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GECKOS

Duvaucel's gecko

Hoplodactylus duvaucelii

Hoplodactylus duvaucelii is the largest living gecko in New Zealand: heavy, olive-grey and nocturnal. It can live for over 40 years, gives birth to one or two live young at a time and does not reach sexual maturity until about seven years of age. Today it lives only on predator-free islands, and it is a species for specialists, not for the hobby.

Family: Diplodactylidae Former name: *Platydactylus duvaucelii; Woodworthia duvaucelii; Naultinus duvauceli*

KEY FACTS

THE ANIMAL

Adult size	**25-32 cm** total length incl. tail
Weight	**45-120 g**
Lifespan	**40-50 years**
Active	**At night**
Lifestyle	**Arboreal, rock-dwelling and terrestrial**
Habitat	**Rocky terrain and temperate woodland and meadow**
Difficulty	**Expert**

CARE

Min. enclosure	**120 × 120 × 100 cm** L × W × H for 5 adults
Temperature, day	**15-25 °C**
Basking spot	**25-30 °C**
Temperature, night	**10-16 °C**
Humidity	**60-70%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 2
Diet	**Insects, fruit and nectar**
Kept	**One male with several females**

BREEDING

Reproduction	**Live-bearing**
Sexually mature	**72-84 months**
Litter size	**1-2 young**
Clutches per year	**1**
Gestation	**150-240 days**

PROTECTION AND PAPERWORK

CITES	**Appendix III**
EU annex	**Annex C**
IUCN	**Near Threatened (NT)**

About the species

Hoplodactylus duvaucelii is the largest living gecko in New Zealand. The animal is sturdily built with a relatively large head, long toes with broad lamellae and a body length of up to about 16 cm from snout to vent. Including the tail it reaches 25-32 cm, and an adult typically weighs 45-70 g, the largest up to about 120 g. The colour is predominantly grey to olive-brown, often with a faint olive-green tinge, and across the back lie irregular, paler markings running crosswise. The front feet are smaller than the hind feet.

The species was described in 1836 under the name *Platydactylus duvaucelii*. The scientific species name honours the French naturalist Alfred Duvaucel. The first museum specimens were mistakenly believed to have been collected in Bengal, and only later was it shown that they came from New Zealand. The genus *Hoplodactylus* was established in 1843 with precisely this species as its type species. The genus has since been revised, and the species has briefly been placed in *Woodworthia*. In 2023 DNA studies showed that the populations on the islands in Cook Strait are a separate species, *Hoplodactylus tohu*. Older information on *H. duvaucelii*, including the largest measurements and weights, may therefore partly come from it.

Life moves slowly in *H. duvaucelii*. The female gives birth to live young, has a very long gestation, and the young grow slowly. It is therefore a species in which a single animal represents many years of build-up and in which losses are hard to replace. The animals are calm and tolerant of their own kind, but they are secretive and spend the day hidden.

The tail can be dropped, as in other geckos. The species is assessed as near threatened and is today tied to protected islands. It is not a hobby species, and animals in captivity are found mainly in research and release programmes.

Distribution and habitat

The species is native to New Zealand. Fossil and genetic finds suggest that *H. duvaucelii* once occurred over the whole of the North Island. The arrival of humans, loss of habitat and introduced rats, especially *Rattus exulans*, drove it back to islands without predators or with controlled populations.

Natural populations are found today on 36 islands off the north-eastern coast of the North Island, including Great Barrier Island, the Poor Knights Islands, the Mercury Islands and the Hen and Chicken Islands. In addition, animals have been moved to several predator-free islands in the Hauraki Gulf, including Motuora and Tiritiri Matangi, and in 2016 80 animals were released on the mainland in a fenced, predator-free park north of Auckland. The populations on the islands in Cook Strait have been regarded since 2023 as a separate species, *Hoplodactylus tohu*, and are not shown on the map.

> **Native range:** New Zealand.

