

NOTES ON A CAPTIVE SCRUB PYTHON *MORELIA AMETHISTINA KINGHORN*

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INTRODUCTION

The author held an adult male Australian Scrub python *Morelia amethystina kinghorni* between 13/01/79 and 08/05/81 (Day/Month/Year), when it along with 14 other snakes was stolen from the author's facility (Cumming, 1981; Hoser, 1989).

For the period it was held by the author it was subjected to relatively detailed study. Like all reptiles held by the author the snake had relevant notes taken with regards to its feeding (every item taken), sloughing, regular body measurements and all other activity deemed noteworthy. The system used for taking notes was essentially that documented by the author in 'Notes from NOAH' (Hoser, 1984).

A reference to the feeding habits of this snake, in particular its feeding on 'size 14 (1.4 kg) supermarket chickens' in the book 'Australian Reptiles and frogs' (Hoser, 1989), seems to have drawn a number of comments of surprise and suspicion. Harry Ehmann when reviewing 'Australian Reptiles and Frogs' stated *I roared with laughter when reading of captive Scrub pythons diet...* (Ehmann, 1990). It is because the keeping of the male Scrub python *Morelia amethystina* has attracted a disproportionate amount of questions that many of the notes taken in relation to this snake are reported here.

A study of different temperatures between the head and body was also undertaken as a result of a peculiar pattern of behaviour exhibited by this snake. Conclusions and relevant discussion is undertaken at the same point in this paper as where relevant observations are documented.

INITIAL DETAILS OF THE SNAKE

On 13/1/79, the snake (which was held under a NSW NPWS permit) was transferred from a Mr. Glen Marin of West Ryde to myself, who at the time lived at 60 Arterial Road St. Ives, (both were suburbs of Sydney, Australia).

The snake had been held for about two years by Mr. Marin along with another of the same species, a female of similar size, distinguished by the presence of a 'zig-zag' tail. How the tail end had got the 'zig-zag' shape was not known but it had not visibly adversely affected the female in any way.

Mr. Marin had been prompted to pass/give the author the male Scrub python, following the break, enter and theft from his residence of the female Scrub python and all his other snakes except for a single Carpet python *Morelia spilota macropsila*. The Carpet python also was given to the author.

Specimens stolen from Marin had included other Carpet pythons, Diamond pythons *Morelia spilota spilota*, Death adders *Acanthophis antarcticus* and Northern death adders *Acanthophis praelongus*. A principal motivation for passing the Scrub (and carpet) python/s to the author was the fact that in the wake of 1977 and 78 break ins, the author had what was at the time, the most resistant reptile keeping facility in Sydney (the author's facility was protected by a heavy locked door, in a room surrounded by two brick walls).

Marin had obtained the snake from near Cooktown in north Queensland. He had housed it in an empty room of his house, (a 'sun-room'), with plenty of natural light and few furnishings.

The snake was obtained by the author, marginally thinner than average for a Scrub python of its size, but in essentially good health. It did have a few scars on its body and head.

The snake was for most of the period 13/1/79 to 8/5/81 housed in a semi-heated cage, 135 cm high, by 345 cm long, by 240 cm wide. The cage had 'blue' lights on all the time and 'white' day lights activated by time switch. The cage had among other things, large tree branches tied across the ceiling to act as perches (6 Diamond/Carpet pythons shared the cage), a large water bowl, and a large 'hot box'.

The 'hot box' was a sealed heavy wooden box with a circular entry hole on one side. Under the box, in a sealed compartment were two low wattage (usually 25 Watt, blue) light globes, which heated the inside of the box. It was built to provide a warm spot for the Scrub python and the other pythons in the cage, should other parts of the cage be too cold for the snakes, particularly in winter. The inside of the box averaged 32°C, which was on the border line of being too hot for the *Morelia* pythons, but still seemed to be for the most part comfortable for the Scrub python.

Access to the inside of the hot-box was by a hinged side of the box. Although in hindsight the cage was not of optimal design for the control, keeping and breeding of the snakes in question, all six Diamond/Carpet pythons and the Scrub python were maintained in good health throughout the period in question, although no breeding activity took place, (excluding some observed copulation activity in the pythons which did not result in the production of eggs or 'lugs').

