

Nephrurus Levis Levis - Smooth Knob-Tail Gecko

A Detailed Solution to the Care and Breeding of the Australian Smooth Knob-Tail Gecko By Shawn Scott (Jet)

General Introduction - The Smooth Knob-Tail Gecko, otherwise known as the Three Lined Knob-Tail Gecko is one of Australia's most Beautiful, Fascinating and Unusual Native Species. Being a part of the *Nephrurus* Genus, the Smooth Knob Tail Gecko has 8 similar relatives. This Genus is split into two groups, the Smooth and the Rough (spiny) Geckos. The Smooth Group consists of: The Smooth (Three Lined), the Pernatty (*N.Deleani*), the Starred (*N.Stellatus*), The Pale (*N.Laevissimus*) and the Midline (*N.Vertibralis*) Knob Tailed Geckos. The other 4 are the Rough Knob Tails: the Centralian (*N.Amyae*), the Rough (*N.Asper*), the Banded (*N.Wheeleri*) and the Northern (*N.Sheai*).

The Smooth Knob Tailed Gecko also has 2 Subspecies, these being *Nephrurus L Occidentalis* and *N Levis Pilbarensis*. The Smooth Knob Tail has a very distinct pattern that varies throughout the body. The head sometimes being a bluey- purpley colour, a rock orange coloured body that has tubercles of white colour that seem to be 'enlarged scales.' These tubercles are aligned so that they form a 'line' pattern horizontally across the back. There are three of these patterns along the Geckos' body. The Gecko also has an assortment of tubercles in a lesser pattern on the tail. I am not saying that all the Knob Tails look like this, they just have similar build, texture etc. These Geckos are relatively easy to keep as long as you provide a substantial amount of sand, appropriate heating and enough moisture to sustain strength in the sand to hold a burrow. These Geckos' have claws thus lacking the Lamellae covered fingers to climb. This species does not need a lid, as they cannot climb glass. Females may reach 13-14cms while Males only reach about 11-12cms. It may be possible for this species to reach 15-18 years in captivity if care for correctly.

Status in Captivity & General Maintenance - This species is becoming excessively popular and now Gecko enthusiasts and breeders are doing well in breeding them in the appropriate season. Hatchlings become readily available at reasonable prices upon the middle of the breeding season when neonates emerge from hatching eggs. Adults are not common in the trade as people keep them to create breeding stock. Adult Males are most common when Adults are being sold as people just think they can create breeding trios or groups as you can have one male and up to five females to a cage. Never keep multiple Males together as they will fight to the death. Clean the cage once weekly to remove defecation' and to just keep everything 'tip top.' Smooth Knob Tails usually go for variable prices. Prices obviously depend on age, sex, health, colour, etc. These are rough prices: Hatchlings- \$120-\$150, Sexed Sub Adults-\$150-\$200 and Adults- \$200-\$250.

Caging/ Housing - Smooth Knob Tails can be kept in many different styles of cages. From Vivariums to Aquariums, Custom built cages to plastic tubs. As long as you provide appropriate heat, sand and moisture levels, they will be just fine. I prefer the use of Aquariums, as the Geckos cannot escape, even without a lid, the glass can be used as 'cool' areas and no matter the amount of water sprayed, the glass cage is fine. A 24inch (2-foot) Aquarium is fine for a pair and maybe a trio. Provide a substantial amount of sand, as they are a burrowing species. 3inches is more than enough around the entire enclosure. Choose a sand type that can support a burrow, thus when sprayed and the moisture clumps the sand together, it will not fall after an amount of time once the Gecko is in its new burrow. I recommend 'Albert Red Plaster' sand in the Knob Tail Gecko cages. It is cheap and (very) available. Always keep one end of the cage sand damp. Once a Gecko has made its burrow, it will fill the entrance with sand (like a door). They do this to retain moisture levels and humidity within the burrow. The moisture and humidity will aid in the Geckos' shedding process and keep the Gecko hydrated. Always keep an eye on the Gecko and its burrow, seeing the sand clumps quite hard, the Gecko may have trouble breaking down the 'door' to the burrow upon hunting time. One time, my female created a nice sized burrow but upon not seeing her for 3 nights out hunting, I became worried and broke a hole in the burrow using only two fingers. Once the hole was opened, my female emerged immediately, to see that she had lost considerable weight. I immediately destroyed the burrow (I know its mean) so she could not re-enter to only get stuck again. I gave her a drink by spraying her and that night she ate a lot of crickets! You can also add artificial hides, hide rocks, caves etc. Also add rocks, logs etc for decorative sense and to make them feel like they are in their natural habitat in the desert. Artificial Hides are used quite a lot and they will also jam the entrance with sand but due to the entrance being thin, they can easily get out (and wont get stuck)! Always keep a filled and clean water dish/ bowl in the enclosure. Also put a small rock or pebble in the water bowl to stop drowning of both, the feed and the Geckos.

