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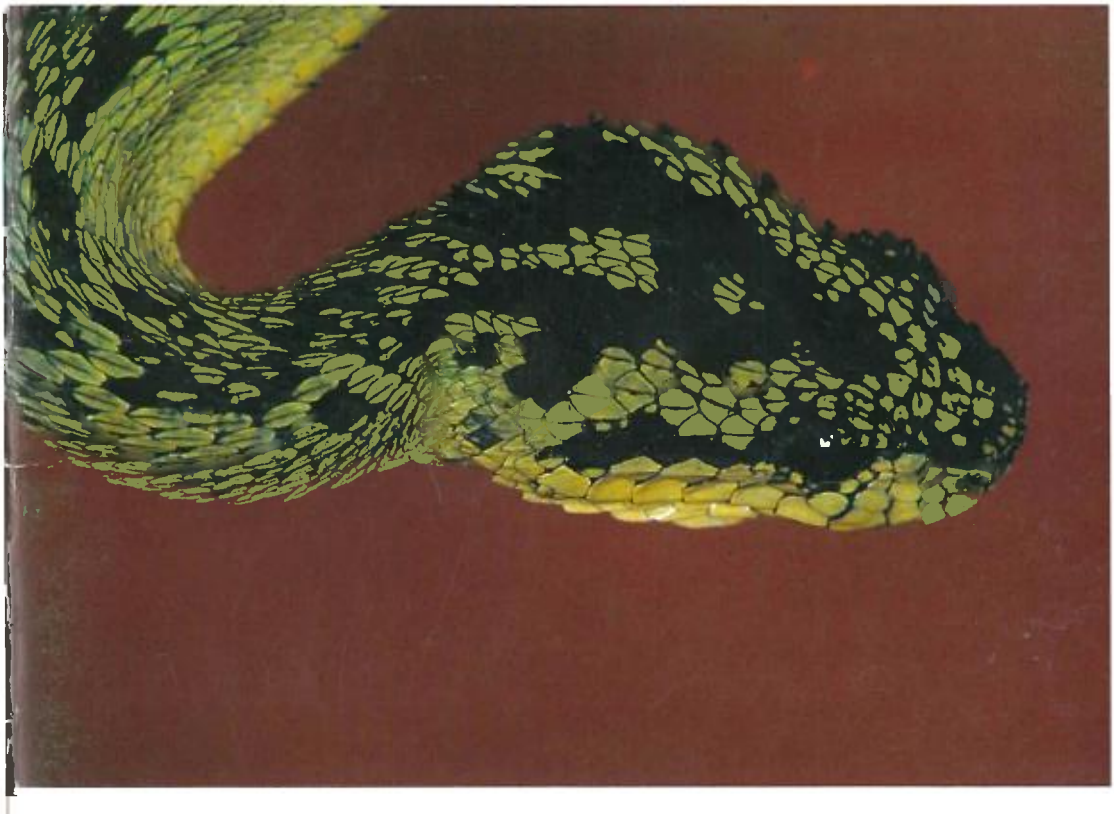

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NOTES ON THE GENUS *ATHERIS* (FAMILY : VIPERIDAE)

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INTRODUCTION

The genus *Atheris* comprises a fascinating group of arboreal vipers distributed widely throughout tropical Africa. Many forms have been described but currently nine species are recognised (Welch, 1982) and subspecies have been defined for *A. squamiger* and *A. nitschei.*

Unfortunately, there is very little published information about this genus. Most studies have been directed largely at identification, habitat and distribution, with short references or assumptions being made on feeding habits, venom toxicity and breeding.

The list of species (Welch, 1982) includes: *A. hispidus* Laurent (1955), the longest and most slender of this group, occurring throughout Zaire, south east Ruwenzori, possibly extreme south west Uganda and western Kenya. Their scales are narrower and more elongate than in the other species, the keels are exaggerated, elongate and incurved, becoming spine-like particularly around the head and anterior body and giving rise to an almost hairy or bristly appearance. Typical colouration is a yellow/green with a light green venter (Pitman, 1974); Laurent (1956) also gives a detailed description of this species. *A. chlorechis* Schegel (1855) the most westerly form, occurring in Guinea, Sierra Leone, east to Cameroon, is pale green in colour with faint banded patterns (Love, 1988). *A. desaixi* Ashe (1968) of which very few specimens have been found, has a limited distribution in Kenya. It is a most attractive animal with dark green scales, each tipped with green/yellow, creating a speckled effect over the head and neck and developing into zig-zag type markings towards the tail. *A. ceratophorus* Werner (1895) occurs in the Usumbara Mountains, Tanzania; *A. hindii* Boulenger (1910), the Kinangop and Aberdare Mountains, Kenya and *A. katangensis* Witte (1953), Zaire. The most southerly form is *A. superciliaris,* occurring in Mozambique, up the Zambesi River to Lake Malawi and southern Tanzania. It is quite distinct from the other species, characterised by its large supraocular scales. Typical colour is greyish-brown with 3 rows of darker blotches broken up by a series of yellow dashes, which form an interrupted lateral line. The venter is pale greyish-white and it has dark chevron markings to the head. It is thought to inhabit rodent burrows, emerging at night to feed (Branch, 1988; Sweeney, 1971).

