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GECKOS

Eastern spiny-tailed gecko

Strophurus williamsi

Strophurus williamsi is a small tree-dweller from the dry interior of eastern Australia. The back and tail are covered in yellow-orange spines, and when threatened it squirts a sticky, foul-smelling fluid from the tail. It likes to bask by day, but hunts mostly at dusk and at night. Only a few reliable husbandry records exist for this particular species, so it is best suited to experienced keepers.

Family: Diplodactylidae Former name: *Diplodactylus williamsi*

KEY FACTS

THE ANIMAL

Adult size	**10-13 cm** total length incl. tail
Lifespan	**4-10 years**
Active	**By day, at dusk and at night**
Lifestyle	**Arboreal**
Habitat	**Semi-desert and savanna**
Difficulty	**Experienced**

CARE

Min. enclosure	**45 × 45 × 60 cm** L × W × H for 1 adult
Temperature, day	**25-30 °C**
Basking spot	**30-32 °C**
Temperature, night	**18-25 °C**
Humidity	**40-60%**
UVB	**Recommended** Ferguson zone 2
Diet	**Insects**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**1-2 eggs**
Clutches per year	**2-5**
Incubation	**43-80 days** at 27-30 °C

PROTECTION AND PAPERWORK

CITES	**Appendix III**
EU annex	**Annex C**
IUCN	**Least Concern (LC)**

About the species

Strophurus williamsi is a slender, small gecko with a grey to grey-brown ground colour, darker spots and often a net-like or checkered pattern on the back. The underside is pale with small brown or black dots, and the eyes have an orange to red ring around the iris. The most striking feature is the pointed, yellow-orange tubercles: two almost parallel rows along the back and four rows of spines along the tail. The toes are short, flat and broad with large adhesive lamellae, so it climbs easily on both bark and smooth surfaces.

The species was described in 1963 by the American herpetologist Arnold Kluge under the name *Diplodactylus williamsi* and has since been moved to the genus *Strophurus*. The name honours the herpetologist Ernest Williams. The genus is known for its defence: the tail has glands that can squirt a tough, sticky and strongly smelling fluid at an attacker, and the gecko aims by curving the tail. It can also rise high with an arched back and slowly wave the tail while opening its mouth wide to show a strongly blue or yellow mouth lining. Because the defence works, it loses its tail less often than many other geckos.

It is 10-13 cm long including the tail. From snout to vent it measures 4-7 cm, and the tail is about 5 cm. The males have preanal pores, which the females lack. The weight is not documented. Life expectancy is not documented for the species either; spiny-tailed geckos typically live 4-10 years, a few longer. Like its close relatives *Strophurus ciliaris* and *Strophurus taenicauda*, it lives in trees and bushes and is often seen basking on thin branches by day.

Distribution and habitat

Strophurus williamsi is endemic to eastern Australia. It occurs in north-eastern New South Wales, in Queensland, in the south-eastern part of South Australia and in north-western Victoria. The type locality is the Warrumbungle Range in New South Wales.

The distribution is patchy and stretches from the area around Cairns in the north to Adelaide in the south and west to around Bourke. Most of the population is found in the semi-arid zone of central New South Wales and south-western Queensland, and in Victoria it lives in mallee scrub and in the Murray-Darling forests.

> **Native range:** Australia.

HABITAT

Strophurus williamsi lives in open woodland and scrub in the semi-arid interior of eastern Australia: sclerophyll forest, eucalypt woodland, savanna and mallee. It is associated with *Callitris*, ironbark eucalypts, *Casuarina*, spinifex and *Leptospermum*. By day it sits on thin branches, where its colours camouflage it, or hides under loose bark and in hollows in the trunks. At night it also forages on the ground around grass tufts.

The climate is hot and dry with large swings between day and night and between summer and winter. The species prefers 25-30 °C. There are no measurements of humidity or winter cold from the species' habitats.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

Little is known about the care of *Strophurus williamsi*, so the figures in the care sections are based on the genus, especially the close relatives *Strophurus ciliaris* and *Strophurus taenicauda*. An adult needs an enclosure of at least 45 × 45 × 60 cm (length × width × height), so there is room for a temperature gradient. Height matters more than floor area, because the gecko is a climber.

Furnish with many thin branches at different angles, bark and cork for cover and solid planting, preferably with artificial or hardy plants. The gecko likes to sit high and bask, so provide a branch close to the heat source. A dry to slightly damp mix of soil and sand with a layer of leaves suits as substrate, and a damp hide at one end makes shedding easier. The enclosure must be well ventilated, because the species comes from a dry climate.

Read more: Heat and temperature

TEMPERATURE

Strophurus williamsi needs warmth and lives in a climate with large daily variation. Use a daytime temperature of 25-30 °C in the enclosure and a basking spot of about 30-32 °C, which the gecko can approach and leave again. At night the heat is switched off, and the temperature may fall to room temperature, about 22-25 °C in summer and down to 18 °C during the winter rest.

Use a spot lamp with a thermostat over a branch, and measure with a digital thermometer at the top and at the bottom. If it is constantly above 35 °C, the gecko quickly dries out and becomes stressed.

