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SNAKES

Centralian Carpet Python

Morelia bredli

Morelia bredli is a stout, partly arboreal python from Australia's red centre around Alice Springs. Adults are reddish brown to terracotta with dark-edged crossbands and grow to 180-220 cm, while the hatchlings are grey and brown and change colour over two to four years. It needs a clear, cool winter, dry air and plenty of room to climb, and it can live for 20-30 years.

Family: Pythonidae Former name: *Python bredli; Morelia spilota bredli*

KEY FACTS

THE ANIMAL

Adult size	**180-220 cm** total length incl. tail
Lifespan	**20-30 years**
Active	**At dusk and at night**
Lifestyle	**Arboreal and rock-dwelling**
Habitat	**Semi-desert, savanna and rocky terrain**
Difficulty	**Intermediate**

CARE

Min. enclosure	**150 × 70 × 100 cm** L × W × H for 1 adult
Temperature, day	**28-32 °C**
Basking spot	**34-38 °C**
Temperature, night	**20-24 °C**
Humidity	**40-55%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 2
Winter rest	**18-23 °C** 8-12 weeks
Diet	**Vertebrates**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**18-36 months**
Clutch size	**20-47 eggs**
Clutches per year	**1**
Incubation	**55-65 days** at 30-32 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Least Concern (LC)**

About the species

Morelia bredli is a heavily built python with a large, broad head that is clearly set off from the neck, smooth, glossy scales, a prehensile tail and heat-sensitive pits along the lips. The body is almost round in cross-section. Adults are a warm reddish brown to deep terracotta or orange-brown with irregular, often incomplete crossbands that are lighter than the ground colour and edged by dark, almost black scales. The bands are clearest on the rear body and become more broken up towards the head. In many animals the rear third of the body is wholly or partly black. The belly is yellowish to pale cream.

The hatchlings emerge grey and brown with no trace of the warm colours. Over two to four years the ground colour is replaced by red and orange, and the dark pattern becomes lighter through charcoal grey to cream and ivory, while the dark edges become almost black. A one-year-old animal therefore hardly resembles the adult snake. Colour intensity is affected by light, temperature and digestion, and animals digesting a meal look darker.

Most adults grow to 180-220 cm. Females are usually the longest and stoutest, males shorter and slimmer, but a few large males in captivity approach 300 cm. The species is heavier for its length than most *Morelia spilota* forms, so a snake of 200 cm looks more massive. In young and subadult animals, sex cannot be determined reliably from size and build. The hatchlings weigh 27-30 g at hatching and grow quickly during the first two years.

Morelia bredli was described in 1981 under the name *Python bredli* and is named after Josef Bredl, a German-born herpetologist in Australia. The species was formerly regarded as a subspecies of *M. spilota*, but both scalation and molecular studies show that it is a separate species and the sister species of *M. spilota*. There are no subspecies. Hybrids with *M. spilota* exist in the trade, and they should not be sold as pure *M. bredli*. Most animals in the trade descend from a small group of founder animals, so information on lineage is important when buying and breeding. The species is calm and safe to handle as an adult, while the hatchlings are nervous and quick.

Distribution and habitat

Morelia bredli is endemic to Australia and is found only in the southern part of the Northern Territory. Alice Springs lies near the middle of the range, and the MacDonnell Ranges, a series of parallel ridges about 644 km long to the east and west of the town, form the backbone of the distribution. The species is found south to the Palmer River, about 150 km south of Alice Springs, north-east to the Hart Range and north-west to the area around The Granites in the Tanami Desert, where the northernmost reliable record has been made.

The type locality is Pitchie Ritchie Park at Alice Springs. A large part of the range lies in protected areas such as West MacDonnell National Park, Watarrka National Park and Trephina Gorge Nature Park. The IUCN regards the species as least concern. Australia does not permit the export of wild reptiles for trade, so all animals outside Australia are captive-bred.

Read more: Buying animals: captive-bred, wild-caught and transport

> **Native range:** Australia.

HABITAT

Morelia bredli lives in one of the continent's most extreme climates. In summer the temperature on open ground can exceed 40 °C, while gorges and rock crevices are far cooler. In winter the night often falls to around 5 °C or lower, and there can be frost at the highest elevations. The difference between the day's highest and the night's lowest temperature can reach 18 °C in a single day, and rainfall is sparse and irregular.

The species lives in gorges, on rocky slopes, in gravelly and savanna-like woodland and along seasonal watercourses with large eucalypts, especially *Eucalyptus camaldulensis*. Hollow branches, rock crevices and caves provide a refuge that is cooler than the air in summer and warmer in winter. Although the species is a desert animal, it spends most of its time in the trees. In the warm season the snake is active at dusk and at night, while in winter it often basks on rock ledges and branches in the middle of the day. Body temperature is around 33 °C in summer and around 19 °C in winter, and thus far more stable than that of the air.

Young animals eat mainly skinks and other small lizards and gradually move on to mammals. Adults take rabbits, rock wallabies, introduced rodents and birds, especially hole-nesting parrots, which use the same tree hollows as the snake. The species has a large seasonal variation in appetite: food intake in the wild is about three times as high in summer as in winter.

