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LACERTIDS

Balkan Emerald Lizard

Lacerta trilineata

Lacerta trilineata is one of Europe's largest lizards: a robust, diurnal green animal of the warm scrub and rocky slopes of the Balkans and Greece. The species grows to 40-60 cm, of which the tail is about two thirds. It feeds on large insects and a little fruit, needs sun, UVB and a large enclosure, and must have a cool brumation.

Family: Lacertidae

KEY FACTS

THE ANIMAL

Adult size	**40-60 cm** total length incl. tail
Lifespan	**8-12 years**
Active	**By day**
Lifestyle	**Rock-dwelling and terrestrial**
Habitat	**Rocky terrain and temperate woodland and meadow**
Difficulty	**Intermediate**

CARE

Min. enclosure	**150 × 70 × 100 cm** L × W × H for 2 adults
Temperature, day	**23-28 °C**
Basking spot	**38-42 °C**
Temperature, night	**15-20 °C**
Humidity	**40-60%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 3
Winter rest	**5-7 °C** 8-10 weeks
Diet	**Insects, fruit and worms/snails**
Kept	**In pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**5-20 eggs**
Clutches per year	**1-3**
Incubation	**80-85 days** at 27-28 °C

PROTECTION AND PAPERWORK

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

About the species

Lacerta trilineata is the largest lizard in the European group of green lizards. Adults reach 40-60 cm, and the body alone measures up to 17 cm. Animals in the mountains seldom exceed 50 cm, while animals in the lowlands can reach 60 cm. Females are typically 45-50 cm and males about 55 cm. The tail makes up about two thirds of the length and can be shed when the animal is threatened.

Adults are green with many fine black spots, each covering part of a dorsal scale. The skin between the scales is usually dark. There is blue on the sides of the throat and on the flanks, more rarely on the throat itself, but never dark ultramarine. The young have more distinct markings with pale stripes and spots, often with a pale unbroken stripe down the middle of the nape, but the pattern varies greatly: from almost unmarked to spotted or longitudinally striped. Females acquire a turquoise colour on the head at about two years of age, and it is most distinct in the breeding season.

The species varies greatly in shape and colour, and several subspecies are described, among them *L. t. major* in the west, *L. t. polylepidota* on Crete and *L. t. hansschweizeri* in the Cyclades. The species name means three lines, even though the lines are not visible in many animals.

The animal is fast, shy and territorial and needs a large enclosure. It is not an animal for handling.

Distribution and habitat

Lacerta trilineata lives on the Balkan Peninsula and the islands of the Ionian and Aegean Seas: in North Macedonia, Bulgaria, Serbia, Greece (the Peloponnese, the eastern mainland east of the Pindus, Crete and many islands), Croatia, Montenegro, Bosnia and Herzegovina and Albania.

The forms in the west (west of the Pindus, Corfu and Paxos, and along the Adriatic) are assigned to *L. t. major*, the forms on Crete and Kythira to *L. t. polylepidota* and the forms on islands in the Cyclades to *L. t. hansschweizeri*. Records from Limnos are doubtful. Populations in Turkey were formerly assigned to the species but are now treated as separate species, including *Lacerta media* and *Lacerta diplochondrodes*.

> **Native range:** North Macedonia, Bulgaria, Serbia, Greece, Croatia, Montenegro, Bosnia & Herzegovina and Albania.

HABITAT

Lacerta trilineata lives in warm, dry and sunny places with dense cover: Mediterranean scrub, rocky slopes, sandy coasts, fields and grazing land, plantations and village gardens. The animals move on the ground, among stones and up into bushes and low trees.

The species occurs from the lowlands up into the mountains, but animals at altitude are smaller. In Greece the mating season stretches from April to July, and the animals become sexually mature when the body without the tail measures about 8 cm. Active animals in the wild have a body temperature of 31-32 °C. Winter is spent hidden in the ground or among stones.

Care

THE ENCLOSURE

Lacerta trilineata is a large and active lizard that needs a large enclosure. A pair or a male with two or three females needs at least 150 × 70 × 100 cm (length × width × height), and larger is always better. Height is important, because the animal climbs on branches and on the back wall. In summer the animals can with advantage be moved to an outdoor enclosure in full sun.

The substrate is washed sand in a layer of 5-15 cm. Furnish with cork bark, branches, large flat stones and stable basking spots, and plant only robust plants or use artificial ones. Make several hides at both ends. The back wall can be covered with bark. The lid must be tight and made of wire mesh.

Keep one male with one or more females. Several males can seldom be kept together, and it must always be possible to separate the animals. Animals that have grown up together tolerate each other best. Females that are about to lay eggs need a deep, slightly moist patch of sand for digging a nest.

TEMPERATURE

Lacerta trilineata loves the sun. Under the spotlight the basking spot must reach a surface temperature of 38-42 °C, measured with an infrared thermometer; with a powerful spotlight the basking spot is about 30 cm below the lamp. In the lower part of the enclosure it is about 23 °C, so the daytime temperature is 23-28 °C. The night-time temperature is not known; 15-20 °C suits a temperate climate and a cool living room. The animal needs a clear gradient from warm to cool and must be able to retreat to cool areas.

Lighting follows the season: the fluorescent tubes are on for 8-12 hours, and the spotlight is on for 3-5 hours in the middle of the day. Decreasing and increasing day length imitates the seasons.

