CARE AND CAPTIVE BREEDING OF THE NORTHERN PINE SNAKE *PITUOPHIS M. MELANOLEUCUS*

RAYMOND A. HINE

34 Mafeking Avenue, Newbury Park, Ilford, Essex

DESCRIPTION AND RANGE

The Northern Pine Snake is one of the U.S.A.'s most impressive serpents, both in size and colour. The record length is 83" (210.8cm), with an average of over 60" (152cm).

The background colour ranges from a light buff to a dirty or almost pure white. This is overlaid with dark brown or jet black saddles, to give a very striking effect. The scales are keeled.

Youngsters are similar to adults, but have more of an orangey or pinkish tinge to the background colour and the saddles are brown, thus giving it an appearance which could mistake it for its western cousins, the bull and gopher snakes.

The range of this species is S.New Jersey (where it is a protected species), W.Virginia, S.Kentucky, Tennessee, N.Alabama, N.Georgia, S.W. and S.E. N.Carolina and S. Carolina.

HABITAT AND HABITS

It is found mostly in dry flat sandy areas, or dry mountain ridges in or near to pine woods. Being so large and diurnal one would think it would be a common sight to herpetologists in its range, but this is not so. Probably because of its feeding habits it is rarely seen. Being an avid rodent eater it no doubt spends most of its active life down rodent burrows searching for food. Birds, nestlings and eggs are also eaten and for this prey item the Pine snake will climb trees. In hot weather the snake may be encountered at dusk.

CARE IN CAPTIVITY

Housing

The cage should be quite roomy, 36" (91.4cm) x 18" (46cm) x 18" (46cm), being a minimum for one adult. The furnishings should be simple; a hide box, a sturdy branch and a water pot. The floor should be kept clean and dry; newspaper is excellent, although some people use wood shavings, pine needles, pea gravel, heavy aquarium gravel or bracken.

The cage should have good air circulation and a bulb at one end to give a heat gradient. Two hide boxes can be used, one at each end, to give the snake a choice of temperatures.

Feeding

Adults, if of a good body weight, should be fed once a week on two mice. Males in breeding condition will not feed and gravid females will not feed until after the eggs have been laid; nor will either sex feed during the winter 'cool off' period (which, if your aim is to breed Pines, is essential). Adults will also eat day old chicks and smallish fresh farm eggs. However, if fed solely on these, their faeces become very runny and smelly.

There are no hard and fast rules on how much an individual should be fed, as it will depend entirely on the condition of the specimen at that particular time. A female that has just laid eggs obviously needs feeding up before the winter 'cool off' period (which can last up to 5 months in my collection). Females will also need larger meals after the cooling period and before being mated by a male in the spring.

Hatchling Pines will generally eat baby mice from the start, so are very easy to rear. They do, however, tend to gorge themselves if the opportunity arises (as do most species of *Pituophis*). This should be avoided as they may regurgitate and this cannot do the snake any good.

REARING HATCHLINGS

I obtained my 5 specimens (2 males and 3 females) as hatchlings in autumn 1977. For their first winter they were kept in individual sandwich boxes with nylon mesh fronts. These boxes, in which I house all my hatchling snakes, were stacked three high in a 36" aquarium. The two 40 watt bulbs, fitted in the lid, were left on for 16 hours a day and a heat pad under the tank assured the temperature would not fall below 75°F (24°C) even on the coldest nights.

The youngsters fed throughout their first winter and it was not until their second winter that I allowed them a cooling off period. By this time all the youngsters had grown to between 42" (107cm) and 48" (122 cm), and were living in 36" cages. The bulbs in the cages were wired up to an automatic timer, which switches on and off at pre-set times. The photo-period I use is governed by the natural day-lengths outside. I simply set the timer to come on about 30 minutes after sunrise, and go off about 30 minutes before sunset. This normally gives about 16 hours of daylight in the height of the summer, and 8 hours in the winter.

The room has no additional heat source, but as the house is centrally heated, and the room is an upstairs bedroom, a certain amount of heat is retained; even on the coldest winter nights temperatures never fall below 12°C.

The snakes stopped feeding about the end of September 1978, the males having fed for a couple of weeks longer than the females. Although feeding had stopped and temperatures were quite low, the snakes were still very active. My thoughts were that if the cage prowling activity carried on through the fasting period, a lot of energy and body fat would be used up before spring. At this point I changed all the 25w bulbs for 15w. This seemed to do the trick and they remained relatively inactive for the rest of the winter.

The snakes started feeding again in March 1979 and fed well until the middle of September. They were all in the region of 60" (152cm) when they stopped feeding, and it was hoped large enough to breed the following spring.

BREEDING

They all saw the winter through without any problems and commenced feeding about the first week in February, a fast of 4½ months. The first sign of unusual behaviour was when the two males stopped feeding at the beginning of March. They both seemed very restless, continually nosing the corners of their cages and moving around both day and night. After a few days of this I put the larger male (M1) in the cage of the smaller male (M2). There was a very hostile reaction from both snakes and they spent the next 20 minutes arching their bodies and twining around each other, obviously in some sort of combat ritual. I separated them and a week later put them together again. After 30 minutes of combat they were separated and put with the two largest females.

Both males attempted to mate their respective females, but their approach was totally different. The larger male (M1), rubbed its chin slowly up and down the female's back, while trying to position itself for copulation. The second male (M2) grabbed the female in its jaws and they both flew around the cage at high speed, knocking everything upside down. After a couple of hours, they had all lost interest and were separated. On the 28th March they were reintroduced, this time the females were switched. The same approach by both males took place as before. M2 was separated after a few hours, but M1 was left with his mate. Mating activity continued through the night, but copulation was not observed on the various inspections I made through the evening.

These introductions and separations continued until 10th April, but unfortunately copulation was not witnessed. However on the 16th April a mouse was offered and refused by the largest female, up until then a very greedy feeder. Further mice were refused over the next few days, and the body of the snake began to look swollen. It was confirmed that she was gravid when I ran the snake through my hands and felt several large lumps halfway along her body.

On the 28th April she shed her skin, and by this time she was very triangular in shape and extremely heavy bodied. A receptacle, in the form of a hand basin, was introduced a couple of days later for egg laying purposes. This was filled with damp sphagnum moss, and covered with some cardboard for added security.

Unfortunately, I had a holiday booked at this time, so I left a friend with instructions to look in a couple of times a week and remove any eggs should they be laid.

On the 15th May my friend found the female straining to pass her final egg. She had already laid five, two in the receptacle and the other three around the cage. Being an experienced herpetologist, he had seen females retain eggs before, so he left her overnight and returned to help her the next day. Unfortunately she was dead, with the two final eggs still inside her. She was probably so weak from laying the first five eggs, which were very large and probably overdue, that she had no strength left for the last two. (Never book holidays at egg laying time!).

The eggs were incubated in a sandwich box half filled with slightly dampened vermiculite. The box was placed on a shelf in my home made incubator and the temperature fluctuated between 26^{o} and 31^{o}C.

Three of the eggs discoloured and went off within ten days of laying. The largest two looked good for about three weeks, until a thick mould grew over one of them. This mould was scraped off now and again, but still grew back. However, both eggs hatched on the 8th July, an incubation period of 55 days.

Plate 1. A hatching Pine Snake from an egg covered in mould.

The young (both females) measured 18" (46cm) long, were very plump, and when picked up hissed and struck repeatedly. They were house in the same sandwich boxes as their parents had been three years previously. On the 21st July both snakes shed, and each ate a baby mouse the following day.

It is hoped that some males can be bred next year for future captive breeding.

REFERENCES

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