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LACERTIDS

Eastern Green Lizard

Lacerta viridis

Lacerta viridis is a large, slender, diurnal lizard of the warm, sunny slopes and scrub of eastern and south-eastern Europe, with a green body, black spots and a tail that makes up two thirds of its length. The species grows to 25-40 cm, feeds on insects and other small animals, and needs sun, a large enclosure or an outdoor enclosure and a cold brumation.

Family: Lacertidae

KEY FACTS

THE ANIMAL

Adult size	**25-40 cm** total length incl. tail
Lifespan	**5-10 years**
Active	**By day**
Lifestyle	**Rock-dwelling and terrestrial**
Habitat	**Rocky terrain and temperate woodland and meadow**
Difficulty	**Intermediate**

CARE

Min. enclosure	**150 × 60 × 75 cm** L × W × H for 2 adults
Temperature, day	**22-30 °C**
Basking spot	**38-45 °C**
Temperature, night	**12-18 °C**
Humidity	**40-60%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 3
Winter rest	**4-6 °C** 8-12 weeks
Diet	**Insects and worms/snails**
Kept	**Singly, in pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**12-36 months**
Clutch size	**4-24 eggs**
Clutches per year	**1-2**
Incubation	**70-100 days** at 26-28 °C

PROTECTION AND PAPERWORK

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

About the species

Lacerta viridis is one of Europe's largest lizards. The body is slender, the head long, and adults are bright green. The tail makes up about two thirds of the total length and, as in other lizards, can be shed when the animal is threatened. It grows back, but with a rod of cartilage instead of new vertebrae. The body (snout to vent) typically reaches up to 13 cm. Adults are 25-40 cm long, about 35 cm in central Europe and 40 cm or more in southern Europe.

Adults are green with more or less distinct black dots and have an unspotted belly. The male has a blue throat, at least in the breeding season, and a larger head, stronger femoral pores and a broader tail base than the female. The female is often a paler green, and some have pale lines along the back. Newly hatched young are brown and almost without markings, and

they weigh about 1 g. Their throat is whitish to brown, and this is the most reliable distinguishing feature from *Lacerta bilineata*, whose young already have a green underside of the head.

The species was long treated as one species together with *Lacerta bilineata*. Adults cannot be told apart with certainty, but the species are genetically distinct, the eggs hatch later in *L. viridis*, and some of the females from crosses are sterile. Animals in the trade may therefore be misidentified: if the origin of an animal is unknown, the species name is uncertain.

The animal is fast, shy and wary, and is slow to get used to people nearby. It is an animal to watch and care for, not to handle. Adult males are strongly territorial and must not share an enclosure with another male.

Distribution and habitat

Lacerta viridis lives from Austria, the Czech Republic, Slovakia and Hungary across the whole of the Balkans to the Black Sea coasts of Romania, Moldova, south-western Ukraine and Turkey, where it follows the Black Sea coast to the east. In the south-west it reaches Slovenia, Croatia and north-eastern Italy, and in the south Albania, North Macedonia and Greece, including Samothrace and Euboea.

In Germany it lives in only two small, isolated populations: on the Danube slopes near Passau and on a former military area in Niederlausitz in Brandenburg. The species has several forms in Turkey and the Balkans, but their status as subspecies is unresolved.

> **Native range:** Germany, Austria, Czechia, Slovakia, Hungary, Italy, Slovenia, Croatia, Bosnia & Herzegovina, Serbia, Montenegro, Albania, North Macedonia, Greece, Bulgaria, Romania, Moldova, Ukraine and Turkey.

HABITAT

Lacerta viridis lives in open, warm and sunny places with cover nearby: dry-stone walls, vineyards, woodland edges with tree roots and stumps, scrub and open sandy areas. In Niederlausitz it lives in light pine woods on loose sandy ground, where the eggs develop as long as the vegetation cover stays open. At the northern limit the populations are small and isolated.

At night and in the cold part of the year the animals retreat into burrows in the ground. Adults leave their winter quarters at the end of March and the beginning of April, the males first and the females a few weeks later. Mating takes place in May, and the eggs are laid in burrows in the ground. In Brandenburg the females lay one clutch a year, further south normally two. The eggs develop slowly in the cool soil, and the young hatch from the end of August. The males seek winter quarters around the end of September, the females shortly after, and the young are active the longest so as to put on weight before winter.

Winter is cold and lasts four to six months. The animals lie completely inactive in frost-free burrows.

Care

THE ENCLOSURE

Lacerta viridis is large and active, likes to climb and uses the whole space. A pair or a male with two females needs an indoor enclosure of at least 150 × 60 × 75 cm (length × width × height), and larger is better. An enclosure of 90 × 40 × 40 cm is too small for adults.

