Leopard Tortoise (*Geochelone pardalis*)

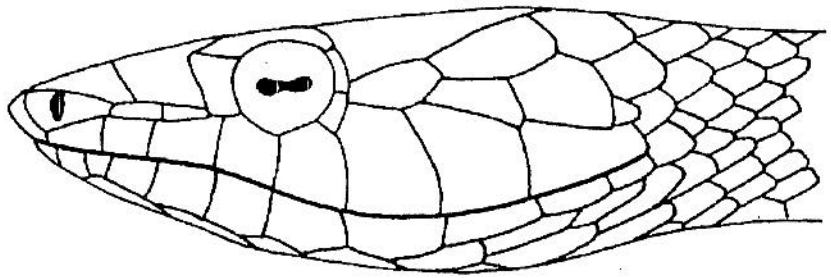
A subadult was found in the den of a porcupine (*Hystrix africaeaustralis*), along with many mammalian bones. Tortoises are reported to be very scarce in the area due to difficulties in moving over the stony ground.

Karoo Sand Snake (*Psammophis notostictus*)

One specimen was seen at close range.

Other snakes which have been seen by experiences people include the Western Barred Spitting Cobra (*Naja nigricollis nigricincta*), which is common; Black Mamba (*Dendroaspis polylepis*); Angolan Dwarf Python (*Python anchietae*), of which eight specimens of this rare animal have been found in the vicinity over the last seven years; and African Rock Python (*Python sebae natalensis*), of which only one has been found in the same period.

There are many more reptiles, as well as amphibians, which were not encountered but which still wait to be discovered on my next visit.



Thelotornis capensis oatesii (Gunther, 1881). Mtorashanga, Zimbabwe.

Illustration: A.J.L. Lambiris

DIETARY REQUIREMENTS OF CAPTIVE HATCHLING NAMAQUALAND SPECKLED PADLOPERS (*HOMOPUS S. SIGNATUS*)

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In a studbook breeding programme, the Namaqualand speckled padloper (*Homopus s. signatus*) has been kept and bred successfully in The Netherlands since October 1995. Some notes on reproduction have been described (Loehr, 1997). Additional information can be found at the internet site of the programme (address above). A detailed report summarising the greater part of information gained is in preparation.

Between October 1995 and July 1997, three adult *Homopus s. signatus* were generally fed three times weekly on a mixture of green leaves (endive, chicory, *Taraxacum*, *Plantago*, *Vicia*, *Bellum*, *Trifolium*, etc.) and fruits (apple, tomato, carrot and cucumber), supplemented with a calcium/vitamin additive (Gistocal; Beaphar BV, Raalte, The Netherlands). Four captive-bred hatchlings present in that period received the same diet, but were fed daily during the first year of their lives. During the period that this mixture was fed, no feeding-related problems were noticed. The mass of the second oldest hatchling dropped considerably between January and March 1996, but this decrease was not accompanied by behavioural and/or external changes and the decrease was reversed spontaneously later on.

From July 1997, the diet of all the tortoises was changed almost exclusively to green leaves, supplemented with a single kind of fruit only once a week, and the calcium/vitamin additive. The amount of fruits fed was gradually further decreased until completely excluded from the diet by the end of April 1998. Recent information with respect to the feeding of tortoises suggested that providing fruits could be unbeneficial, due to the often low Ca/P ratio and fiber content, and the high water and sugar content (among others, McArthur, 1996). Three hatchlings were born in October/November 1997 and therefore first received a daily diet low in fruit content (single kind of fruit once a week) and later the diet without any fruits.

Apart from two of the 1997 hatchlings, the *Homopus* did not show a distinct response to the change in diet. Growth (figure 1) and behaviour proceeded as expected (January-April 1998 coincided with winter climatic conditions in the enclosures [figure 2]). Two of the 1997 hatchlings, however, showed a normal mass increase (compared to the other hatchlings) between the time of hatching and May 1998 (period of diet with low fruit content), and a mass decrease (average 24% of the mass measured in May) after that time (period of diet without fruits) (figure 1). The two tortoises that showed a mass decrease from May 1998 furthermore had their

eyes closed for most of the time, were inactive and often spend the night outside a retreat. Skin sloughing did not proceed in a normal manner, as pieces of old skin remained attached to new skin. All three hatchlings of 1997 were housed together.

