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GECKOS

Helmeted gecko

Diplodactylus galeatus

Diplodactylus galeatus is a small, reddish-brown desert gecko from the mountains of central Australia with a pale, boldly marked helmet on the head and a short, thick tail. It is nocturnal, lives on insects and can be kept in a small, dry enclosure, but it is very rare outside Australia.

Family: Diplodactylidae

KEY FACTS

THE ANIMAL

Adult size	**7-9 cm** total length incl. tail
Lifespan	**5-8 years**
Active	**At night**
Lifestyle	**Rock-dwelling and terrestrial**
Habitat	**Desert and rocky terrain**
Difficulty	**Intermediate**

CARE

Min. enclosure	**40 × 25 × 25 cm** L × W × H for 2 adults
Temperature, day	**24-27 °C**
Basking spot	**29-31 °C**
Temperature, night	**18-22 °C**
Humidity	**30-50%**
UVB	**Optional**
Diet	**Insects**
Kept	**Singly, in pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**1-2 eggs**
Clutches per year	**3-4**
Incubation	**46-60 days** at 27-30 °C

PROTECTION AND PAPERWORK

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

About the species

Diplodactylus galeatus is easy to recognise by the markings on the head. The crown is pale yellowish-brown and bounded at the back by a rounded, dark line that resembles the rim of a helmet, and this is what the species name *galeatus*, 'helmeted' in Latin, refers to. The body is pinkish to dark red with three to eight pale yellowish-brown spots, each with a dark edge, and the belly is uniformly white. The tail is short and thick and has transverse rings of slightly enlarged scales.

The species was described by the American herpetologist Arnold Kluge in 1963 from animals from the Stuart Range in South Australia. In 2024 a genetic study showed that what was previously called *Diplodactylus galeatus* is in reality a complex of three species, which are difficult to tell apart by appearance. Older information on distribution and care may therefore cover several species. The map is based on registered records, and not all identifications have been updated after the split.

The animal is small. The body grows to 56 mm from snout to vent, and the tail is 44-60 % as long as the body, so the total length is around 7-9 cm. Weight is not documented for the species, but most species in the genus weigh only 3-5 g. Under the toes there are expanded lamellae, which give a good grip on rock.

Very little has been written about its temperament, because it is nocturnal and stays hidden by day. The animals of the genus are small and fragile and are better suited to being watched than handled.

Distribution and habitat

Diplodactylus galeatus occurs only in Australia, in mountain areas in the southern Northern Territory and northern South Australia. The type locality is the Stuart Range in South Australia. Registered records lie between about 23 and 31 degrees south on both sides of the border between the two states, including in the area around the MacDonnell Ranges.

The delimitation is uncertain, because the species was split into a complex of three species in 2024. There are a few registered records from Western Australia and New South Wales, but they probably belong to close relatives or are misidentifications. The map is therefore delimited by the records in the Northern Territory and South Australia.

> **Native range:** Australia.

HABITAT

Diplodactylus galeatus lives in dry, mountainous country in inland Australia and keeps especially to dry quartz outcrops. The geckos of the genus *Diplodactylus* hide by day from the intense heat under stones, in crevices and in holes in the ground and begin hunting only when it becomes cool at night. This is probably how this species lives as well, but there are almost no studies of its life in the wild.

The climate is a desert climate with very hot summers, cool winter nights and so little rain that the species only rarely encounters humid air. The genus breeds from September to February, that is, the Australian spring and summer. There are no measurements of temperature and humidity from the species' own habitats.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

The care of *Diplodactylus galeatus* has not been described in detail, so the recommendations here are based on the genus *Diplodactylus*. A pair needs a glass terrarium of at least 40 × 25 × 25 cm (length × width × height), and a group or a breeding pair with several females needs more space. Two males must never be kept together.

The setup can be simple, because the gecko lives on the ground. About 3 cm of play sand is used as substrate. The sand must not be too fine. Place hides at both ends of the terrarium, for example an upturned plastic box with an entrance cut in the side or flat pieces of cork and stone, so that the animal can sleep undisturbed and regulate its temperature without becoming stressed. Clean the substrate often.

The lid must fit tightly, because the geckos are small and good at finding gaps, but ventilation must be good, because the species comes from dry regions.

TEMPERATURE

For *Diplodactylus galeatus* the heat must lie at one end, so that the animal can choose. The warm end should hold about 29-31 °C and the cool end about 24 °C. Do not heat the whole terrarium.

Heat from below is best, for example a heat mat or heat tape under one end, controlled by a thermostat. At night the temperature must fall to 18-22 °C, which corresponds to the cool desert nights. Measure with digital thermometers at both ends.

Before breeding, the animals are given a cool period of four to eight weeks at about 16-18 °C without food, after which they are slowly warmed up again.

Read more: Heat and temperature

HUMIDITY AND WATER

Diplodactylus galeatus comes from dry regions, and the genus prefers a dry environment without much humidity. Humidity should be 30-50 %. Mist lightly with lukewarm water at the cool end two to three times a week, including in the hide, so that the animal has a damp spot for shedding.

The geckos prefer to drink droplets from the walls and hides rather than from a bowl, but a small, shallow bowl of fresh water does no harm. It must not stand by the heat source, where it makes the air humid. Juveniles dry out quickly and must be misted every day, but only enough that there are droplets to drink, not so much that the air becomes humid.

