PRELIMINARY NOTE ON THE TAXONOMIC STATUS OF *PSAMMOPHIS LEUCOGASTER* SPAWLS, 1983 (*COLUBRIDAE*: *PSAMMOPHINI*).

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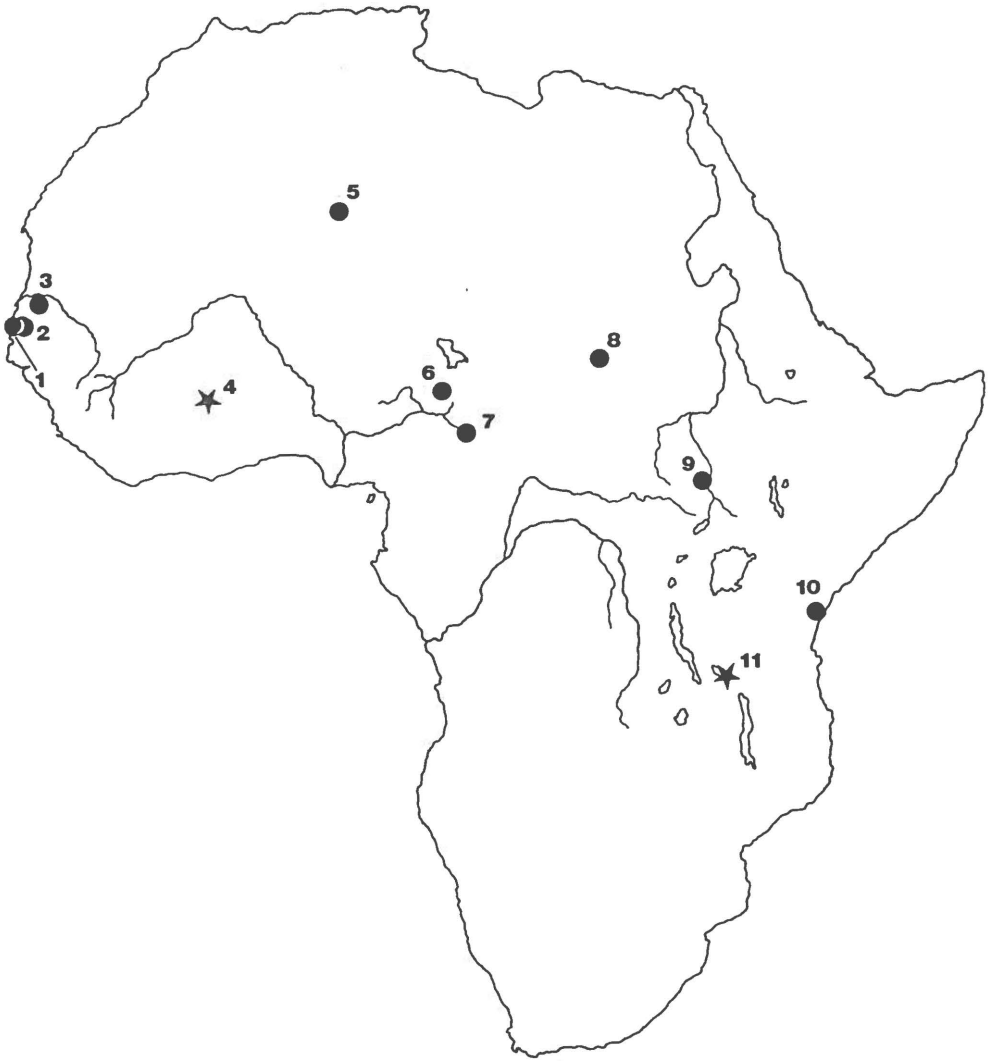
INTRODUCTION

The taxonomy of the colubrid snake genus *Psammophis* is certainly one of the more difficult problems of African herpetology. This is especially true for the *Psammophis sibilans*-complex, which is taxonomically far from being understood. So it seemed courageous that Spawls (1983) described a new species of this difficult group with only one specimen, which had been obtained in the dry savannah at Wa, northern Ghana; i.e. from the subsaharan savannah belt which lacks any natural barriers and thus is unlikely to favour endemics. Spawls (op. cit: 311) defined the new taxon by the combination of the following characters: 7 supralabials, 17 midbody scale rows, a single anterior temporal, an entire anal scale and an unmarked ventral surface.

