herpy

GECKOS

Turquoise dwarf gecko

Lygodactylus williamsi

A small, diurnal dwarf gecko in luminous turquoise blue, found only in a couple of forest reserves in Tanzania, where it lives on screw pines. Its beauty made it a sought-after terrarium gecko, and it is precisely the trade that has brought it to the brink of extinction. Today it is critically endangered and strictly protected.

Family: Gekkonidae Former name: *Lygodactylus picturatus williamsi*

KEY FACTS

THE ANIMAL

Adult size	**7-10 cm** total length incl. tail
Lifespan	**5-10 years**
Active	**By day**
Lifestyle	**Arboreal**
Habitat	**Rainforest**
Difficulty	**Experienced**

CARE

Min. enclosure	**30 × 30 × 45 cm** L × W × H for 2 adults
Temperature, day	**24-27 °C**
Basking spot	**32-35 °C**
Temperature, night	**20-24 °C**
Humidity	**60-80%**
UVB	**Recommended** Ferguson zone 2
Diet	**Insects, fruit, nectar and complete diet**
Kept	**In pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**6-12 months**
Clutch size	**1-2 eggs**
Incubation	**60-120 days** at 22-27 °C

PROTECTION AND PAPERWORK

CITES	**Appendix I**
EU annex	**Annex A**
IUCN	**Critically Endangered (CR)**

About the species

Lygodactylus williamsi is one of the most colourful geckos there is. The dominant male is bright turquoise blue with a black throat and orange belly and has black stripes across the head. Females are green, olive or copper-coloured with a paler belly, and subordinate males may keep a more subdued colour. Juveniles look like small females, and the males only turn blue when they are sexually mature.

The species was described in 1952 by the British zoologist Arthur Loveridge as a subspecies of *Lygodactylus picturatus*, but is today regarded as a separate species. The genus *Lygodactylus* contains many small, diurnal dwarf geckos in Africa, Madagascar and South America, and they all share fine adhesive lamellae under the toes, which make them skilled climbers.

An adult is only 7-10 cm including the tail, and males are slightly larger than females. The gecko is quick and curious. The male shows off by puffing up the black throat, bobbing the head and waving the tail.

The popularity has come at a high price. From 2004 to 2009 an estimated 40,000 animals were collected and exported from Tanzania, corresponding to about 15 % of the entire population. The species was assessed as Critically Endangered in 2012 and was placed in CITES Appendix I in 2017. Wild-caught animals are still sold illegally, often as captive-bred, and that is an important reason why you should only buy from a breeder you can trust.

The species is not an animal for handling. It is small, fast and delicate and requires a keeper who has a firm grasp of temperature, humidity and calcium.

Read more: Humidity, misting and ventilation Read more: Calcium, vitamins and supplements Read more: Buying animals: captive-bred, wild-caught and transport

Distribution and habitat

The species is found only in eastern Tanzania. It is known from Kimboza Forest Reserve, which is also the type locality, and from the nearby Ruvu Forest Reserve at the foot of the Uluguru Mountains. Both lie in the lowlands, at about 170-480 m above sea level.

The range is extremely small. The entire area where the species has been found is estimated at about 20 km², and it lives on only about 8 km² of that. Records outside Tanzania on the map come from captive animals.

> **Native range:** Tanzania.

HABITAT

The gecko lives almost exclusively on screw pines (*Pandanus*), typically on the large, stiff leaves, where the leaf axils provide cover. It is therefore entirely dependent on the forest's screw pines and loses its habitat if they disappear. The forest is tropical lowland forest at the foot of the Uluguru Mountains.

The climate is warm and humid with a rainy season and a dry season. The gecko warms itself in the morning sun and retreats into the leaves when it gets hot in the middle of the day. It hunts small insects and licks nectar, fruit juice and water droplets from the leaves. The terrarium values are based on experience in captivity.

Care

THE ENCLOSURE

A pair needs a tall enclosure of at least 30 × 30 × 45 cm (length × width × height), and a male with two females at least 40 × 40 × 60 cm. Larger is better, because there is then room for a clearer difference between warm and cool zones and for more planting. Not all females tolerate each other. Never keep more than one male in each enclosure.

Furnish tall and vertical with bamboo tubes, cork bark and branches of different thickness. Stiff plants such as bromeliads, sansevieria and small screw pines provide cover and resemble the habitat. A bioactive substrate with soil, coconut fibre and springtails retains moisture and breaks down waste. The enclosure must have ventilation at the top and be completely escape-proof, because the juveniles are so small that they escape through even narrow gaps.

New animals should be quarantined for two months, preferably with a vet who knows reptiles.

Read more: Terrarium construction and bioactive substrate Read more: Feeder animals: keeping and breeding

TEMPERATURE

By day the enclosure needs 24-27 °C and a basking spot of 32-35 °C under a halogen spot, so that the gecko can warm up and move away again. At night the temperature must fall moderately to 20-24 °C.

Control the halogen spot with a dimmer or thermostat so that it does not heat the whole enclosure, and measure with digital thermometers both at the basking spot and at the bottom. A small animal in a small enclosure overheats quickly. If the gecko hides all day or lies limp and motionless, check the temperature.

Read more: Heat and temperature

HUMIDITY AND WATER

Humidity should be 60-80 % by day and may reach almost 100 % right after the evening misting. Mist with a fine spray two or three times a day, and let the droplets evaporate and the surfaces dry a little before you mist again. The gecko drinks droplets from leaves, and that is its most important water source. Air that is too dry quickly dehydrates so small an animal.