The best solution is an outdoor enclosure in full sun of at least 2 × 1 m, facing south and with a sloping back wall, so that sun-facing slopes form. Here the animals get sunlight, a natural daily rhythm, cool nights and fresh air. Parts of the glass or the lid must be removable in summer, so that the sun reaches the animals directly. A tall, transparent wall gives shelter from the wind and extends the sun in the evening. In a temperate northern European climate the animals can stay outside from May to September. Year-round outdoor keeping requires a frost-free winter refuge deep in well-drained ground, but it is safer to bring the animals indoors for a brumation where the temperature can be controlled (see Temperature). In a northern European climate you cannot count on the eggs hatching outdoors, so they must go into an incubator.

Furnish with a mixture of dry and slightly moist substrate: sand and gravel in the dry part and a 5 cm deep soil layer in the moist part. Flat stones, root stumps, pieces of bark and branches provide basking spots and hides, and plants such as lavender, thyme and ivy give cover. The back wall can be covered with bark, so that the animals can climb. The lid must be tight and made of wire mesh, because the animals climb right up to it. Make hides at both ends.

A female that is about to lay needs a place with loose, slightly moist soil. A hollow of about 10 cm filled with peat, soil and sand and covered with a flat stone is easy to search when the eggs are to be removed. If she has no suitable place, she digs all over the enclosure and may become egg-bound.

Keep only one male in each enclosure. At most two females can live with him, and the enclosure must have many hides, so that a subordinate female can withdraw.

Read more: Incubating eggs Read more: Brumation and the seasons

TEMPERATURE

Lacerta viridis loves the sun, and active animals in the wild have a body temperature of about 34 °C. The basking spot needs a surface temperature of 38-45 °C, measured with an infrared thermometer, and the air in the rest of the enclosure is 22-30 °C by day, so that there is a clear gradient from a warm end to a cool end. Use spotlights aimed at flat stones, and guard the bulbs against contact.

At night the temperature may fall to 12-18 °C. This corresponds to natural cooling outdoors and to a cool living room. Night-time heat is not necessary.

Brumation is necessary and a prerequisite for breeding. In the wild the animals lie dormant for four to six months. In captivity light and heat are wound down over a couple of weeks from September-October. Feeding stops, but the animals are kept above 13 °C for at least two weeks after the last meal, so that the gut is empty before the temperature is lowered to 4-6 °C for 8-12 weeks. A refrigerator without a freezer compartment or a cold, frost-free cellar with two thermometers is the safest. The animals lie in a box with slightly moist, not wet, soil, sand and leaf litter, so that they can bury themselves. They must be well fattened up in late summer and autumn and be healthy and free of mites and intestinal worms (see Health). Outdoors the animals overwinter in pipes or chambers that go at least 40 cm down into well-drained ground, and in hard frost the area is covered with 20 cm of straw or leaves; in a northern European climate this solution is uncertain. Brumation is ended by raising temperature and light again. See also the theme on brumation.

Read more: Heat and temperature

HUMIDITY AND WATER

The humidity must be 40-60 %, with a slightly moister part and a dry part, so that the animals can choose for themselves. The enclosure must have good ventilation, and the substrate must not be constantly wet, as this causes skin problems and mites.

The animals drink a lot, especially after brumation and in warm periods, and after brumation they often drink for days before they start to eat. Provide a shallow water dish, and change the water every day. Now and then spray water over plants and stones, so that the animals can lick the droplets.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

Lacerta viridis is diurnal and basks for several hours every day, so it needs strong light and UVB. Outdoors the UVB comes from the sun. Indoors, use a UVB tube for Ferguson zone 3 over the basking spot, so that the animal gets a UV index of 3-5 at its back; the distance is determined with a UV meter. Glass blocks UVB, so the tube must be inside the enclosure or above mesh.

Day length follows the season: 9-12 hours with fluorescent tubes, and the heat spot is on for 5-7 hours in the middle of the day. The light must be reduced in autumn and increased in spring, otherwise the animals do not fall into step with brumation. Replace UVB tubes according to the manufacturer's instructions.

Read more: Lighting and UVB

FEEDING

Lacerta viridis feeds on beetles, grasshoppers, caterpillars, flies, moths, spiders, earthworms, woodlice, snails and other small animals, and large animals also take small lizards. Newborn mice are taken occasionally but are not necessary.

Give a varied diet: crickets, grasshoppers, mealworms, cockroaches, caterpillars, flies, earthworms and small snails, in sizes the animal can swallow whole. The feeder insects must be well gut-loaded. Dust the food with calcium and occasionally with a vitamin supplement containing D3, more often if the animals do not get UVB. Crushed cuttlebone on the substrate gives extra calcium.