In the following account, I have concentrated on the remaining two and most closely studied species, *A. squamiger* and *A. nitschei* respectively, reviewing published information and incorporating observations on *A. nitschei* in captivity.

DESCRIPTION

Atheris squamiger Hallowell (1854): A small viper reaching an average length of 46cm. Pitman (1974) recorded a maximum length of 78cm and generally found females to be larger than males. Stucki-Stern, (1979) recorded maximum lengths of 55cm, 48cm and 53cm for 'standard', 'forest region' and 'grass-field' specimens respectively and the largest example measured by Laurent (1956) was 49.4cm (7.8cm tail), female. One female specimen which I examined measured 37.5cm from snout to tip of tail; it had died giving birth to 7 fully developed but dead young which each weighed approximately 2g.

The head is broad and flat, noticeably distinct from the neck and covered with small keeled scales. The dorsal scales are also lightly keeled. The body is moderately robust and laterally compressed (Isemonger, 1962) and the tail is short and strongly prehensile.

Colour: Normally various shades of green, bluish green or light olive, scales often tipped/ speckled with yellow giving rise to a light chevron pattern (Pitman, 1974; Laurent, 1956), with dull, light greenish or yellowish venter and sometimes yellow throat and usually a whitish tip to the tail; occasionally yellow or reddish specimens (Love, 1988; Mehrtens, 1987). My specimen was green/blue with faint brown and whitish chevron markings and a green venter.

The subspecies, *A. squamiger robustus*, was first described by Laurent (1956) as a proportionally larger animal to the nominate race but with a smaller number of subcaudals. He examined specimens from Nioka and Blukwa in Zaire and points out that at first sight the two specimens from Nioka closely resembled *A. nitschei* in colour and pattern but were nearer in shape to *A. squamiger* and on closer examination of the scales found that the counts were more fitting to those of *A. squamiger* (see Table 1). He also notes a greater number of labials and only one row of scales between the eye and the upper labials where there are two in *A. squamiger*.

Atheris nitschei Tornier (1902): reaches an average length of 60cm, Laurent (1956) records a maximum length of 65.6cm (tail, 10.3cm) male, and 69.7cm (tail, 11.2cm), female. I have found the females to be generally larger and more robust than males. A wild caught gravid female in my care produced 13 live young and although these were not weighed at the time, they were slightly larger than the baby *A. squamiger* described above.

They have broad, flat heads of more angular shape than *squamiger*, conspicuously distinct from the neck and again show the typical keeled scales that are characteristic of the genus. The last four upper labials are also slightly keeled (Pitman, 1974). The body is quite slender and the tail is strongly prehensile.

Colour: greens, from quite dull yellowish green through to brighter shades with distinct broad black zig-zags and paler green to creamy venter. There is usually a distinct or blotchy inverted 'A' centrally positioned on top of the head. The anterior of the head scales are margined with varying amounts of black and also the keels are black. The babies are slate-grey when born (also described by Love, 1988) with ivory white tipped tails.

Bogert (1940) described the subspecies, *Atheris nitschei rungweensis* as a green snake with symmetrical yellow markings on a green background instead of the typical black markings, this being the main distinguishing feature, together with a slightly differing scale count from the nominate race (Pitman, 1974).

SCALATION

Scalation is covered in detail by Pitman (1974), Stucki-Stern (1979) and in particular Laurent (1956). It is interesting to note that Laurent gives results for numerous specimens of *A. nitschei* collected from many different localities over a wide area and on summarising his results it can be seen that there is great variation in the scale counts, perhaps indicating a wide clinal variation in this species. Pitman also mentions that his results have been derived from some 160 specimens. (See Table 1).

HABITAT AND DISTRIBUTION

Atheris frequent forests and swamps and usually occur at higher elevations. The discontinuity of these areas results in the discontinuous distribution of the Tree-Vipers. Where they do occur they are usually common, suggesting that they are very local but widespread in suitable habitats. It is probably due to this discontinuity and the probable existence of clinal varients (see Scalation), that their taxonomy is confusing (Foster Vesey-Fitzgerald, 1975).

A. squamiger has the widest distribution of this genus, occurring throughout the main area of African rain forest, Togo, Cameroon and the Republic of Zaire, Gabon and southerly to Angola, easterly to Uganda as far as western Kenya but is thought to be absent in Liberia. According to Pitman (1974) it is thought to be widely distributed throughout the Uganda primary forests – Mt. Elgon to Budongo Forest, Mabira Forest and lake shore forests – Victoria Nyanza, to Southwest Kigezi, and eastern slopes of the Ruwenzori Mountains which straddle the equatorial border between Uganda and Zaire. He adds that in this area the material was not examined and could refer to the subspecies *A. robustus* described by Laurent (1956) also from a limited region – Ituri Forest.