No hostile activity between any of the snakes was ever observed. The Scrub python was substantially larger than the *Morelia* pythons which averaged about 190 cm and the Scrub python could have at any stage eaten any of the other snakes. The Scrub python apparently ignored the other pythons, and they did likewise to the Scrub python.

Upon initial receipt, the vital statistics for the Scrub python were : head-length 9.5 cm, head-width 6.2 cm, head-depth 3 cm, snout-vent 321 cm, total length 384 cm. The scalation was 35 mid-body rows, 357 ventrals, single anal, 105 paired subcaudals and 7 single subcaudals.

On 8/4/81 the Scrub python had attained 418 cm in total length, a growth of some 34 cm in little over two years, although most of that growth was in the first twelve months.

FURTHER NOTES

Sloughing. Although a summary of the sloughing of this snake (listed as LA-1) was previously published (Hoser, 1982), a more detailed record of this snake is presented here. During the 28 months in captivity the Scrub python sloughed ten times, on the following dates (Day/Month/Year):

- 1: 14/03/79 (piecemeal)
- 2: 09/44/79 (piecemeal)
- 3: 16/05/79 (piecemeal)
- 4: 04/09/79 (piecemeal)
- 5: 23/11/79 (three piece slough)

- 6: 21/02/80 ('perfect one piece slough)
- 7: 17/05/80 (5 piece slough, took from 15.30 to 16.30 Eastern Standard Time to slough - one hour)
- 8: 03/12/80 (25 piece slough)
- 9: Sometime between 22/1/81 and 11/2/81 ('perfect' 1 piece slough) (author was away on a trip)
- 10: 08/04/81 (in excess of ten pieces)

The temperature and humidity conditions of the cage were never altered in any way during the two year period, although overall conditions in the cage (situated in a fortified room under the house) no doubt varied in response to outside seasonal temperature variations.

The fact that the Scrub python experienced some difficulty in sloughing in the first four sloughs was demonstrated by the fact that each slough comprised more than 25 pieces and did not come off in the usual head-to-tail fashion. No alarm at the piecemeal sloughs had been raised by the author as the health of the snake was not evidently (or seemingly adversely) affected. Scales underneath sloughed skin seemed to be in 'normal' condition.

That the two one piece sloughs occurred at the height of the (Australian) summer, in two successive years was probably not a co-incidence. The relatively cool cage that the Scrub python was kept in, probably did not provide the snake with optimal temperature and humidity conditions for sloughing. Scrub pythons are not a native inhabitant of Sydney, only occurring in tropical habitats over 2000 km north of Sydney.

The Scrub python was a relatively dull, but otherwise normally coloured individual. On 06/08/79, it was noted that the colouration of the snake had got considerably darker since it was obtained, seven months earlier. The glossiness of the snake's colour was by far greatest after sloughing.

The snake's colour appeared to lighten again in the following summer months. Colour darkening has also been noted in other Australian snakes, (usually in winter in captive snakes) including Death adder *Acanthophis antarcticus* (Hoser, 1985), Taipan *Oxyuranus scutellatus* (Banks, 1981), Inland taipan *Oxyuranus microlepidotus* (Mirtschin, 1982, Hoser, 1989) and the Western brown snake *Pseudonaja nuchalis* (Banks, 1981).

Charles (1988), reported an adult female Scrub python becoming darker, until it became 'almost black dorsally' during a period in which the snake became gravid. He also noted the snake retaining her darker colouration when sloughing during this period. Two slough after oviposition on 14/10/87, the snake returned to her 'normal colour'. Although Charles (1988) may have implied (intentionally or otherwise) that the snake had become darker due to becoming gravid, this author believes that the snake's colour change over the period reflected changes in temperature and/or humidity conditions.

FEEDING

During the 28 months that this snake was held in captivity it took just 18 food items in 18 separate meals. On a number of occasions food was offered but not taken, whereupon it was removed from the snake's cage as soon as it was apparent that the snake would not eat almost immediately. Unlike many other Scrub pythons, this snake was of very even temperament, (it only tried to bite the author once in the 28 month period in question). It was easy to gauge whether or not it was likely to eat upon the introduction of food.

