain. The species name means "with many keels" and refers to the keeled scales.

It is a robust and bold lizard, but not one that suits handling. If it is grabbed, it opens its mouth, bites hard and empties its bowels, and it can wriggle free and drop its tail.

Distribution and habitat

Elgaria multicarinata lives along the west coast of North America from the state of Washington through Oregon and California to northern Baja California in Mexico, west of the Cascade Mountains and the crest of the Sierra Nevada. It is also found in a narrow belt along the eastern side of the Sierra Nevada and in a few places out into the Mojave Desert along the Mojave River.

The species occurs from sea level to over 1,500 m and has been recorded as high as over 3,000 m in southern California. It also lives on several islands off California and Baja California, including Santa Catalina and Santa Cruz and the Mexican islands of Los Coronados and San Martín. The species is common and is often seen in gardens, garages and suburbs, but the population is declining because of roads, loss of habitat, fires and introduced predators such as dogs and cats.

> **Native range:** United States and Mexico.

HABITAT

The species lives in grassland, chaparral (dense, evergreen scrub), coastal sage scrub, oak woodland, pine and juniper woodland and open pine forest. It is particularly common in the oak woodlands at the foot of the mountains and stays close to cover under stones, logs, boards and debris and in rock crevices.

The lizard is active by day and at dusk and in warm weather sometimes at night. It is often out in the morning and evening and can remain active at a body temperature as low as 11 °C; active animals have an average body temperature of 21-28 °C. In cold weather in winter it is inactive in a refuge. It climbs well, swims well and moves on the ground in undulations like a snake, often with the hind legs held back along the body.

A large part of the range has a Mediterranean climate with mild, rainy winters and long, dry summers. That is what the enclosure should imitate: moderate daytime temperatures, cool nights and a distinct cool period in winter.

Care

THE ENCLOSURE

Little is known about keeping *Elgaria multicarinata*. The care below is based on the climate of the range, the habitat and the size. *Elgaria kingii*, *Elgaria coerulea* and *Gerrhonotus liocephalus* are closely related and have a similar way of life.

An adult needs an enclosure of at least 100 × 50 × 60 cm (length × width × height). Larger is better, and an adult-sized enclosure can be used for young animals from the start, as long as there are enough hides.

The substrate is 8-10 cm of unfertilised garden soil mixed with sand, so that it holds its shape and the lizard can dig down. Place half-buried cork tubes, bark, flat stones and boards on the substrate, and make crevices that the animal can squeeze into. Branches and a rock wall provide climbing opportunities. All hides must be stable, so that they cannot collapse on the animal.

The enclosure must be well ventilated and have a lid that can be locked, because the species is strong and can push up loose lids. Keep the substrate dry to slightly moist, with a moist zone at one end. Remove droppings regularly, and replace the substrate completely when it smells or is wet. The animal is kept alone.

TEMPERATURE

The daytime temperature in the enclosure is 18-30 °C with a basking spot of 30-35 °C measured on the surface. A clear difference between the warm and the cool end is more important than high heat, and temperatures that are too high are a greater danger than temperatures that are too low. At night the temperature drops to 12-16 °C. Use a halogen spotlight over the basking spot controlled by a thermostat, and measure with thermometers at both ends and an infrared thermometer at the basking spot.

In winter the animal needs a cool period of 8-12 weeks at 6-10 °C with a short day. The species can be active down to about 11 °C, so the rest period must be cooler than that to keep the metabolism down. Only healthy animals in good condition should be brumated. Feeding is stopped, and the heat and day length are lowered gradually over 2 weeks, so that the gut is empty. If the animal is weakened, or its weight cannot be monitored, it is kept awake and fed throughout the winter.

Read more: Heat and temperature

HUMIDITY AND WATER

The humidity should be 40-70 %, highest in the moist zone and at night. The species lives with dry summers, but always finds moist places under stones and wood, and in dry regions it is seen almost only near water. The enclosure should therefore have both a dry and a slightly moist side.