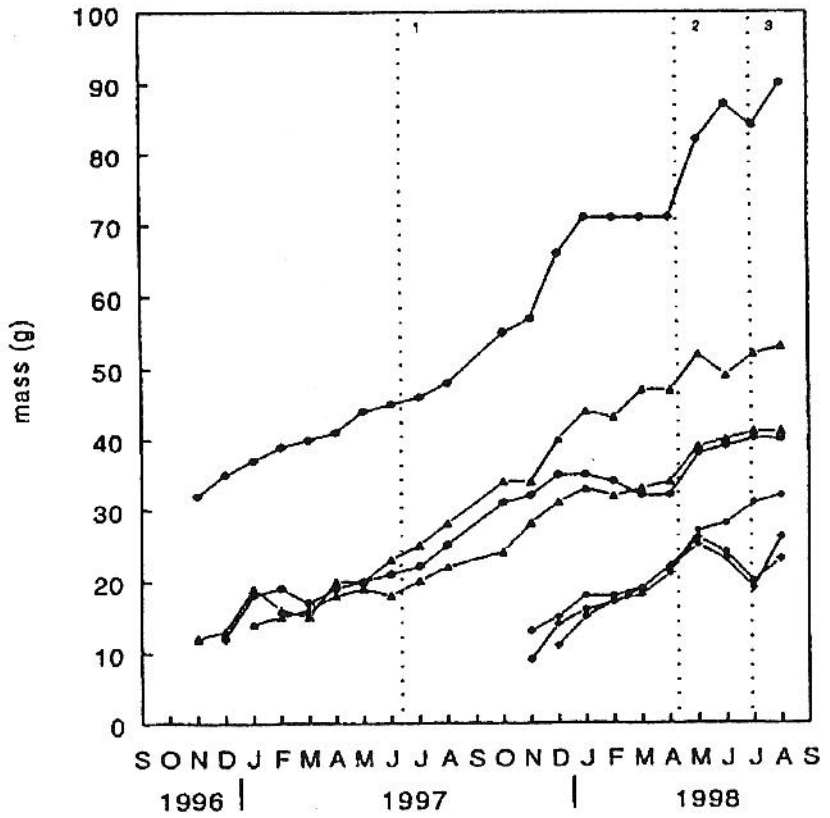

Figure 1: Mass of seven captive born Namaqualand speckled padlopers (*Homopus s. signatus*) between October 1996 and July 1998. Plotted recordings for each specimen start from the 15th of the month after hatching (except for the oldest hatchling, which was born on 27 February 1996).

Lines through similar symbols represent specimens that were housed together. In the enclosure of the two specimens indicated by a line through solid circles, a spot light was absent during winter climatic conditions, in contrast to those of the other hatchlings.

Dotted line 1 represents the time from which the diet with a single kind of fruit once weekly was provided. Dotted line 2 indicates the time from which fruits were excluded from the diet. Dotted line 3 indicates the time from which two of the youngest hatchlings were soaked daily and the diet including fruits was reinstated.