The diet of this snake was as follows:

13/01/79 - one adult live brown duck (est. 1.5 kg)

- 04/02/79 - one adult live white duck (est. 1.5 kg)
- 21/03/79 - one adult dead bandicoot (marsupial) (est. 1.5 kg)
- 17/05/79 - one adult live duck (est. 1.5 kg)
- 27/05/79 - one adult dead bandicoot (marsupial) (est. 1.5 kg)
- 05/07/79 - one adult black rooster (est. 1 kg)
- 04/09/79 - one half grown brown chicken (est. .5 kg)
- 07/09/79 - one half grown brown chicken (est. .5 kg)
- 05/10/79 - one adult live white chicken (est. 1.5 kg)
- 28/11/89 - one adult live white chicken (est. 1.5 kg)
- 18/01/80 - one plucked chicken (1.2 kg exact), had been purchased in a cooled but unfrozen state, sealed in plastic, from a chicken shop. It took the Scrub python four hours to eat the chicken, (taken as the time from first biting the chicken to where it reaches and stops at the stomach about six foot from the head). As the chicken did not have a head or neck the Scrub python had extreme difficulty in getting its mouth around a given point of the chicken.
- 31/01/80 - one plucked chicken (.9 kg exact), in an unfrozen sate, took just 30 minutes to eat (it still had a neck).
- 23/02/80 - one plucked chicken (1.4 kg exact), in an unfrozen state took four hours to eat.
- 08/03/80 - one plucked chicken (1.1 kg exact), in an unfrozen state took 2 hours to eat.
- 29/03/80 - one plucked chicken (1.1 kg exact), in an unfrozen state took 70 minutes to eat.
- 07/12/80 - one live white chicken (est. 1 kg).
- 20/12/80 - one live white chicken (est. 1 kg).
- 14/02/81 - one dead white chicken (est 1 kg).

On some occasions the Scrub python was fed outside of its cage, either on the back lawn or in a small 'feeding cage.' Usually this was so that photos could be taken. Only two photos (of fairly poor quality) were taken of the Scrub python eating a plucked chicken. The plucked chickens certainly appeared to provide the Scrub python with more 'food value' than feathered birds of similar weight. Although mammals appeared to have more 'food value' than feathered birds of the same weight, the plucked chickens seemed to be a better 'food value' alternative in terms of allowing the Scrub python to gain more condition.

To all intents and purposes, the Scrub python ate every type of food item offered. However, its feeding habits could only have been described as sporadic. It frequently rejected food when offered, but even after long fasts, the snake seemed to lose little condition. This was perhaps due to the relatively low temperature the snake was kept at, a low parasite burden or perhaps both.

Other keepers of this species have been surprised at the relatively small amount of food eaten by this snake over a fairly lengthy period. Certainly it appears that most Scrub pythons in captivity of similar size eat more over a given period of time. (Brian Barnett, Victoria, pers. comm.; Bob Irwin, Queensland, pers. comm.; Gary Stephenson, New South Wales, pers. comm.; Robert Whitney, New South Wales, pers. comm.).

After eating an item such as a duck, the stomach would swell substantially as it filled with digestive juices. Although partially dependant on the temperature of the snake, the snake's stomach would usually be at its most swollen state about two days after eating. The bulge of the food item would then gradually diminish as it was digested. The noises made by the movement of stomach fluids was often loud and could often be heard a few feet away from the coiled snake. The Scrub python also had an increased tendency to utilize the hot-box after eating, presumably in a bid to hasten digestion.



Foto 1: Kop van de dwergpython, *Morelia amethystina kinghorni*, Head of the scrub python. Foto R.T. Hoser.

HEAD-BODY TEMPERATURE DIFFERENCES

Except when unusually hot weather warmed up the snake room or the cage, the Scrub python spent a substantial amount of time in the hot-box. After having been in the hot-box for a prolonged period, (usually some hours) it was noticed that the Scrub python would rest with its head literally hanging loose outside of the hot-box.

These resting periods included sleep periods and often lasted in excess of 12 hours. Occasions that the snake was sleeping with its head outside of the hot-box were indicated by the fact that the snake was oblivious to the presence of anything until actually touched.