Place a low, stable water bowl in the enclosure, large enough for the animal to lie in. The animal also drinks droplets from stones and leaves after misting. Change the water daily. Mist lightly once a day on the moist side, and let the enclosure dry out in between, so that mould does not develop. During shedding there must be a humid hide with moss or damp soil.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The species is diurnal and basks, so the enclosure needs a basking spot and UVB. A UVB tube of weak to moderate strength corresponding to Ferguson zone 2 over one half suits its way of life. The animal must be able to retreat from the light into shade.

The day length follows the season: about 12-14 hours in summer and 8-10 hours in the period before and after brumation. Replace the UVB tube according to the manufacturer's instructions, even if it still lights up.

Read more: Lighting and UVB Read more: Brumation and the seasons

FEEDING

Elgaria multicarinata is a versatile predator that eats anything it can overpower: insects and other arthropods, snails, small lizards and small mammals and occasionally birds' eggs and nestlings. Movement triggers the capture.

In the enclosure, feed crickets, grasshoppers, cockroaches, mealworms and snails. Adults are fed 2-3 times a week, young animals more often. Offer what is eaten in a short time, and remove the leftovers. A female with eggs eats a lot and needs plenty of varied food. A thawed newborn mouse can be given occasionally, but insects and snails are the staple food.

Dust the feeder insects with calcium without D3 at every second or third feeding, and give a multivitamin 1-2 times a month. Never feed wild-caught insects from places that are sprayed.

Read more: Feeder animals: keeping and breeding Read more: Calcium, vitamins and supplements Read more: Buying animals: captive-bred, wild-caught and transport

BEHAVIOUR AND HANDLING

The species is secretive and hides under cover, but is also out in the open in the morning and evening. It is not an animal for handling. If it is grabbed, it bites hard and empties its bowels, and the tail is easily dropped. A bite must be washed and disinfected. Use feeding tongs, and let the animal take the food itself.

The animal is kept alone. The species eats smaller lizards, so young and smaller animals are at risk in a shared enclosure, and adults are put together only for mating, under supervision. Stress shows as lack of appetite, the animal hiding all the time and loss of the tail; calm and many hides prevent it.

Breeding

SEXUAL MATURITY AND SEXING

The sexes are hard to tell apart: the male often has a slightly broader head, but the difference is small. Reliable sexing requires a vet. The species is sexually mature after about 18 months and a weight of about 30 g.

MATING

In the wild the species mates in spring, most often in April-May, and in warm regions mating can take place all year. The male bites onto the female's head and holds on for many hours, until she is ready. After brumation the temperature and day length are raised gradually. The animals are put together only for mating, under supervision, and separated again afterwards.

EGG-LAYING AND CLUTCHES

The female normally lays 5-20 eggs from May or June to July, in the wild in rock crevices, rodent burrows and rotting wood. The female lays 1-3 clutches per season, depending on the population. The egg-laying site in the enclosure is a box of moist soil, sand and moss, at least 20 cm deep. The female may stay with the eggs and guard them. Remove the eggs for incubation, so that they are not damaged.

Read more: Incubating eggs

INCUBATION

The eggs are incubated in a closed box with moist vermiculite or perlite at 24-28 °C. In the wild the eggs hatch after about 50-55 days, in late summer and early autumn. The eggs must lie moist, but not in water.

REARING THE YOUNG

The young measure about 34 mm from snout to vent and weigh about 0.5 g at hatching. They are kept apart from adults and preferably each on its own. Give them small feeder insects such as fruit flies and small crickets every day or every other day, dusted with calcium, and an enclosure with many hides, a slightly moist substrate and a small basking spot. The young have a broad dorsal stripe and acquire the adult pattern in time. Growth and age at separation are not documented for captivity.

Health and common mistakes

The species is robust, but little is known about animals in captivity. The most common problems are:

- stress and lack of appetite, especially in new animals and animals that are handled
- loss of the tail through handling or fights
- metabolic bone disease from a lack of UVB and calcium
- obesity from too much food and too little movement
- intestinal worms and ticks, which are common in wild-caught animals; have a faecal sample examined
- bites and wounds if several animals are kept together
- egg-laying difficulties if the female does not have a deep, moist place to lay
- overheating: the species tolerates prolonged heat poorly

Contact a vet with reptile experience in the event of persistent lack of appetite, weight loss, swellings, ticks, wounds, nasal discharge or blood in the faeces.

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.