A. nitschei is restricted to elevated regions, western Uganda (common on the lower eastern slopes of the Ruwenzori Mountains) especially Mobuku Valley, abundant southwestern Kigezi, swamp regions Lakes Bunyonyi, Mutanda and Mureyhe, southwesterly from Ruwenzori,

PLATE 1. *A. nitschei* illustrating keeled-scales and distinctive "A" marking on top of head.

PLATE 2. *A. nitschei.* This specimen predominantly green in colour with fewer black markings.

Table 1. Scale Counts.

A. squamiger

	Sex	Ventrals	Sub-caudals	Mid-body Scalerows	Upper Labials	Lower Labials	Anal
PITMAN	N.D.	148-175	40-65	15-25	8-12	9-13	entire
STUCKI-STERN	N.D.	standard 153-173	45-65 single	15-25	9-12	N.D.	entire
	N.D.	forest reg 171	52 single	17	9	N.D.	entire
	N.D.	grassfield 168	58 single	21	9	N.D.	N.D.
LAURENT	♂ 3	152-154	58-60	18-19	9-10	11	N.D.
	♀ 2	152-157	49	19-21	10-11	10-12	N.D.
POOK	♀ 1	157	49 single	N.D.	10	12	entire

I also recorded the following additional measurements: head - 20 mm at widest point, length 30mm, depth 10mm (rear); diameter of eye 5mm; length of fang 5mm. N.D. = Not determined.

A. robustus

LAURENT	♀ 1	155	42	21	10-11	13	N.D.

A. nitschei

PITMAN		141-162	35-49	22-32	8-13	9-15	N.D.
LAURENT	♂ 42	143-160 ($\bar{x}$ 151)	41-59 ($\bar{x}$ 49)	23-38 ($\bar{x}$ 25)	9-13 ($\bar{x}$ 10)	9-15 ($\bar{x}$ 11)	N.D.
	♀ 42	141-159 ($\bar{x}$ 153)	38-49 ($\bar{x}$ 42)	25-31 ($\bar{x}$ 27)	8-13 ($\bar{x}$ 10)	11-15 ($\bar{x}$ 12)	N.D.
POOK	♂ 1	150	49	24	12	13	entire
	♂ 1	148	47	25	10	9	entire

A. nitschei rungweensis

LOVERIDGE	N.D.	156-164	49-58	27-31	10-12	N.D.	entire

Rwanda-Burundi and northwestern Tanzania. The Uganda habitat tends to be to a greater extent Papyrus, phragmites swamps, riverine elephant grass, to a lesser extent scrub, elevated valleys and montane forest up to bamboo zone (Pitman, 1974). Numerous localities are listed for both species by Pitman and Laurent. *A. nitschei rungweensis* is restricted to the Rungwe Mountains, Tanzania. Loveridge recorded the first findings in northwest Nyasaland on the fringes of the Matipa forest.

FEEDING

According to Pitman (1974), he himself, Loveridge and Ionides found a mammalian preference of small rodents. Stucki-Stern (1979) records tree frogs, lizards, small mammals but has no records that they take birds or bird eggs.

Pitman also records chameleons, lizards and pigmy mice for *A. nitschei.* Loveridge (1953) has witnessed *A. nitschei rungweensis* eating cricket frogs which form the main part of its diet and are abundant in its habitat.

I have always fed pre-killed weaned mice but this is not always favourable (see Love, 1988). Some animals tend to be reluctant to strike and I have often found that when offered food they stubbornly cling to the branch and flick their heads before taking off at speed in the opposite direction, negotiating adeptly the finest of branches – I have often held a food item to the animal's lips and teased it considerably without a single bite. Striking is more easily encouraged in a more confined situation. The eventual bite response is quick, direct and often out of aggression or in defense but at this stage they will often hold onto the food and proceed to swallow it providing that there are no distractions. After a few feeds, most specimens seem to familiarise with the smell of the food and will accept it quite readily. I have two animals which need to be teased for several minutes before they will feed; this may be stressful to them but results in regular feeding and healthy animals.

Wild caught adults are also reluctant to drink from a water bowl and need to be sprayed frequently. They are often stimulated by a short spray and will then roam the cage sipping droplets and start drinking from puddles or the water bowl if they come across it (also described by Love, 1988).

Of our 13 young, all had taken a mouse "pinky" within one week. They often wriggled the white tips of their tails in maggot-like motion when offered food or disturbed and often reacted quite defensively, winding their bodies backwards and threatening with their mouths wide agape before striking.

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