HUMIDITY AND WATER

For *Strophurus williamsi* the humidity should be moderate, about 40-60%, and the enclosure should dry out completely during the day. Mist lightly every second or third evening, so the gecko can drink droplets from leaves and branches, and let the substrate dry out in between. Never leave the enclosure wet all the time, because that causes mould and skin problems in a species from a dry climate.

Keep a shallow dish of fresh water in the enclosure and change it regularly. A hygrometer shows whether the values hold.

LIGHTING AND UVB

Strophurus williamsi basks in the wild, so it benefits from UVB. Use a T5 HO tube with 6 % or 10 % UVB, mounted above the mesh lid, so that the UV index on the uppermost branches is around 1-3, corresponding to Ferguson zone 2, with shade at the other end of the enclosure. The Ferguson zone has not been established for the species, so the figure is an estimate based on its diurnal lifestyle.

Keep the light on for about 12-14 hours in summer and fewer hours during winter dormancy, controlled by a timer. The night should be dark.

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

FEEDING

In the wild *Strophurus williamsi* lives on arthropods, especially crickets, grasshoppers, moths, spiders and termites. In captivity, give a varied mixture of small feeder insects such as crickets, small roaches and small grasshoppers. The insects should be no longer than the distance between the gecko's eyes.

Feed young animals every day or every other day and adults two to three times a week. Dust the insects with calcium, and regularly give calcium with vitamin D3 and a multivitamin. Fruit is not documented as part of the diet, so stick to insects.

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

BEHAVIOUR AND HANDLING

Strophurus williamsi is mostly an animal to look at. It is quick and nervous and should be handled no more than strictly necessary. It can squirt its sticky, foul-smelling fluid, and it can lose its tail, although this happens less often than in many other geckos. Never grab the tail.

By day it often sits in plain view basking, and at dusk it becomes properly active. Keep a single animal or a pair that have got used to each other, and never put two males together, as they will probably fight. There is little documented experience of keeping the species in groups, so choose the most cautious way of keeping them.

Breeding

SEXUAL MATURITY AND SEXING

In *Strophurus williamsi* both sexes have a short, slanting row of enlarged, fleshy scales at the vent, but only the males have preanal pores, and in young males the hemipenial bulges behind the vent become visible at 6-12 months of age. Age and weight at sexual maturity are not documented for the species. Spiny-tailed geckos normally become sexually mature at 12-18 months, a few not until 24 months. As a rule of thumb, the female should be fully grown and in good condition before she is put in breeding.

MATING

In the wild *Strophurus williamsi* breeds from September to February, that is, the Australian spring and summer. The female can mate again as soon as an hour after laying eggs. There is no reliable information on winter dormancy in captivity for this particular species, but *Strophurus ciliaris* and *Strophurus taenicauda* are kept cooler and with shorter days for 8-10 weeks in winter, with the sexes separated meanwhile. Put the male in with the female in her enclosure, and separate them if she is harassed.

EGG-LAYING AND CLUTCHES

The female of *Strophurus williamsi* lays 1-2 eggs at a time and on average about five clutches a year. 24-42 days pass between clutches, and the laying season runs from September to January. In the wild the eggs are laid at the base of trees, under stones or in abandoned burrows. Put a laying box with 5 cm of slightly damp sand or a mix of sand and peat on the bottom of the enclosure. Give her plenty of calcium and insects throughout the season.

INCUBATION

Carefully move the eggs of *Strophurus williamsi* to an incubation box with slightly damp vermiculite or perlite without turning them. At 27-30 °C and a humidity of 70-80% the eggs hatch after 43-80 days. At hatching the young measure about 3 cm from snout to vent and 5 cm in total. Whether temperature affects the sex of the young has not been investigated for the species, so stay in the middle of the range until you have your own experience.

Read more: Incubating eggs

REARING THE YOUNG

The young of *Strophurus williamsi* begin to eat three to five days after hatching. Keep each youngster on its own or in small groups of equal size in a small, well-ventilated box with branches, a humid hide and a warm basking spot. Give the very smallest insects, for example newly hatched crickets and large fruit flies (*Drosophila hydei*), dusted with calcium, and feed daily. Growth rates are not documented for the species, so weigh the young regularly and note how they develop. Separate them immediately if a youngster is harassed by the others.

Health and common mistakes

No veterinary information is available specifically on *Strophurus williamsi*, so the list is based on general knowledge of geckos from dry areas:

- Excessive heat over a longer period, resulting in dehydration and loss of appetite. Make sure the gecko can retreat from the basking spot to cooler zones.
- Calcium and D3 deficiency, especially in young animals and breeding females. It causes soft jaws, bent limbs and tremors. Use calcium and UVB.
- Shedding problems if the air is too dry. Provide a humid hide, and loosen remnants of skin on the toes and tail tip with lukewarm water.
- Injuries from incorrect handling or stress, including loss of the tail.
- Mould and skin problems if the enclosure is kept permanently damp.

See a vet experienced with reptiles if the gecko loses weight, does not eat for several weeks or looks limp and 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.