herpy

GECKOS

Forest gecko

Mokopirirakau granulatus

Mokopirirakau granulatus is a forest-dwelling gecko from New Zealand that gives birth to live young and, unlike most geckos, readily basks during the day. It is rare in enclosures outside New Zealand and needs a cool, tall, densely planted enclosure.

Family: Diplodactylidae Former name: *Naultinus granulatus; Hoplodactylus granulatus; Dactylocnemis granulatus*

KEY FACTS

THE ANIMAL

Adult size	**15-20 cm** total length incl. tail
Lifespan	**20-40 years**
Active	**By day and at night**
Lifestyle	**Arboreal**
Habitat	**Temperate woodland and meadow**
Difficulty	**Intermediate**

CARE

Min. enclosure	**50 × 50 × 100 cm** L × W × H for 3 adults
Temperature, day	**18-24 °C**
Basking spot	**25-28 °C**
Temperature, night	**10-15 °C**
Humidity	**50-80%**
UVB	**Recommended** Ferguson zone 2
Diet	**Insects, fruit and nectar**
Kept	**Singly, in pairs or one male with several females**

BREEDING

Reproduction	**Live-bearing**
Sexually mature	**18-24 months**
Litter size	**1-2 young**
Clutches per year	**1**
Gestation	**180-330 days**

PROTECTION AND PAPERWORK

CITES	**Appendix III**
EU annex	**Annex C**
IUCN	**Vulnerable (VU)**

About the species

Mokopirirakau granulatus is a slender, tree-dwelling gecko with a brown-grey back and light, W-shaped markings that resemble bark. In southern populations, especially in the mountains of the South Island's west coast, the markings are often orange or dull red. The animal can quickly change shade according to light, temperature and substrate. The underside is grey, the mouth lining yellow or orange, and the soles of the feet yellow. In lowland animals the tail is a strong prehensile tail, used as an extra limb in the branches.

The snout-vent length is normally 7-9 cm and at most just under 10 cm. The tail is longer than the body, so the animal reaches about 15-20 cm in total, and it weighs up to 16 g. The species was described in 1845 by John Edward Gray as *Naultinus granulatus* and has since been placed in *Hoplodactylus*, before it became the type species of the genus *Mokopirirakau* in 2011. The genus name comes from the Maori moko pirirākau, meaning a lizard that clings to trees, and the species name *granulatus* alludes to the small, granular scales. Like all New Zealand geckos, it gives birth to live young.

When threatened, the animal opens its mouth wide and emits a loud, shrill sound. The species is long-lived: in captivity it often lives beyond 25 years, and a few animals have passed 40 years.

Distribution and habitat

Mokopirirakau granulatus is found only in New Zealand. On the North Island it lives from a little south of the Bay of Islands down to Taranaki and the Bay of Plenty. On the South Island it is found in Marlborough, Nelson and Tasman and down the west coast to the Ōkārito Lagoon. It also lives on Great Barrier Island, Little Barrier Island, Waiheke Island and Motutaiko as well as on several islands in the Marlborough Sounds. It is absent from the far north of the North Island and from parts of the centre and south of the South Island.

The populations are fragmented and declining, and the species is classified as "At Risk - Declining" in New Zealand's threat assessment. Cleared habitat and introduced predators such as rats, mice, cats and mustelids are the biggest threats. The rare, grey-marked population at Nelson Lakes, which was long regarded as a separate species, belongs to *M. granulatus* according to DNA analyses from 2021.

> **Native range:** New Zealand.

HABITAT

Mokopirirakau granulatus lives in forest and scrub from the coast up to the treeline, in swamps and, rarely, in rock crevices above the treeline up to about 1,500 m. Lowland animals sit mostly on tree trunks and stout branches, in the north also on the slender branches of mānuka and kānuka, while the mountain populations live almost only on the ground.

The species is first and foremost nocturnal, but readily basks by day, often comes right out into the sun and also hunts insects during the daytime. It eats flying insects such as moths, flies and beetles, small spiders and, at times, nectar, small berries and honeydew from scale insects. The climate is temperate and humid with mild summers, cool nights and cool winters, and in the mountains the temperature in winter falls to near freezing. The species is adapted to cool conditions and tolerates heat poorly.

Care

THE ENCLOSURE

Mokopirirakau granulatus is regularly kept and bred in New Zealand and is not difficult to care for, but there are no documented figures for temperature and humidity in captivity. They are therefore based on the climate of the range. *Dactylocnemis pacificus* and *Woodworthia maculata* live in the same regions and have similar requirements.

One male and two females need at least 50 × 50 × 100 cm (length × width × height). The species lives in the trees, so height matters more than floor area. Furnish with live plants, trunks, branches and a layer of leaf litter on the bottom. Good hides are hollow bamboo or plastic tubes hung horizontally near the top and lying on the bottom, Spanish moss (never as the only hide) and stacks of sheets or boards with narrow gaps that a gecko can just squeeze between. Ventilation must be plentiful, so the air does not stand still.