When I read the description and saw the accompanying photograph I immediately recognized this snake as being identical with specimens I had collected both in Cameroon and Senegal (Böhme, 1975, 1978). Furthermore I received material of obviously the same species from the Sudan, Kenya and even Algeria (see map 1). When I first met this snake

in Cameroon (Mokolo, see map) I observed two fine, light brown hairlines on the outer margin of the ventral plates; and, as in one of the specimens the median ventral zone between these hairlines was darkened by a light-greyish colour, I (mis)-identified the snakes as *Psammophis subtaeniatus* (Böhme 1975: 39, 40), a South and East African species which had also been recorded from the Central African Republic by Perret (1961: 134, 136). When I collected the same snake form in Senegal two years later, I had to correct my former tentative identification, which I substituted by the likewise tentatively applied name *Psammophis rukwae* (Böhme 1978: 402). This form had been described by Broadley (1966: 3) as a subspecies of *Psammophis sibilans* from the Rukwa valley in Tanzania, it was, however, raised to a full species by Broadley in 1977 (:2). In this last named paper he also listed Senegal as belonging to the distribution area of *rukwae*; he also emphasized similarities between *rukwae* and *subtaeniatus* (Broadley 1966: 3) and it seems likely that he included specimens of the form discussed here. My identification of our specimens with *Psammophis rukwae* was followed by Joger (1981: 322; 1982: 332) concerning new Cameroon and Senegal specimens collected by himself.

Map 1. Distribution of *Psammophis rukwae* in Africa. 1. Malika plage near Dakar, Senegal; 2. Sangalcam, Senegal; 3. Fété-Olé, Senegal; 4. Wa, Ghana (type locality of *Psammophis leucogaster*); 5. Tamanrasset, Algeria; 6. Mokolo, Cameroon; 7. Tcholliré, Cameroon; 8. Jebel Marra, Sudan; 9. Juba, Sudan; 10. Mombasa, Kenya; 11. Rukwa Valley, Tanzania (type locality of *Psammophis rukwae*). Drawing by Ursula Bott (ZFMK).



Map 1.

Fig. 1. *Psammophis rukwae*. Mokolo, N.Cameroon. 1974. Foto: Wolfgang Böhme.

MATERIAL AND RESULTS

In addition to the mentioned material assigned to *Psammophis rukwae* by Böhme and Joger (op. cit.) the collection of the Museum Alexander Koenig (ZFMK), Bonn, received further specimens from Algeria, the Sudan, Kenya and Tanzania, the latter being a paratype of *Psammophis rukwae*, forming a total of 16 specimens. These are listed in the table and compared with the data supplied in the description of *Psammophis leucogaster* by Spawls (1983). The results show, that only one of Spawls' (op. cit: 311) diagnostic characters is unique, viz, the entire anal scale. The number of sublabials touching the anterior sublinguals proves to be rather variable, a slight tendency of an increase from West to East Africa is indicated; the Algerian specimen, however, does not fit this trend. The number of supralabials is normally

Table I. Comparison of diagnostic characters in *Psammophis leucogaster* and *Psammophis rukwae*.

Country	Catalogue number	Locality no. see map	Sublabials touching the anterior sublinguals	Middorsal scales	Supralabials	Anterior temporals	Anal scale divided	Hairlines present	Mental spot present
Senegal	ZFMK 20235	1	4/4	17	8/8	3/2	yes	yes	yes
	ZFMK 17566	2	4/3	--	8/9	2/2	--	no	yes
	ZFMK 17565	3	3/3	17	8/8	2/2	yes	no	yes
Ghana	BM 1980:261 (Holotype *P. leucogaster*)	4	3/2	17	7/7	1/1	no	no	?
Algeria	ZFMK 29365	5	5/5	--	9/9	2/2	yes	yes	yes
Cameroon	ZFMK 15381	6	4/4	17	8/8	2/2	--	(no)*	yes
	ZFMK 15382	6	4/4	17	8/9	2/1	yes	yes	yes
	ZFMK 15383	6	4/4	17	8/8	1/1	yes	yes	yes
	ZFMK 15384	6	4/4	17	8/7	2/2	yes	yes	yes
	ZFMK 29767	7	5/5	17	9/8	2/1	yes	yes	no
	ZFMK 29768	7	4/4	17	8/8	1/1	yes	yes	yes
Sudan	ZFMK 39888	8	4/4	17	8/8	1/1	yes	yes	yes
	ZFMK 39889	8	---	17	8/8	1/1	yes	yes	--
	ZFMK 39890	8	5/5	17	8/8	2/2	yes	(no)*	yes
Kenya	ZFMK 29569	9	4/4	17	7/7	1/1	yes	yes	yes!
	ZFMK 15814	10	5/4	17	8/9	2/2	yes	yes	yes
Tanzania	ZFMK 31803 (Paratype *P. rukwae*)	11	5/5	17	8/8	2/2	yes	yes	no