Heating/ Lighting - Knob Tails are Desert dwelling Geckos and are used to harsh conditions of heat but NOT heat EXTREMES. Smooth Knob Tails do need a form of heating in captivity. In the Wild, during the day, a gecko will hide in its burrow and when nightfalls, the Gecko will emerge from the burrow and heat it's belly on the sand, warmed by the days HOT sun. This method will need to be used in Captive Collections. There are a few methods of heating that will heat (like above), like Heating cords/ Tape, running below the sand, heat (spot) Globes or heat mats/ Pads. I use Heat Globes as I can position the Globe so that it 'Spots' about three inches from the entrance of the Geckos hides or burrows. The Geckos always hide in the provided hides to the Right side of the Cage so I heat it there and the Left Side is cooler as there is no heat. This also creates a Thermal Gradient. A thermal Gradient is when the Gecko can choose an appropriate nesting and hiding areas in the temp that suits him/ her. When the Gecko feels too warm, it can go to the cool side, vice versa. In the summer, depending on where the cage is located, these Geckos' cages need to be maintained at around 26-28oC. In winter, daily temps can lower to around 20-23oC. This replicates summer and winter for the Geckos and when the temps rise considerably for summer's return, these Geckos will breed. A thermostat should be used so that the mentioned temps can be maintained and recorded. You should also have a thermometer. UVA-UVB lights are not required as the Geckos are nocturnal.

Feeding/ Water - Smooth Knob Tails will feed on just about anything that moves and they can fit in their mouths. They are mainly insectivorous but will also go for small arthropods and animals. They are aggressive feeders and stalk their prey until a small distance is between them, so they can strike. Young Smooth Knob Tails sometimes miss as they 'strike before they think.' I say. Smooth Knob Tails should be fed food items

that are no larger than the space between their eyes. This is a safe size as prey larger than that size may get stuck and the Gecko will choke which will end in bad results. Prey Items should be dusted with a Calcium, Multi Vitamin and Mineral Powder on every second or third feed to ensure the Gecko gets a good amount of those necessary supplements. I recommend 'Ultimate Calcium' and 'Ultimate Vitamin' supplied by URS (Ultimate Reptile Suppliers), which is provided by most good pet and reptile shops. This is easily accomplished by putting the appropriate amount of powder in a separate container and then dropping the appropriate amount of feed into that container. Then stir/ shake gently until the feed is covered in the powder. Wild Smooth Knob Tails have been recorded of eating the following: Crickets, Locusts, Grass Hoppers, Moths, Spiders, Scorpions, Beetles, Small Bugs, Cock Roaches, worms and even smaller Geckos, either the same or a different species. Safe Insects to feed your captive Geckos are: Crickets, Moths, Cockroaches (Woodies) and Mealworms. I would never feed my animals mealworms as they have a hard shell and this is hard for the Gecko to crush in its jaws when feeding. If the Shell is not crushed and the Mealworm is still alive upon swallowing, the mealworm will be in the Geckos' stomach and the mealworm will eat its way out, ending in a dead Gecko L.

Feed Safe insects. Always keep a clean and full water bowl in the enclosure though it is rarely used. Spray/ Mist the cage every few days to keep moisture levels and humidity levels but to also hydrate the Geckos. If the Geckos are out, spray them lightly on the face, as they will lick the droplets off of their eyes and face. They will also lick surrounding areas, glass, rocks etc.