Young are fed daily with small crickets and other small insects. Adults are fed every other day in the active season, as much as they eat in a few minutes. After brumation the animals eat only a little for the first few weeks. In late summer and autumn they are fed generously, so that they have reserves for the winter. Avoid obesity for the rest of the year.

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

BEHAVIOUR AND HANDLING

Lacerta viridis is fast, wary and shy. A new animal takes a long time to settle in and hides at every approach until then. Feeding with tweezers makes the animal confident. Avoid grabbing it, because the tail is shed under stress.

The males are territorial and fight fiercely, so only one male can live in an enclosure. The females can be aggressive towards each other, especially in spring and when they are carrying eggs, and a gravid female can defend the egg-laying site so fiercely that the other animals must be removed. A pair or a male with two females in a large enclosure with many hides is possible; a pair is the safest. The male follows the female closely in the breeding season and may bite her, so check the female for wounds.

The species should not share an enclosure with other species. Move the animals as little as possible, because moving stresses them and reduces the chance of breeding.

Breeding

SEXUAL MATURITY AND SEXING

The male has a larger head, stronger femoral pores and a broader tail base than the female, and in the breeding season the blue throat is visible. The female is often a paler green with pale lines. In young the sex can only be seen after a few months, and mistakes are common.

The species becomes sexually mature at 1-3 years of age; earliest in southern populations. Young kept warm through the winter instead of resting grow faster and mature earlier, but this disturbs the animals' annual rhythm and is not recommended. Use only healthy, fully grown females for breeding.

MATING

Mating follows brumation. After brumation the animals are sluggish and bask a lot; the male wakes first, the female a few weeks later. The male sheds his skin and acquires his breeding colours. Mating begins when both are active, typically about one to three weeks after the female has woken. The male approaches the female, nudges her flanks and bites onto her tail while she drags him along. He then changes his grip to the flank, and mating takes place.

Several mating periods may follow one another, often after each clutch. Watch the animals for the first few days, and separate them if the female is wounded.

EGG-LAYING AND CLUTCHES

The female lays the eggs 2-4 weeks after mating. The clutch is 4-24 eggs, most often 5-13; young females lay the fewest. In the wild the female lays 1-2 clutches a year, but in the enclosure many females lay more.

Three to five days before laying, the female digs all over the enclosure, and shortly before laying she digs purposefully in one spot. Here there must be loose, slightly moist soil. Remove the eggs as soon as they are laid, because rain can make them rot and heat can dry them out. The female may defend the egg-laying site, so take care.

INCUBATION

The eggs are placed in a moist substrate, such as vermiculite, in a closed box with a little ventilation, so that they do not lie in water. The incubation temperature is 26-28 °C, and at this temperature the eggs hatch after 70-100 days, in the wild in Brandenburg only after 81-132 days. This is longer than in *Lacerta bilineata*, from which the incubation temperature is borrowed. Healthy eggs are firm and plump, often with a pink tinge; eggs with many dents are often infertile.

REARING THE YOUNG

The young weigh about 1 g at hatching and start hunting after two to three days. Give small crickets, small mealworms, woodlice and meadow plankton, dusted with calcium.

Keep the young in a small, dry and warm enclosure with sand, flat stones, dry grass and a water dish. A 25 W spotlight keeps it warm, and day length is 12 hours. A dry enclosure reduces problems with mites and ticks. The young may bite each other's tails, so many hides and, ideally, tufts of grass help. The sex can usually be seen after a few months.

When the young are half grown, they can be moved to a larger enclosure or outdoors. Small or weak young should not be brumated in their first year, but kept awake and fed.

Health and common mistakes

Most problems are caused by too little heat, too little UVB, a one-sided diet or too little space. The typical ones are:

- Metabolic bone disease from too little UVB and calcium. Provide UVB or sunlight, and dust the food.
- Mites and ticks, especially with a damp substrate and outdoors. Keep the substrate dry, and check the animals at every feeding.
- Intestinal worms and other parasites. New animals must be quarantined, and a faecal sample at the vet before brumation is a good idea.
- Wounds from fights or mating. Separate the animals if there are wounds.
- Lost tail. It grows back, but with a rod of cartilage instead of vertebrae.
- Poor brumation: thin, sick animals or animals overwintered too warm may die. If the animal is sick or underweight, it must not be brumated.
- Difficulty laying eggs, if there is no suitable place. The female is restless and digs; see a vet if she becomes weak.

Lacerta viridis lives up to about 10 years in captivity.

A healthy animal has clear eyes, a plump tail base, smooth skin and a good appetite. See a vet with reptile experience if the animal is not eating, is losing weight, is breathing with its mouth open 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.