Care

THE ENCLOSURE

An adult *Morelia bredli* needs a terrarium of at least 150 × 70 × 100 cm (length × width × height). Large females over 200 cm need more, for example 180 × 80 × 100 cm, and larger is always better if the set-up is good. The species is partly arboreal and spends more time off the ground than you would expect of a desert snake, so height is a real need and not decoration.

Furnish with at least two solid horizontal branches or cork tubes at height that can bear the snake's weight without giving way, and at least two hides on the floor, one in the warm and one in the cool end. All branches must be fixed firmly. The terrarium should have front opening and opaque sides, because opening from above and transparent walls stress a snake whose enemies in the wild come from above. Wood, melamine boards or PVC are better than glass, which loses heat quickly and makes temperature control difficult.

Ventilation must be good and work like a chimney, with air intake low down and exhaust high up, so that there is no humid, stagnant air. Use a low-humidity substrate, for example a dry mix of sand and soil, coarse washed sand or dry coconut fibre, in a layer of 3-5 cm. Remove faeces immediately, and change the substrate completely every three or four months. Newspaper and kitchen roll must be replaced as soon as they become wet, because a wet substrate causes skin infections.

A young snake does best in a small box of about 20 × 20 × 20 cm with a small perch and a hide. As it grows, it is moved to a box of about 40 × 40 × 40 cm with a shelf and then to the adult terrarium. A large, open terrarium for a newly hatched young causes stress and feeding problems.

Read more: Humidity, misting and ventilation

TEMPERATURE

Temperature control is the most important part of caring for *Morelia bredli*, because the species has a distinct summer and winter.

In the active season the daytime temperature should be 28-32 °C, the hot spot 34-38 °C (36 °C is a good target) and the night 20-24 °C. Provide a temperature gradient, so that the snake can choose between a warm and a cool end, and make sure it has access to a warm place all year. A ceramic heater in the ceiling or a deep heat projector on a thermostat is the best heat source, because it gives radiant heat that resembles the sun on rock and bark. Heat mats under the terrarium work less well. Never use a heat source without a thermostat, and protect all bulbs with guards. Measure the surface with an IR thermometer.

Hibernation (brumation) is essential. Lower the temperature gradually over four to six weeks, until the daytime temperature is 20-23 °C, the hot spot 26-28 °C and the night 18-20 °C, and keep it there for eight to twelve weeks. Return to the summer temperature just as gradually. The short, mild cooling that the coastal forms of *Morelia spilota* get by on is not enough: otherwise the snake does not breed, eats poorly and seems lethargic. Do not imitate the desert's night frost, because in the wild the snake lies in insulated crevices and hollows and not in a thin-walled terrarium.

Read more: Heat and temperature Read more: Brumation and the seasons

HUMIDITY AND WATER

Humidity must be low: 40-55 % all year. This is deliberately lower than for most forms of *Morelia spilota*, because the species comes from a dry area with fresh air. Persistent humidity above 60 % causes respiratory infections, skin inflammation and scale rot.

The terrarium must not be misted. Put a small, clean and stable water bowl in the terrarium, and change the water daily. The bowl should not be so large that it raises the humidity noticeably. Before a shed, humidity can be raised temporarily to 60-65 %, for example with a hide containing moist sphagnum, so that the skin comes off in one piece. Let the substrate dry out completely between the humid periods. Scrub the water bowl every week.

LIGHTING AND UVB

The species is most active at dusk and at night, but basks now and then during the day, and in the wild it is exposed to strong sunlight. UVB is not strictly necessary to keep it alive, but it is recommended because it supports D3 absorption, the daily rhythm and the snake's colours. Wild-caught animals lose colour in captivity without sunlight. The UVB figures are borrowed from *Morelia spilota*, which is better studied.

The species belongs to Ferguson zone 2. Use a T5 tube with 5-6 % UVB covering about half the length of the terrarium over the warm end. Position the branch so that the distance from the snake's back to the tube is 25-35 cm if the tube sits above the mesh, and slightly less if it sits below. The UV index should be 2-3 at the highest point. Provide brighter lighting with an LED bar during the day. Keep the light on for 14 hours in summer and 10 hours in winter, so that the annual rhythm is followed.

Read more: Lighting and UVB Read more: Calcium, vitamins and supplements

FEEDING

Morelia bredli eats whole prey. Use frozen and thawed mice and rats, not live animals, and warm them to about 38 °C. The prey should be as thick as the snake at its thickest point in the middle of the body. Do not measure by the head, which is large. Use long tongs with a soft tip. Hatchlings eat for the first time after the first shed, 7-14 days after hatching, and start on small mice.

Young animals up to 500 g are fed every 7-10 days with mice, subadults of 500-1,500 g every 10-14 days with small and medium rats, and adults every 14-21 days with medium and large rats. The species is adapted to infrequent meals, so overfeeding is the commonest mistake. An adult snake fed every week becomes fat, has a shorter breeding life and risks

metabolic diseases. Weigh the snake regularly, and feed less often if it is heavy. In winter it is fed only every third or fourth week, and a fast of six to eight weeks in the coldest period is normal in a snake in good condition. Supplements are not necessary, but a light dusting with calcium and a vitamin preparation now and then can be used. Fresh water must always be available.