Place the hides close to the basking spots, so the animal can bask without crossing open terrain. Juveniles are kept for the first couple of years in a smaller enclosure, where they easily find the food, and are moved to the large enclosure when they have grown, typically after about two years.

Read more: Humidity, misting and ventilation

TEMPERATURE

By day the temperature should be 18-24 °C with a basking spot of 25-28 °C. At night the temperature should fall to 10-15 °C. Keep the enclosure below 28 °C, and do not place it by a south-facing window in summer.

In most homes the enclosure can stand without extra heat, and a weak spotlight on a thermostat provides the basking spot. Measure the temperature both at the top and at the bottom with a digital thermometer.

Read more: Heat and temperature

HUMIDITY AND WATER

Mist the enclosure once a day, so humidity rises to 70-80 %, and let it fall to 50-60 % during the day. Leaf litter and plants hold the moisture. Keep the substrate moist, but not wet, and ensure good ventilation. The animal drinks droplets from the plants, so mist the leaves. Keep an eye on shedding: if stuck shed hangs on the toes and tail, the air is too dry.

LIGHTING AND UVB

Mokopirirakau granulatus basks a great deal and is one of the geckos that are also active by day. UVB light is recommended (Ferguson zone 2), e.g. a T5 tube of 5-7 % above the mesh lid, so the UV index is 1-2 at the basking spot. The rest of the enclosure must have shade.

Keep the light on for 12 hours in summer and 8-10 hours in winter, controlled by a timer. At night it must be dark.

Read more: Lighting and UVB

FEEDING

The staple is live insects: flies, moths, small beetles, spiders, crickets and locusts. Farmed insects are dusted with calcium and vitamin D3. Also give a little fruit puree, e.g. mashed banana, or slightly diluted honey 1-2 times a week, as the animal licks nectar and honeydew in the wild.

Do not give too much of the calorie-rich fruit and honey. The species becomes fat easily in captivity, and the signs are a thick, swollen tail and fat pads on the neck. Juveniles are fed fruit flies and small houseflies.

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

BEHAVIOUR AND HANDLING

Mokopirirakau granulatus is a calm animal that likes to sit on a branch and bask. It is not an animal for handling. Keep handling to a minimum, and never grab the tail, which can be shed.

In the wild the animals live alone, and the males are aggressive towards each other, especially in the mating season. Therefore keep one male with one or two females, and never two males together. The young can stay with the adults for the first year, but are most easily reared separately. In a spacious enclosure the species can be kept with *Naultinus* geckos and small diurnal skinks from New Zealand. Animals from different populations, e.g. from the North Island and from the South Island's west coast, and closely related *Mokopirirakau* forms must be kept apart, so they do not hybridise.

Breeding

SEXUAL MATURITY AND SEXING

Mokopirirakau granulatus becomes sexually mature at 1.5-2 years of age. The males are recognised by the two bulges behind the vent at the base of the tail. Only breed animals once they are fully grown.

MATING

Mating takes place in autumn and winter in the southern hemisphere, from about March to August. The male bites the female repeatedly on the neck and head during mating, and this is normal. Put a male with one or two females, and watch them for the first few days. Lowland females give birth to one litter a year, while females from some mountain populations give birth only every other year.

EGG-LAYING AND CLUTCHES

Mokopirirakau granulatus does not lay eggs but gives birth to live young, normally twins. Birth takes place in late summer, in the wild from about February; in animals kept outside their natural range it can be delayed until April. The female needs plenty of food and calcium during pregnancy and several hides to choose between.

INCUBATION

There is no incubation. The length of gestation is not documented, but judging from the mating season and birth from February it lasts about 6-11 months. In the mountain populations that give birth only every other year it is longer.

Read more: Incubating eggs

REARING THE YOUNG

The young are fully developed and independent at birth. Place them in a small enclosure with moss, plants and hides, and feed them fruit flies and small houseflies dusted with calcium. When they have grown, typically after about two years, they can be moved to an adult enclosure. Do not breed more young than there is space and demand for, and never release captive animals into the wild.

Health and common mistakes

Diseases in the species in captivity are poorly known. The typical problems are:

- Too much heat. The species is adapted to cool conditions, and temperatures above 28 °C stress it.
- Obesity from too much fruit and honey. The signs are a thick tail and fat pads on the neck.
- Calcium deficiency, especially in pregnant females and juveniles. Use calcium with vitamin D3 and UVB light.
- Shedding problems if the air is too dry. Stuck shed on toes and tail is removed carefully.
- Intestinal worms and mites, which are also found in wild animals. Have a faecal sample examined for new animals.
- A lost tail from handling or fighting. The tail does not regrow in full form.

The species can carry salmonella, so wash your hands after working in the enclosure. See a reptile-experienced vet if the animal loses weight, does not eat or looks lethargic.

Read more: Quarantine and hygiene 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.