HABITAT

Hoplodactylus duvaucelii is a generalist that uses the ground, bushes and trees, and rocks. It is found in lowland forest, in tussock grass, in scrub and on rocky coasts close to the sea. By day the animals rest in hiding, for example in rock crevices, hollow trees, holes in the ground and under fallen trunks, often in small groups of 2-8 animals with only one male. They bask hidden, with only part of the body out, close to the retreat.

At night they forage on the ground and in the vegetation. The diet consists of large insects, fruit, nectar and honeydew from scale insects, and now and then they take smaller lizards and eggs from shearwaters. The climate is temperate and oceanic. The species is active all year, even at low temperatures, but stays hidden on cold winter nights. On islands with rats it lives more hidden and higher up in the vegetation, and where *Sphenodon punctatus* is found, it forages later in the night to avoid competition.

Care

THE ENCLOSURE

There is no ordinary hobby keeping of *Hoplodactylus duvaucelii*. A group of five adults needs a naturalistically furnished enclosure of at least 120 × 120 × 100 cm (length × width × height), preferably outdoors. A single animal needs at least 50 × 50 × 100 cm and preferably considerably more.

Furnish with plants, larger stones, leaf litter on the floor and many hides. Hides are essential, because the animals spend the day hidden and readily share hides if there is room. Provide more hides than there are animals, both rock crevices and low, dense vegetation, and place the basking spots close to the hides. Mesh on at least three sides and in the ceiling gives ventilation and lets light and UVB in. Keep a lip of 10-15 cm below the door, because the species is fast and slips out easily. Young animals can be kept in groups of four to six in indoor enclosures with light on a 12:12 cycle.

Females can be kept with one male. Several males in the same enclosure cause social stress, so keep only one male per group.

Read more: Lighting and UVB

TEMPERATURE

The species is adapted to a temperate, oceanic climate and is active all year round. In summer the temperature should be 15-25 °C by day and 10-16 °C at night. In winter the species copes without problems in an unheated room at 8-16 °C. Heat above 30 °C is more dangerous than cold, but long periods below 5 °C cause health problems, and frost is fatal.

The animals regulate their temperature by basking close to the hide. Therefore provide a basking spot of 25-30 °C right next to a hide and a cool area to choose between. Keep the animals on the cool side rather than too warm. Check the temperature with a digital thermometer, and never place the enclosure so that the sun shines in through a window.

Read more: Heat and temperature

HUMIDITY AND WATER

Humidity should be 60-70 %, and the animals must be able to seek out more humid places. If humidity is constantly below 50 % or above 90 %, it causes problems: too dry gives poor sheds, too humid gives fungus and respiratory infections. In the wild, humidity in the hides seems to matter for where the animals gather, and the group reduces water loss through the skin.

There must always be water. Place a shallow bowl of fresh water in the enclosure, and change it regularly. Mist part of the substrate so that there are damp areas, but let the rest dry, so that the substrate does not become constantly wet.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The animals are nocturnal but bask hidden during the day. Nocturnal New Zealand geckos also need natural light with UVA and UVB: outdoor enclosures with mesh provide this from the sun, and young need light in a 12:12 rhythm. Indoors a UVB fluorescent tube is used; aim for a UV index of 1-3 at the basking spots, corresponding to Ferguson zone 2.

Make sure the animals can always withdraw into shade. Let the light period follow the seasons, and keep the night dark.

FEEDING

Give live insects or insect larvae and a fruit purée with added vitamin and mineral supplements, twice a week in summer and once a week in winter. In the wild the species eats large insects such as moths and weta (large relatives of grasshoppers), ripe fruit, nectar and honeydew, and now and then small lizards.

It is omnivorous and forages at night. Use a varied diet: insects of suitable size, ripe fruit and fruit purée. The animals have a low energy consumption, and too much food is a more likely problem than too little. Calcium as a powder on the insects and finely chopped cuttlebone in a dish are important. The animal must make vitamin D3 itself with the help of UVB; oral supplements are not recommended without the advice of a vet. Water must always be available.

Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Hoplodactylus duvaucelii is calm and tolerant of its own kind and shows no signs of chronic stress in captivity. The animals are, however, secretive and hide when disturbed, and wild animals often stay in the retreat until they are pulled out. Handling must therefore be infrequent and brief, at most ten to fifteen minutes per animal per month.

Socially the species lives in small, stable groups with one adult male, females and young. Adult males do not tolerate each other, and smaller males keep to themselves. Keep only one male per group. Females are tolerant of each other and of young. The tail can be dropped during handling, so never grab it.

Breeding

SEXUAL MATURITY AND SEXING

The species is slow growing and does not reach sexual maturity until about six to seven years of age. This means that a stock of young animals must be kept for several years before offspring appear. Adult males are recognised by distinct bulges at the base of the tail and pores under the thighs and in front of the vent. How young animals are sexed has not been described.

Adults of the species typically weigh 45-70 g and are 11-13 cm from snout to vent. Large males sleep near females and young, while smaller males often sleep alone.

MATING

Mating takes place in spring in the southern hemisphere, from September to November. The male approaches the female, flicks his tongue into the air, touches her head, back and vent with his snout and takes her in a mating grip. The female may respond by lashing her tail and biting. If she is ready, she stiffens, and the male mounts her. The mating itself lasts about 14 minutes.

A rejected male can become aggressive and guard the entrance to the female's retreat. A winter rest has not been documented as necessary, but day length and temperature should follow the seasons. Put in only one male with the females.

EGG-LAYING AND CLUTCHES

Hoplodactylus duvaucelii does not lay eggs but gives birth to live young. Gestation lasts five to eight months and in a few cases may be longer than a year. Births typically occur in late summer and autumn, from February to May. The female normally has one young, at most two, and either every year or every other year. The annual production is therefore about 1.1 young per female.

In February more than half of the females are often pregnant, and they give birth about a month later. A lay box is not needed, but the animals must have quiet hiding places. The young are independent from birth, and the female provides no care.

INCUBATION

The species is viviparous, so there is no incubation. The embryo develops inside the female, and the gestation of five to eight months is the period in which she needs peace, stable conditions and plenty of food. The fact box therefore gives 150-240 days as gestation and shows no incubation temperature.

It is not documented whether temperature during gestation affects development in the species. Give the female the opportunity to choose between warmer and cooler retreats herself. Do not suddenly change the temperature or furnishings in this period.

Read more: Incubating eggs

REARING THE YOUNG

The young are independent immediately after birth and can be removed from the female, but this is not necessary: adults are tolerant of young, and young and parents can well share retreats. Unless you know your animals well, however, it is safest to move newborns as soon as they are found, so that they are not chased by adults.

Keep the young in groups of four to six in indoor enclosures with a light programme of 12:12 hours. They need the same types of food as the adults: small live insects or larvae and fruit purée with vitamin and mineral supplements, twice a week. Wait 1-2 days after birth before the first feeding, so that the yolk sac is used up. The young weigh only a few grams in the first months and grow very slowly; adult size is reached after 2-3 years at the earliest.

Health and common mistakes

The species has only a few known diseases and problems:

- Stress: animals in captivity do not have persistently raised stress hormones, but subordinate males tend to have higher levels. Several males in the same enclosure is therefore a risk factor.
- Hiding places: the species is secretive, so provide plenty of hiding places.
- Parasites: wild animals can have mites of the species *Geckobia naultina* at the edge of the eyes and a blood parasite resembling *Rickettsia*. Check the skin and the eye area.
- Lost tail: may happen during handling or fights.
- Lack of UVB and calcium, which causes metabolic bone disease.

Always keep an eye on weight and body shape. Animals with a long life course and slow growth can waste away slowly before you notice. See a vet experienced with reptiles if the animal loses weight, does not eat, or the skin and eyes look altered.

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.