

NOTES ON SHOVEL-NOSED SNAKES AND SAND SNAKES, *CHIONACTIS* AND *CHILOMENISCUS*

CHRIS MATTISON

138 Dalewood Road, Sheffield S8 0EF

INTRODUCTION

The purpose of this note is to generate interest in the three or four species of small, desert-dwelling snakes at present placed in the genera *Chionactis* and *Chilomeniscus*.

All these animals occur in the south-western corner of North America, where they inhabit arid sandy or stony desert habitats. Their adaptations to a subterranean life-style include smooth shiny scales and a flattened head. All are small, typically less than 30cm in total length, and all feed on invertebrates such as scorpions, spiders, orthopterans and the larvae of beetles etc. Because they are similar in habits, and superficially resemble one another, members of both the genera are dealt with together.

1. *CHIONACTIS*, SHOVEL-NOSED SNAKES

The genus *Chionactis* consists of two currently recognised species, *C. occipitalis* and *C. palarostris*, with four and two subspecies respectively. *Chionactis occipitalis* is the Western Shovel-Nosed Snake:

- C. o. annulata*, Colorado Desert Shovel-Nosed Snake (plate 1)
- C. o. klauberi*, Tucson Shovel-Nosed Snake
- C. o. occipitalis*, Mojave Shovel-Nosed Snake (plate 2), and
- C. o. talpina*, Nevada Shovel-Nosed Snake

Descriptions of these subspecies can be found in field guides such as that of Stebbins (1985) but briefly, *annulata* is creamy yellow with dark brown bands, *klauberi* is cream with small 'secondary' dark bands between the main ones, *occipitalis* is cream with red secondary bands, and *talpina* is cream with occasional, small dark secondary bands. *Klauberi* and *talpina* are further separated by a higher ventral scale count in the latter (more than 152 in males, more than 160 in females). Snakes from two discrete populations, the Anza-Borrego Desert in California and San Felipe in Baja California, though nominally *annulata*, show great variation in the amount of secondary banding, ranging from individuals with full bright red saddles, through others with traces of faint pink or orange to some (about 10%) with no secondary bands at all. Cross (1970) proposes a sequence of colonisation of the San Felipe region which may account for this, and the same argument probably also applies to the Anza-Borrego population.

The habitat of this species includes pockets of sand as are found in dry river washes, although, since most specimens are found on roads during the night it is often difficult to ascertain their exact micro-habitat.

Chionactis palarostris, the Sonoran Shovel-Nosed Snake, is similar to the above species but invariably has broad bright red secondary bands. *C. p. organica* is found in extreme south-western Arizona, mostly within the Organ Pipe Cactus National Monument, and in adjacent parts of Sonora, Mexico. *C. p. palarostris* is restricted to Mexico. The habitat of this species consists mainly of gravelly and rocky desert - typical 'cactus country', although again, the precise nature of its immediate habitat is often difficult to assess at the time of collection.

A third species, *Chionactis saxatilis*, from the Gila Mountains of southwestern Arizona, was described by Funk (1967), although I have been unable to find further reference to it, possibly because it has been suppressed.

2. *CHILOMENISCUS*, SAND SNAKES

Superficially, the Sand Snakes resemble Shovel-Nosed Snakes very closely. They are separated taxonomically by having 13 rather than 15 scale rows at mid-body and an inset lower jaw.



Plate 1. *Chionactis o. occipitalis* from the Coachella Valley, Mojave desert. All specimens from this area are fairly consistent in their markings and colouration.



Plate 2. *Chionactis o. annulata* from Borrego Springs, Colorado Desert. The individual illustrated is one of the more vividly marked from this population.



Plate 3. *Chionactis p. palastrotris* from Sonoita, Mexico.



Plate 4. *Chilomeniscus cinctus* from near San Ignacio, Baja California del Sur, Mexico.



Plate 5. Habitat of *Chionactis occipitalis* near Borrego Springs.



Plate 6. Habitat of *Chilomeniscus cinctus* near Guerrero Negro, Baja California.

They are even more highly adapted to 'sand-swimming'. Two species are currently recognised, but the taxonomy of this group is rather chaotic.

Chilomeniscus cinctus, the Banded Sand Snake, is cream in colour with a series of black or dark brown cross-bars, some of which may encircle the body, or be restricted to the dorsal surface. Animals from some localities have red pigment between the body bands, restricted to the upper dorsum (plate 4). Its range is disjunct, and includes much of Baja California part of southern Arizona, and adjacent parts of Sonora including a substantial stretch of the coastal region of that state.

Chilomeniscus stramineus, the Bandless Sand Snake, is restricted to the Cape Region of Baja California del Sur, and to parts of the Mexican mainland opposite this area, i.e. Sinaloa. In this species, the colour is a uniform brown, yellow or cinnamon, with a single, small black dot on each scale.

Both Sand Snakes live in fine, wind-blown sand, occasionally moving across the surface at night. Again, almost every specimen collected is found on the surface of desert roads at night.

Banta and Leviton (1963) reviewed the taxonomy of *Chilomeniscus* and recognised two further species, *C. punctatissimus*, from Isla Espiritu Santo, Gulf of California and *C. savagei*, from Isla Cerralvo, Gulf of California. They also recognised an additional subspecies of *C. stramineus*, *C. s. esterensis*, from Estero Salinas, in the Pacific coastal region of Baja California del Sur. The validity of some or all of these forms is dubious.

CARE IN CAPTIVITY

Members of both genera (*C. stramineus* has not been available) are a pleasure to keep in captivity. They require an inch or two of sand in which to live and a diet of crickets, waxworm larvae, etc. (A small proportion seem reluctant to eat crickets and soon become thin - in this case, alternative food should be provided until an acceptable diet is established). Despite their desert origins, they require drinking water at all times, otherwise they will soon dehydrate, and some individuals seem to prefer to drink from the side of the vivarium, etc., after it has been sprayed (especially noticeable in specimens of *Chilomeniscus cinctus*). A temperature of around 80°F appears to suit them, although a gradient, as provided by a heat tape or heat pad, is recommended.

They are relatively easily sexed by probing, and breeding should be possible (there are unconfirmed reports of regular captive breeding in a German collection). The only foreseeable problem would be the provision of a damp substrate in which the eggs could be laid: two clutches, of two eggs each, were found dried up in a cage where several recently collected *Chionactis occipitalis* were housed.

All of these snakes lend themselves to a naturalistic set-up in which rocks, cactus skeletons and living succulent plants can add to the aesthetic appeal. In addition, they may be kept (with caution) with other desert reptiles, such as the geckos, *Coleonyx*, since they appear to show no tendency to eat vertebrate prey. Owing to their fossorial habits, they are not always visible, although their period of activity usually begins in the evening regardless of whether the vivarium is lit or not.

C. palarostris is undoubtedly the most attractive species, but also the most difficult to obtain - it is protected throughout its range by virtue of the fact that this falls mostly within Mexico, or in the Organ Pipe Cactus National Monument. However, all species are attractive and interesting, and the fact that their natural history, especially with respect to breeding, is little known, should add to their appeal.

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