BEHAVIOUR AND HANDLING

Adult *Morelia bredli* are calm and safe animals that tolerate handling well, while young under two years are nervous and bite readily. This passes with age. Leave a new snake in peace for two weeks. Then start with short sessions of at most five minutes every few days, and build up slowly. First touch the head with a paper roll or a snake hook, so that the snake knows it is not feeding time, and wash your hands before and after.

Lift an adult snake with both hands, one under the forebody and one under the rest of the body, and never grab the tail. The snake coils around your arms as if they were branches. Do not let it wrap around your neck, and do not let children handle it alone.

The snake is kept singly. Several animals together cause stress and competition for resources. Males fight hard in the breeding season, and wild males often have scars from the fights, so two mature males must never be kept together. The species feeds reliably and is a good python for anyone willing to take brumation seriously.

Breeding

SEXUAL MATURITY AND SEXING

Females grow larger and stouter than males, but sex cannot be determined reliably from size and build in young animals. Use probing or endoscopy, which only an experienced person or a vet should carry out. Males can be used for breeding from 18-24 months, once they have reached a suitable weight. Females must be at least 30-36 months and weigh at least 2,000-2,500 g before being used for breeding. If the female is too young or too thin, the risk of problems with egg development and laying increases. The female must be in good condition before brumation, but not fat. The male can be fed as normal.

MATING

Breeding is strongly seasonal and is triggered by brumation. In Australia mating takes place in July-September and egg-laying in October-December; in the terrarium the animals follow the annual rhythm they are given. Lower the temperature gradually during the autumn, and keep the snakes at the winter temperatures (day 20-23 °C, night 18-20 °C) for eight to twelve weeks. After six to eight weeks the male is introduced to the female, never the other way round, while the cold is at its greatest. Most pairs mate after one to three introductions, and several introductions over a few weeks are normal.

Males fight each other and can be seriously injured, so they must never be put together, and each introduction must be supervised if several males are used with the same female. The female must not be bred two years in a row. Give her at least a whole season to recover, with good feeding and no introductions.

EGG-LAYING AND CLUTCHES

The female ovulates at the end of brumation or shortly after the temperature begins to rise; the first sign is a distinct swelling in the middle of the body. About three to four weeks later she sheds, and about four to six weeks after the shed she lays the eggs. She usually stops eating.

The clutch is unusually large for a python: a first-time female lays about 20 eggs, experienced females 35 eggs or more, and a few approach 47. The female lies coiled around the eggs, so that they stick together in a clump, and warms them with muscle shivering that can raise the temperature inside the coil by up to 3 °C. Provide a nest box large enough for her to lie around all the eggs, with a moist substrate. She lays only one clutch a year.

INCUBATION

The eggs can be incubated by the female or in an incubator. For artificial incubation the eggs are placed on moist vermiculite with about equal parts water and vermiculite by weight, with no direct contact with water. The temperature must be 30-32 °C and the humidity 90-95 %. At 31 °C the eggs hatch after 55-65 days. The hatchlings weigh 27-30 g at hatching and shed after 10-14 days.

Read more: Incubating eggs

REARING THE YOUNG

The hatchlings are grey and brown at hatching and only acquire their reddish brown colour over two to four years, so do not expect the final colour from a one-year-old animal. Keep each young one separately in a small box of about 20 × 20 × 20 cm with opaque sides, a perch, a hide and a small water bowl. The box should be about 30 °C at the heat source and about 27 °C in the rest. The first meal is a small mouse after the first shed, and after that the young are fed every 7-10 days. Mice are the best food until the snake is large enough for a rat of 35-45 g. Let the young grow steadily rather than quickly, so that they do not become fat.

Health and common mistakes

Morelia bredli is hardy when temperature and humidity are right. The typical problems are:

- Respiratory infections, skin inflammation and scale rot from persistent humidity above 60 % and poor ventilation. Signs are wheezy breathing, mucus in the mouth and an open mouth, and they need a vet.
- Obesity from too frequent feeding. Weigh the snake regularly, and feed adults every 14-21 days.
- Lack of brumation, which causes lethargy, poor appetite and no breeding. Use a proper winter with a night temperature of 18-20 °C for eight to twelve weeks.
- Poor sheds if the air is very dry. Raise the humidity temporarily before a shed.
- Burns from unguarded bulbs or a heat source without a thermostat.
- Food refusal in young that have only been given mice and later reject other prey. Switch gradually to small rats.
- Serpentovirus (formerly called nidovirus), which is widespread among pythons in captivity. It causes respiratory disease with mucus and an open mouth, the infection does not clear, and many infected animals die. Quarantine new animals, and have them tested by a vet before they come near other pythons.

Snakes hide illness, so weight checks and notes on feeding, shedding and behaviour are the best early warning. Contact a vet with experience of reptiles if the snake loses weight, has breathing problems, has mites or does not eat for several weeks outside brumation.

Read more: Quarantine and hygiene

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.