The easily noted difference between head and body temperatures in this snake when handled in the above mentioned situations led to the author taking measurements, using a thermometer. Readings were taken from the inside of the mouth and in the vent. On 15 separate occasions between 29/7/80 and 5/3/81, the snake's head-body temperatures were measured.

Measurements were only taken when the Scrub python's head had been observed resting outside of the hot-box in excess of sixty minutes and usually substantially longer.

To the nearest 0.5 degree the readings were as follows:-

Date	Time	Head (°C)	Vent/Body (°C)
29/07/80	08.15 p.m.	27.5	31
03/08/80	09.05 a.m.	25	31
04/08/80	07.00 a.m.	25.5	30.5
06/08/80	11.55 p.m.	25	31
09/08/80	10.08 p.m.	25.5	31
15/09/80	11.59 p.m.	25	31.5

18/09/80	06.55 a.m.	25	31
19/09/80	06.05 a.m.	24	31
29/09/80	07.55 p.m.	25	31
10/10/80	06.50 a.m.	25.5	31
11/10/80	08.05 a.m.	26	31
01/03/81	09.05 a.m.	25	30.5
02/03/81	09.30 p.m.	25.5	31
04/03/81	11.05 a.m.	26.5	30.5
05/03/81	07.05 a.m.	26.5	30.5
Average		25.4	31

The difference in temperature between the head and body was on average in excess of 5°C.

The above mentioned behaviour may be summarized thus: After a lengthy period in the hot-box, the snake became too hot for comfort, but preferred the heat of the hot-box to the relative cool of the rest of the cage. By positioning its head out of the hot-box the python was able to use its head as a sink for heat loss. The temperature of the head, the most important part of the body, was also maintained at a more preferred temperature. That snakes heads often show less temperature fluctuations than their bodies is well known (Webb & Heatwole, 1971; Johnson, 1973). The lesser fluctuation of head temperature is probably due to the fact that the brain is more sensitive to heat damage than other parts of the reptile (Heatwole, 1976).

The behaviour described in the Scrub python *Morelia amethystina* was never observed in the adult *Morelia* pythons kept in the same cage. No attempt was ever made to measure potential head-body temperature differences in any other pythons held by the author, including *Bothrochilus* (= *Liasis*) *stimsoni*, *Bothrochilus maculosus* (both referred to in Hoser 1982, as *Liasis childreni*/Children's pythons or Ant-hill pythons *Bothrochilus perthensis*).

Greg Hollace (New South Wales, pers. comm.) has recorded thermoregulatory behaviour in two male pythons held by himself similar to that described by the Scrub python above, when the two pythons were kept in conditions similar to that in which the author's Scrub python was kept. The two snakes were an adult Water pythons *Bothrochilus fuscus* (Photographed on plate 320 in Hoser 1989), and an adult carpet python *Morelia spilota macropsila*.

SWOLLEN HEART

On 01/11/80 the Scrub python's heart was noticed swollen and was easily visible upon inspection. The snake had been inspected after refusing to eat a live white chicken, after fasting for several months. The snake was taken to a veterinary surgeon with a great deal of familiarity with snakes, Henry Hirschorn of Warriewood, a Sydney suburb. Hirschorn inspected the heart twice in a month and took both blood and faecal samples.

Despite the swelling, the snake's trachea and digestive tract appeared unimpeded. The swollen heart, had according to Hirschorn possibly been present for some time longer than the author had noticed and only become more visible after the snake had fasted for some time, which is what had happened.

Hirschorn was unable to find anything adverse in relation to the snake's health and it certainly appeared quite healthy. No major parasite burden was diagnosed by Hirschorn from the samples taken. He stressed the possibility of the presence of some undiagnosed parasites, which may or may not have been potentially harmful.

The good health of the snake was confirmed on 07/12/80, when a live white chicken was left in the cage with the snake for some hours. It was found eaten upon later inspection. (This

author does not under most circumstances condone the leaving of live food unattended with snakes). The Scrub python resumed feeding as per normal after 07/12/80.

Hirschorn informed the author that swollen hearts are prominent in a number of snakes. Brown tree snake *Boiga irregularis* are particularly prone to having swollen hearts. The author has since 1980 observed a number of Brown tree snakes with prominent or swollen hearts.

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