* Only the anterior third of the specimen preserved.

higher than 7/7 in the *leucogaster* type, however, one of the Sudan specimens shares the situation. The temporal constellation of the Ghana specimen is shared by even more specimens. Spawls (op. cit.) named his new taxon *leucogaster* because of the lack of any ventral marking. Indeed, most of our comparative specimens have hairlines, which are faint and light brown in the western and black though thin in the eastern specimens. There are, however, two Senegalese specimens lacking the hairlines, too, and in one of the Cameroon specimens this ventral marking is hardly to be found. Finally, a marked black longitudinal mental spot is present in all the ZFMK specimens; it is listed in the table as it seems a constant character for distinguishing *rukwae* from *sibilans* and *subtaeniatus*. As mentioned above, the ventral marking seems to vary geographically. In the eastern specimens, the hairlines are black, and the area between may be darkened. The Cameroon specimens show differences in this character within and between the two documented localities.

DISCUSSION

Although the number of the ZFMK specimens available is very small, it indicates clearly that *Psammophis leucogaster*, described after only one single specimen, is not a species characteristic

Fig. 2. Undersides of: A and B: *Psammophis rukwae (leucogaster)* from near Dakar, Senegal; C and D: *Psammophis rukwae* (possibly intergrades between *Psammophis rukwae leucogaster* and *Psammophis rukwae rukwae*) from Tchollirē, north Cameroon; E: *Psammophis rukwae* , paratopotype; F: *Psammophis subtaeniatus* from Jebel Marra, Sudan (sympatry record with *Psammophis rukwae*). Photo: Engelbert Schmitz (ZFMK).

F
E
D
C
B
A

to northern Ghana. Furthermore there is no chance for a sympatry record of *leucogaster* and *rukwae* in Ghana, as suggested by Spawls (op. cit: 312), as his diagnostic characters prove not only to be inconstant, but that both forms are conspecific.
Our specimens indicate further, that there seem to be some morphological differences between the West and the East African representatives of *Psammophis rukwae*. These differences concern scalation (sublabials touching the anterior sublinguals; possibly also the anterior temporals) and the ventral colour pattern (pure white and unmarked; pure white with faint light brown hairlines; brown hairlines with a darkened, greyish median zone; blackish hairlines). The paratype ZFMK 31803 particularly looks rather different from the Senegalese specimens, both being geographical extremes. Also where the Senegal specimens are quite similar to the *leucogaster*-type, the Cameroon sample, composed of two localities, looks rather heterogeneous and - as stated above - intermediate between the West and the East African. So it seems likely that within its huge distribution area *Psammophis rukwae* can be divided in two subspecies, the western of which would have to be named *Psammophis rukwae leucogaster*.

A geographically and faunistically remarkable record of *Psammophis rukwae* was ZFMK 29365 from near Tamanrasset, Hoggar Mountains, Algeria. This interesting find has some zoogeographical parallels (e.g. *Tarentola ephippiata*, a gekkonid lizard; the bufonid *Bufo xeros*; or *Echis leucogaster*), discussed in part by Böhme (1978, 1985). Its characters, however (see table), demonstrate, that the picture is more complicated than assumed until now. Generally it has to be expected that the fauna of the African subsaharan savannah belt is composed mostly of widely distributed variable

species, often taxonomically difficult species complexes rather than isolated endemics. This is especially true for the *Psammophis sibilans* complex. So the taxon described by Spawls (op. cit.) is also not comparable, either morphologically, or ecologically, with *Psammophis pulcher*, a very different East African endemic.
It is obvious that the *Psammophis sibilans* complex has to be revised in the northern half of Africa as Broadley (1966, 1977) did for the southern half. All available museum specimens and also new, modern methods (e.g. biochemical) are necessary for such a project. It is the objective of this short note to stimulate it.

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SUMMARY

Psammophis leucogaster Spawls, 1983 is not an endemic of northern Ghana, but part of the wide-ranging species *Psammophis rukwae*. This species is here recorded from the following countries: Senegal, Ghana, Cameroon, Algeria, Sudan, Kenya, Tanzania. Analysis of 16 available specimens shows differences between West and East African samples, so that the name *leucogaster* may be maintained as a wetern subspecies of *rukwae*.

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