Brumation is recommended and is a prerequisite for breeding. Only healthy, well-fed animals free of parasites are brumated; sick, thin and newly acquired animals are kept awake. Weigh the animal and have its faeces examined before the wind-down. Day length and temperature are lowered gradually, and the last meal is given at least two to three weeks before brumation. The animal rests for about two months at 5-7 °C in a box or a refrigerator without a freezer compartment, on a slightly moist,

not wet, substrate and with two independent thermometers. The box must be rodent-proof. If a cold brumation is not possible, the animal can instead rest for a few weeks in the enclosure with the lights off. After brumation the temperature is raised gradually, and the animal is given water first. See also the theme on brumation.

Read more: Heat and temperature Read more: Brumation and the seasons

HUMIDITY AND WATER

Lacerta trilineata comes from dry, sunny habitats, and the humidity is 40-60 %. Good ventilation is more important than humidity.

Provide a shallow, stable water dish and change the water daily. Mist plants and stones lightly in the morning, so that the animal can lick the droplets. The substrate must be dry with a slightly moist zone under hides and at the nesting site, where the female can lay eggs.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

Lacerta trilineata basks a lot and needs strong light and UVB. Outdoors the UVB comes from the sun. Indoors, use a T5 HO tube for Ferguson zone 3 over the basking spot, so that the UV index is 3-5 at the head, combined with a metal halide spotlight for light and heat. Use a UV meter, and replace the tubes according to the manufacturer's instructions. Glass blocks UVB, so tubes must be inside the enclosure.

Day length follows the season: about 12 hours in summer, decreasing and increasing at the transitions to and from brumation. Animals that do not get natural sunlight need UVB every day.

Read more: Lighting and UVB

FEEDING

Lacerta trilineata is primarily an insectivore, but also takes snails, small lizards and regularly fruit and flowers. The food is crickets, grasshoppers, caterpillars, moths, large cockroaches, giant mealworms and earthworms. Offer a varied diet and, ideally, a little soft, sweet fruit now and then. Frozen and thawed grasshoppers or crickets can supplement the diet, but they must be fully thawed and at room temperature, and are given with tweezers.

Crushed cuttlebone is sprinkled on the substrate, and a multivitamin supplement is given about once a week. Young can be given vitamins in the drinking water for the first few weeks. Females need extra calcium, because they lay many eggs.

Adults are offered food every other day in the active season, and young daily. Overfeeding must be avoided, and the animal is fattened up before brumation.

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

BEHAVIOUR AND HANDLING

Lacerta trilineata is shy and fast. The males defend their territory fiercely, and a subordinate animal cannot avoid a stronger male in an enclosure. It is therefore important to put together good pairs or groups, and it helps if the animals are accustomed to each other as young. Do not keep two males together. A male with three females works best and is also most favourable for breeding.

A new animal hides and is wary. Feeding with tweezers calms the animal. Avoid grabbing it, because the tail is shed under stress and only partly regrows. Do not keep the species with other species.

Breeding

SEXUAL MATURITY AND SEXING

The male is larger than the female: about 55 cm against 45-50 cm. Females acquire a turquoise head colour after the second year, most distinct in the breeding season. In young animals the sex is hard to see.

The age at sexual maturity has not been documented. The animals become sexually mature when the body without the tail measures about 8 cm. Only breed healthy, fully grown animals.

MATING

Mating follows brumation. Before mating the male puffs out air in bursts and makes himself look large with his neck and flanks. Mating takes place in spring and early summer. The male grips the female with his mouth during mating.

Keep one male with several females. If a female is wounded after mating, she is separated from the male. It must always be possible to separate the animals.

EGG-LAYING AND CLUTCHES

The female lays up to three clutches a year with 5-20 eggs per clutch, most often 8-10. Large clutches have small eggs of about 1 g, and small clutches have larger eggs of about 1.5 g. The eggs are buried in sand in a spot that is kept slightly moist, and laying usually takes place at night. Give the female at least one nesting site with deep, slightly moist sand.

INCUBATION

The eggs are carefully moved from the nest to an incubator and must not be turned. Mark the upper side with a pencil. Use medium-grade vermiculite mixed 1:1.5 by weight with water (for example 40 g of vermiculite and 60 g of water) in a plastic container with small air holes, and press small hollows into the medium for the eggs. At 27-28 °C the eggs hatch after 80-85 days. The container is weighed weekly, and water loss is replaced by dripping water onto the medium, not onto the eggs.

Read more: Incubating eggs

REARING THE YOUNG

The young are shy and are offered the smallest insects, dusted with calcium and vitamins. Vitamins can be given in the drinking water for the first few weeks. Raise the young in an enclosure of their own with sand, hides and a shallow water dish. Give them UVB every day. The young vary greatly in pattern and can be almost uniformly coloured, spotted or longitudinally striped.

Sort the young by size, so that the small ones do not fall behind in the competition for food. In the first winter only healthy, well-fed young are brumated; the others are kept awake.

Health and common mistakes

Most problems are caused by too little heat and UVB, a one-sided diet, too little space or too much competition between the animals. The typical ones are:

- Metabolic bone disease from a lack of UVB and calcium. Provide UVB, and dust the food.
- Wounds from fights and mating. Separate the animals if there are wounds.
- Loss of the tail through stress. It only partly regrows.
- Internal parasites. New animals are quarantined, and a faecal sample is taken before brumation.
- Mites and ticks, especially outdoors.
- Poor brumation in sick or thin animals. Keep them awake and fed.
- Egg-laying problems if there is no suitable nesting site.

A healthy animal has clear eyes, a plump tail and a good appetite. See a vet with reptile experience if the animal is not eating, is losing weight or is lethargic.

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.