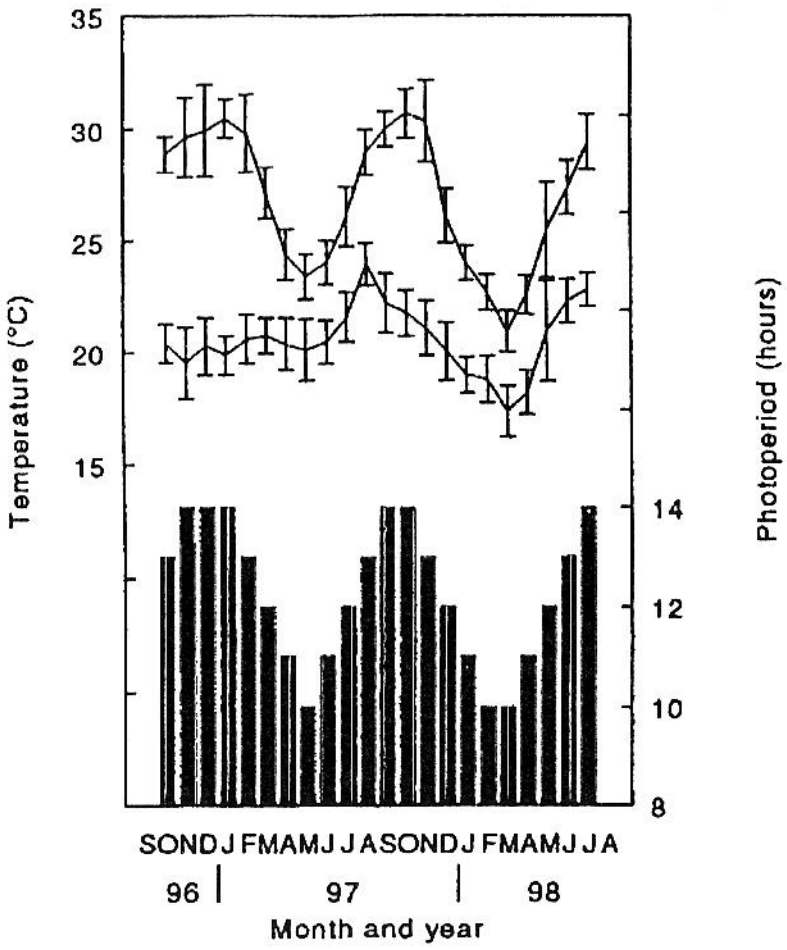

Figure 2: Monthly mean maximum and minimum temperatures (± SE) in a shelter within the enclosure of three adult *Homopus s. signatus*. The temperature in the hatchling enclosures was comparable (except for the temperature in the enclosure of the three youngest hatchlings after June 1998). Bars represent the mean photoperiod in all enclosures.

In order to treat the two hatchlings, day temperatures were initially (from 15 June 1998) raised to 30-32°C and the number of showers per week was decreased from every other day (normally practised during the first year after hatching) to twice weekly. There was no response to this change. Next, from 16 July the hatchlings were soaked every day and the daily diet with the mixture of fruits was reinstated (the other *Homopus s. signatus* were fed three times weekly, with fruits added twice weekly). Day temperatures were kept just above 30°C and the number of showers was increased to every second day again. Following the change in husbandry practises, both hatchlings started to feed eagerly on fruits and became more active. Also the eyes appeared to recover. Mass started to increase immediately (figure 1).

It was concluded that the problems in the hatchlings had been caused by dehydration resulting from the diminished water content of the diet. The third hatchling of 1997 appeared not to be stressed by the changing diet, but in contrast to the other two, was observed licking water drops from stones in the enclosure after showering. The lack of response to the changed diet in the older *Homopus* can be explained in terms of a higher body volume to surface ratio, which prevents dehydration more efficiently. Furthermore, especially the adult specimens are frequently observed drinking from water bowls permanently available in all the enclosures. This kind of behaviour has not been seen in our captive hatchling *Homopus s. signatus*.

It is hypothesised that the diet of wild *Homopus s.signatus* will at least partly consist of succulent leaves with a high water content. Such plants are abundant in the natural habitat of the species (pers. obs.). With respect to the husbandry of hatchlings of the Namaqualand speckled padloper, it is suggested that a water-rich component in the diet is required. Fruits could be used for this purpose, although it remains unclear what the effects of the low Ca/P ratio and fiber content and the high sugar content will be in the long term.

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PHOTOPERIOD, TEMPERATURES AND BREEDING IN CAPTIVE NAMAQUALAND SPECKLED PADLOPERS, *HOMOPUS S. SIGNATUS*

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Tortoises of the genus *Homopus* generally do not survive easily in captivity outside their native habitat. Of the specimens obtained from pet shops in the USA, Europe and elsewhere, in past years, very few adults or offspring have survived.

Factors contributing to the poor success in keeping *Homopus* in captivity include lengthy periods between collecting in the wild and releasing in the final enclosure (thus weakening the small tortoises and making them vulnerable for deadly outbursts of internal parasites), and failure to satisfy specialised dietary and other requirements. A contributing factor that is not well documented is the fact that specimens from the southern hemisphere (longest photoperiod and highest temperature in January) will have to adjust to northern hemisphere climatic conditions (longest photoperiod and highest temperature in July). It is common practice among keepers in Europe and the USA to release wild-caught tortoises from southern hemisphere regions into enclosures in which northern hemisphere climatic conditions already prevail.

There appears to be a total lack of published data on the effects of this practice on the well-being of reptiles. Hersche and Gorseman (pers. comm.) found that different species of South African tortoises did not, for unknown reasons, do well in captivity in Switzerland and The Netherlands respectively. The annual cycle of behaviour of the animals showed deviations from what should be expected and survival rates were low. They attributed this to the sudden shift from southern to northern hemisphere climatic conditions. Angulated tortoises (*Chersina angulata*) seemed to deal best with the shift.

In September 1995, four *Homopus s. signatus* were collected in South Africa (permit 331/95) and exported to The Netherlands (CITES permit 281/95C). Climatic conditions in the enclosure initially replicated those prevailing at the locality of capture (southern hemisphere) and were gradually changed to those of the northern hemisphere over a period of 4 years (figure 1). The tortoises responded to this regime by showing activity patterns following the shifting course of the climatic conditions (Loehr, in prep.). The most marked pattern relates to egg-laying, which first started in October 1995, then at the end of July 1996, the end of June 1997, and finally at the beginning of June 1998 (figure 1).

It is hypothesised that difficulties in keeping southern African tortoise species