LIGHTING AND UVB

Diplodactylus galeatus is nocturnal, and like the rest of the genus it does not need UVB. Give 10-12 hours of light a day, ideally controlled by a timer, and keep it dark at night. The light can be an ordinary LED or a fluorescent tube. A weak UVB light is optional and not documented for this particular species. If you choose it, provide plenty of shade, because the animal hides by day. Do not use heat lamps, which dry the enclosure out too much, and do not place the enclosure in direct sun.

Read more: Lighting and UVB

FEEDING

Diplodactylus galeatus lives on small insects. Crickets make a good staple, but other small insects such as smaller grasshoppers, small dubia roaches and now and then waxworms can also be used. The insects should be no more than two-thirds as large as the animal's head. Give about five crickets every other day, and prefer many small meals to a few large ones.

Feed the insects well before they go into the enclosure, for example with a ready-made insect feed or baby cereal and greens, and dust them with calcium at every second meal. Also dust with a vitamin supplement about once a week. Remove insects that are not eaten after a couple of hours, so that they do not stress the animal. It is not documented what the species eats in the wild. A few other species in the genus live almost exclusively on termites, but this is not known for this species.

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

BEHAVIOUR AND HANDLING

Diplodactylus galeatus is quiet and somewhat shy. By day it sleeps in its hide and becomes active when the light goes off. The genus is fairly active in the evening, when the animals patrol around the enclosure. Handling is unnecessary and should be rare and brief. The animal is best experienced by watching it in the evening. Never grab the tail, because it can be dropped, and it makes up about a third of the animal's weight.

The genus can be kept singly or in groups, but two males must never be together, because they fight. A breeding pair or one male with two females is the usual way of keeping them for breeding. Watch for bites and animals that withdraw, and divide them if there is unrest.

Breeding

SEXUAL MATURITY AND SEXING

Males of *Diplodactylus galeatus* are recognised by a distinct bulge under the tail base and by small spurs above the bulge: a group of two to six scales that are at least twice as large as the scales around them. Females may also have a slight bulge, but it is smooth and without a depression. Females in the genus can become sexually mature at around one year of age, but wait until they have reached full adult weight and size, because young females more easily suffer calcium deficiency and difficulty laying. There are no figures for this particular species.

MATING

In the wild the genus breeds in the Australian spring and summer, from September to February. With artificial seasons the animals can be made to breed at any time of year. For breeding *Diplodactylus galeatus* you can follow the method used for the genus: the animals are cooled for four to eight weeks at about 16-18 °C without food and then slowly warmed up, and mating usually begins shortly afterwards.

The usual breeding group is one male and two females. When the season is over, males and females are separated so that the females can rest.

EGG-LAYING AND CLUTCHES

One to two months after mating, the female of *Diplodactylus galeatus* is visibly plumper and ready to lay eggs. A clutch is typically two eggs, and in this species they are about 2 cm long and 1 cm wide. Most females in the genus lay several clutches in a season, and experienced breeding females often produce three to four clutches a year. In *D. galeatus* there can be as little as 18-21 days between clutches, and the laying season lasts from September to March.

Place a laying box with moist vermiculite in the terrarium, for example a plastic box with a small hole in the lid, placed in the front corner of the terrarium. Give the female extra calcium and insects during the season, and stop breeding if she loses weight.

INCUBATION

Lift the eggs of *Diplodactylus galeatus* carefully and place them in a box with a tight-fitting lid and moist vermiculite. Each egg is placed in a small depression in the surface. The eggs are incubated at 27-30 °C and hatch after 46-60 days. The box is opened twice a week to change the air, and condensation on the lid is wiped off.

It has not been investigated whether the sex depends on temperature, or whether the eggs tolerate lower temperatures, so use a stable incubator and stay within 27-30 °C.

Read more: Incubating eggs

REARING THE YOUNG

The young of *Diplodactylus galeatus* are about a quarter the size of the adults when they hatch and quickly become active. Move them straight away to a small box about the size of a shoebox with sand and two hides, and keep them separately, so that they get peace. They dry out quickly, so mist them once a day, so that there are water droplets on the walls without the air becoming humid.

Once the youngster has shed for the first time, which normally happens within a week, it can be given very small crickets. Dust them with calcium and vitamins as for the adults. It can probably be difficult to get the young to eat.

Health and common mistakes

No particular illnesses have been described in *Diplodactylus galeatus*, but the usual risks with small desert geckos apply:

- Dehydration, especially in newly hatched young. They must be misted every day, so that they can drink droplets.
- Too little calcium and vitamin D3, especially in breeding females. It causes soft bones and laying problems. Dust the insects regularly, and do not breed young females.
- Fine sand that is inhaled or swallowed. Use coarse play sand, and clean the substrate often.
- Too much moisture throughout the enclosure, which causes skin problems. Keep the enclosure dry, and ensure good ventilation.
- Stress from handling or fighting between males, which can make the animal drop its tail. It grows back, but it is a heavy burden.

A healthy animal is active in the evening and has a plump tail. See a vet experienced with reptiles if the gecko loses weight, does not eat or seems limp. Few vets have experience with such small animals.

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.