Breeding/Incubating - Smooth Knob Tail Geckos are very interesting Geckos to keep but even more interesting to breed. These geckos are not hard to breed as long as they have appropriate moisture in the sand, sand depth; a good cooling period and food increase for the summer return. At about July, you should lower the temps gradually to suit the winter temps described above. Daytime Temps should be 22-24oC while nighttime temps can sink as low as 16-18oC. They should be fed about once every week or fortnight depending on age, health and size of the specimen. Adults can successfully be cooled whilst it is not advised for juveniles or hatchlings. Cooling Periods should start at around June/ July until September when you can gradually increase the temps back up to the summer temps described above. At that point, you should also increase their food. Feeding then at the normal rate of every 2nd or 3rd night. At that point, keep the sand moist and the nighttime temps at around 26-27oC. Once they feel ready, it is time for Breeding! The Geckos will breed right away when the female is receptive. Females are easily noticed when receptive by behaviour. Receptive Females will simply lie still when the male approaches and she will let him mate with her. However, there's another side to the story.

Non-receptive Females act the complete opposite! When the male approaches, she will stand her ground and wag her tail in the male's face; she may also attack the male when the male grasps her, either on the nape of the neck or the nape of the tail. If all else fails, she will simply run away from the male. When the female is becoming ready to breed, she will eat a lot more food as she is fattening up for Ovulation. Males that are ready to mate may also wag his tail in the air or even thump his tail on the sand when approaching a female. If successful, the male will climb on top of the female and begin to mate with her. The female may raise her tail so the male can 'position' himself properly. Mating will last several minutes until the female wants to leave. About 2 weeks later, provided the mating was successful, she will become noticeably Gravid (pregnant). Laying of the Eggs can take different amounts of time. The usual time for deposition is around 4-6 weeks depending on age, size and health. First time Females may take a little longer, even 8-9 weeks. Any longer than that, seek a Reptile Vet. Provide 1 or 2 nesting sites. I find Cricket containers to be quite useful. Simply cut a medium sized hole at the top of the container, even up to the rim. The lid will still be able to click on and off. Fill up to the hole in the container with Albert Red Sand mixed with Vermiculite. Always keep this container moist, well the substrate inside. Dig a suitable sized hole in the sand which you can place the container in, inside the enclosure. Cover the whole Container with sand, except for the entrance hole. Peer inside and it should be pitch black. Make two of these nesting boxes and place one in the hot end of the cage and one in the cool end of the cage. Place these containers in at the beginning of when you raise your temperatures back up, at the end of the cooling period. The female will then be comfortable with hiding in them and she may lay in them too. Always keep these sites moist. When ready, she may lay in them; otherwise, you will have fun finding them in the sand around the whole cage! She will most likely lay them at the bottom of the nest box or the bottom of the cage. As soon as possible, remove the eggs gently and place them in an egg container. Just get another cricket container (Don't cut it up) just fill it $\frac{3}{4}$ with Vermiculite and put around 45ml of luke- warm water all over the vermiculite. Place the eggs on top of the Vermiculite and get ready for incubation! Only two eggs (rarely 1) will be laid each clutch. There are many methods in which you can incubate Smooth Knob Tail eggs. You can really incubate them however you want as long as you can keep the incubation temperature at a stable 27-29oC. If kept at that, the eggs should hatch in around 6-8weeks. Air the containers about each fortnight to supply the eggs with new oxygen. Each breeding season, Smooth Knob Tails will usually have a dud clutch, maybe two. This is where the clutch of eggs is completely un-viable and will not hatch. It is not your fault, it is just what happens. Each season, you can expect up to 6 or 7 clutches of eggs. Obviously, one or two clutches may be dud clutches but 5 or 6 clutches is as many as you would want to expect from any healthy female.

Care for Neonates/Hatchlings is similarly to Adults but separate Hatchlings when sexes are identifiable. The Breeding season for Smooth Knob Tailed Geckos ends at March and at that point, you can remove Males until the Breeding season returns or not, it really does not matter but when females ARE Gravid, remove the male until she has laid and the re-introduce him so they can mate again!

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