Just as harmful is an enclosure that never dries out, because it causes mould and skin problems. Ensure good ventilation. A water bowl is not necessary, and a deep bowl can drown small animals. Instead use a flat lid with a few pebbles in it, and let the bromeliads' leaf axils hold the water.

LIGHTING AND UVB

The species is diurnal and needs UVB. Use a T5 tube of 5-6 % (Ferguson zone 2) together with an ordinary daylight tube or an LED lamp of about 6500 K. The light must be mounted over mesh, not over glass or plastic, which blocks the UV radiation. Be careful with powerful compact UVB lamps in small enclosures, because they give off a lot of heat and can cause eye damage if the animal gets too close.

Keep the light on 12-14 hours a day in the season from March to November and about 10 hours in winter, ideally on a timer. At night it must be dark. There must be shade and hides, so that the animals can choose for themselves how much light they get.

Read more: Lighting and UVB

FEEDING

The gecko is a small hunter that also loves nectar. Give very small insects such as fruit flies, mealworm beetles, springtails, newly hatched crickets and small cockroaches. The prey must be no more than about 6 mm long. Dust the insects with calcium, and be sparing with D3 when the animals also get UVB.

Supplement with prepared diet for fruit-eating geckos, for example Pangea or Repashy, mixed to a thick paste and served in a small lid high up. Adults get prepared diet every second to third day and insects as a supplement; this reduces the risk of obesity. Follow the animal's body shape. Honey and home-made nectar mixes should only be an occasional treat.

Breeding females have a large calcium requirement. Put a small dish of pure calcium without D3 or crushed cuttlebone in the enclosure, keep it dry, and change it every second week. Juveniles need food every day.

BEHAVIOUR AND HANDLING

Williams' dwarf gecko is lively and curious, but it is not an animal for handling. It is fast, and being grabbed stresses it. Enjoy its behaviour through the glass instead, for example when the male puffs up his throat and bobs to the female.

The males are territorial and fight, so there must be only one male in each enclosure. A pair can usually live together well. A male with two females can work if there is enough space and cover, but some females do not tolerate each other and must be separated. Watch for bites and for animals that are kept away from the food. New animals must be allowed to settle in peace.

Breeding

SEXUAL MATURITY AND SEXING

The juveniles all look like small females, so the sex can only be determined reliably when they are older. Sexually mature males are blue with a black throat, and they have distinct pores in front of the vent in a V pattern, while the females' pores are indistinct. The animals grow quickly and can be fully grown after 4-5 months and sexually mature after 6-8 months. Wait with breeding all the same until they are about a year old and have reached full size of 7-8 cm, because egg-laying demands a lot of calcium from a small female.

MATING

In the terrarium the breeding season follows the light and typically lasts from March to November. The male courts by bobbing, puffing up his throat and waving his tail. The female lays her first eggs a few weeks after mating. Give her a winter pause of three to five months with under 10 hours of light and preferably without the male, so that she can rebuild her calcium reserves.

Think carefully before you breed. The species is critically endangered. Keep careful records of matings, eggs and hatchings.

EGG-LAYING AND CLUTCHES

The female lays 1-2 small, hard-shelled eggs at a time, typically every third to fourth week in the season. The number of clutches a year varies greatly.

The species glues the eggs to the surface, for example inside bamboo tubes, on plants or on the glass, and once the shell has hardened they cannot be moved without breaking. Therefore give the female several egg-laying sites that can be taken out of the enclosure, for example short bamboo tubes, cork tubes or small tubes of opaque plastic. The female must have plenty of calcium and food, otherwise she quickly becomes depleted. If she loses weight, put breeding on hold.

INCUBATION

Eggs in a removable tube are moved with the tube to a small, ventilated box with damp vermiculite or an artificial substrate on the bottom, without turning the tube. If the eggs are stuck in the enclosure, they are incubated in place under a small, ventilated cup, so the juveniles do not disappear or get eaten. Humidity must be about 60 %, and the air holes must be small enough that the juveniles cannot escape.

At 22-27 °C the eggs hatch after 60-120 days, fastest at the high end. The species has temperature-dependent sex determination. At an average of 21-24 °C mostly females result, at 26-27 °C both sexes, and at 28 °C and above mostly males. This explains why there are so many males in the trade.

Read more: Incubating eggs

REARING THE YOUNG

The juveniles are tiny when they hatch. Move them away from the adults immediately, as the adults may eat them. Use a small, secure plastic box or a small enclosure where all gaps are closed, and furnish with thin branches, hides and plants. Mist daily, and provide the same temperature and UVB as for the adults.

The first food is fruit flies, springtails and newly hatched crickets, and there must be food every day. Also give a little prepared diet. In the first weeks mortality is high, especially if the female has lacked calcium. Keep the juveniles singly or in small groups of the same size until the sex can be seen, and separate the males when they turn blue.

Health and common mistakes

Williams' dwarf gecko is small and delicate, and it is most often calcium, humidity and heat that go wrong. The typical problems are:

- Calcium deficiency (metabolic bone disease), especially in females that lay many eggs. It shows as soft jaws, bent limbs and tremors. Give plenty of calcium and UVB.
- Dehydration if the air is too dry, or fungus and skin problems if the enclosure never dries out.
- Overheating in a small enclosure with too powerful a lamp.
- Fights between males or bites between females. Separate the animals immediately if there are injuries.
- Eye damage from powerful UVB lamps mounted too close to the animal.
- Weak, hungry juveniles. Feed them daily with very small prey.

The gecko is so small that illness quickly becomes serious. See a vet experienced with reptiles if it loses weight, lies limp or will not eat. In captivity the species lives on average about 5 years and up to 10 years.

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.